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Class 9 — Social Science Study Notes · Textbook-Exercise Solutions · Extra Questions

Based on *Understanding Society: India and Beyond* — Social Science for Grade 9, Part 1 (NCERT, 2026) +
Part 2 themes as notified in the CBSE Curriculum
NEP 2020 / NCF-SE 2023 aligned · All 16 Themes · Subject Code 087

FACULTY: MISHRA SIR · CBSE SESSION 2026–27

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Attribution. Theme names, concept headings and learning outcomes are drawn from the CBSE Social Science Curriculum (Subject Code 087), Class IX, 2026–27, and from the NCERT textbook *Understanding Society: India and Beyond*, which remain the copyright of CBSE and NCERT respectively. The notes, questions, answers, maps and diagrams in this compilation are the original work of Math Love Institute. Not for resale or redistribution.

Please read — important. *Understanding Society: India and Beyond* is a brand-new textbook released for this session, and NCERT has not yet published a standard answer key for it. CBSE's own curriculum document carries the note "Course Structure will be provided shortly", so the unit-wise marks table for Class IX has not been notified yet. **Updated (v3):** For all of Part 1 (Themes 1–9) the **actual NCERT textbook questions** are now solved in **Part B1**. Topics printed in the NCERT book but missing earlier are added in **Part A+**. **Part B** remains MLI practice questions built on the CBSE Learning Outcomes — they are **not** the printed exercise. All diagrams are MLI-drawn schematics. Where a map must be exactly accurate (world plate map, monsoon wind maps), the book says so and asks you to see the NCERT map instead of printing an inaccurate one. This compilation was prepared with AI assistance and reviewed by MLI faculty. Please report any error to your faculty so it can be corrected.

⚠ About Themes 10–16 (Part 2)

NCERT has published **Part 1 (Themes 1–9)** only; **Part 2 (Themes 10–16) has not yet been printed**. Themes 10–16 in this compilation have therefore been written from the **official CBSE Social Science Curriculum (Code 087), Class IX, 2026–27** — theme names, topic lists, learning outcomes and instructional hours — and **not** from a printed textbook.

NCERT sometimes revises exact chapter titles and section order between the syllabus document and the printed book. When your school issues Part 2, **cross-check the printed chapter names and section headings against Themes 10–16 here** and tell your faculty about any difference, so the MLI volume can be corrected. Themes 1–9 are written directly from the printed Part 1 and need no such check.

How to use this book. Every chapter has these parts — **Part A: Study Notes** (concept-wise, point-wise, with tables, flow-charts and labelled diagrams), **Part A+: NCERT Textbook Topics** (topics from the printed book, in simple points — Themes 1–9), **Part B1: NCERT Exercise Solved** (actual textbook questions — Themes 1–9), **Part B: Practice Questions** on each CBSE learning outcome, **Part C: Extra Questions** for home-examination practice, and a **Quick Revision** box at the end of every chapter. **Answer length is matched to the marks shown on each question** — 1 mark = one line, 2 marks = two points, 3 marks = three points, 4 marks = four points or a labelled diagram, 5 marks = definition + five points. Answers are written point-wise so they can be revised and memorised quickly. Wherever a question asks for a diagram, flow-chart or graph, one has been drawn and labelled.

CBSE Class 9 Social Science (Code 087), Session 2026–27 — what actually changed. The four separate books (*India and the Contemporary World-I*, *Contemporary India-I*, *Democratic Politics-I*, *Economics*) have been withdrawn. In their place there is **one integrated course in two parts** — *Understanding Society: India and Beyond* Part 1 (9 themes) and Part 2 (7 themes), **16 themes in all**. Assessment is **school-based**: 80 marks written + 20 marks Internal Assessment = 100. History, Geography, Political Science and Economics each carry roughly a quarter of the written paper. Instructional hours notified by CBSE are printed on each chapter head.

Internal Assessment (20 marks), as notified: Periodic Assessment (pen-paper test) 5 • Multiple Assessment (quiz, debate, role play, viva, group discussion, concept maps, field-visit report, site-map making) 5 • Subject Enrichment — interdisciplinary project work 5 • Portfolio (classwork, reflections, journals, Heritage India Quiz and similar participation) 5.

New to this syllabus — watch out for these: plate tectonics and the three plate boundaries; the five-layer atmosphere; carbon footprint; Palaeolithic–Mesolithic–Neolithic periodisation with Harappan, Mesopotamian, Egyptian and Chinese civilisations together; the Delimitation Commission and the Anti-Defection Law; demand–supply graphing, equilibrium, price ceilings and market failure; ocean currents, tides and maritime law; biomes and biosphere reserves; Kautilya’s and Shukraniti’s idea of *danda* and *nyaya*; the start-up ecosystem and basic accounting; and personal finance — inflation, simple vs compound interest, budgeting, insurance and income tax.

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16 Smart Ways to Manage Your Finances

Economics · 6 hrs

CHAPTER 1

Understanding Social Science

4 instructional hours · Introductory theme · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What this theme is for

This is the **orientation chapter** of *Understanding Society: India and Beyond*. It carries very few direct marks, but it sets up the single biggest change in the new syllabus: History, Geography, Political Science and Economics are no longer four separate books to be learnt separately — they are **four lenses trained on one subject, human society**. Almost every case-based and source-based question in the paper is built on this idea.

Exam tip. Questions from this theme are usually 1-mark definitions, 2-mark ‘which discipline would study this?’ questions, or the last part of a 4-mark case study that asks you to connect two disciplines. Learn the four scopes cold and practise linking them.



1.1 What Social Science is

- **Social Science is the systematic study of human society** — how people live together, how they have changed over time, how they use their environment, how they govern themselves and how they produce and share wealth.
- It is called a **science** because it uses a method: ask a question → gather evidence → check the evidence against other sources → build an explanation → remain open to revising it.
- It differs from the natural sciences in one important way: its subject (people) can **think, choose and change**, so laws in Social Science are tendencies, not certainties.
- Its evidence is of many kinds — inscriptions, coins, maps, satellite images, census tables, court judgments, interviews, household budgets, oral traditions and folk memory.

Key distinction. A **fact** is what can be verified (“India held its first general election in 1951–52”). An **opinion** is a judgment (“that election was the boldest experiment of the century”). An **inference** is a conclusion drawn from evidence. Questions often ask you to sort a passage into these three.

1.2 The four disciplines and their scope

Discipline	The core question it asks	Its main tools and evidence	A Class 9 example
History	What changed over time, and why?	Inscriptions, coins, texts, archaeological layers, radiocarbon dating	Why did farming begin, and how did it produce the first cities?
Geography	Where is it, and why there?	Maps, globes, satellite imagery (Bhuvan), field observation, climate data	Why does the Indian monsoon reverse twice a year?
Political Science	Who decides, and by what right?	Constitution, laws, judgments, election data, institutional records	What makes an election free and fair?
Economics	How are limited resources used and shared?	Prices, budgets, surveys, national accounts, demand–supply data	Why does the price of tomatoes shoot up in the monsoon?

Interconnection — the point of the whole book. Take one event, the 2013 Kedarnath floods. **Geography** explains the cloudburst and the Glacial Lake Outburst Flood. **History** explains why a pilgrimage town stood in that valley at all. **Political Science** asks who was responsible for warning, rescue and rehabilitation. **Economics** asks who lost livelihoods and how the rebuilding was paid for. No single lens gives the full picture.

NN 1.3 Social Science from an Indian perspective

- **Indian Knowledge Systems (IKS)** are treated in this syllabus as a source of Social Science, not a decoration. India has a long tradition of systematic social thought — Kautilya's *Arthashastra* on statecraft and economy, the *Shukraniti* on the duties of rulers, and the *Uthiramerur* inscriptions recording village elections.
- **Rootedness with a global outlook:** study India's own experience deeply, then compare it with the world — Indian democracy beside the American and French systems, Harappa beside Mesopotamia and Egypt.
- **Unity in diversity** is presented as a historical fact to be explained, not a slogan: India absorbed many peoples, languages and faiths without forcing uniformity on them.
- **Continuity and change** is the master idea of the History sections — guilds, village councils and trade networks show remarkable continuity across two thousand years.

Guiding values named in the CBSE curriculum: diversity, inclusivity, sustainability and equity. A 5-mark value-based question will expect you to name these and apply them to a situation.

1.4 How to work like a social scientist

Step	What you do	What it guards against
1. Frame a question	Turn a vague curiosity into a precise, answerable question	Wasting effort on the unanswerable
2. Source evidence	Find primary sources (made at the time) and secondary sources (written later)	Relying on hearsay
3. Cross-check	Compare at least two independent sources	Accepting one biased account
4. Interpret	Ask who made this source, for whom, and why	Mistaking propaganda for record
5. Explain	Build an argument that fits all the evidence, not just the convenient part	Cherry-picking
6. Revise	Change the conclusion if new evidence appears	Dogmatism

Bias, stereotype and assumption — the three faults the curriculum names explicitly. A **bias** is a leaning that distorts judgment; a **stereotype** is a fixed image applied to a whole group; an **assumption** is something taken as true without checking. Scientific temper means questioning all three, including your own.

Why this section? These topics are in your printed NCERT textbook but were missing above. Read them here — no need to open another book.

India's ancient knowledge traditions

- **Panchamahābhūtas** — the five great elements: **earth** (prithvi), **water** (jal), **fire** (agni), **air** (vayu) and **space** (akasha). An early attempt to see nature as one connected system.
- **Vasudhaiva Kuṭumbakam** — 'the world is one family'. It shows that societies everywhere are connected.
- **Arthaśhāstra** — by **Kauṭilya**, about 2,300 years ago. It discusses administration, taxation, economy and the duties of a ruler (Political Science + Economics together).
- **Itihāsa-Purāṇa tradition** — one of the oldest ways of keeping the memory of the past alive in Bharat, through stories that carry historical information and values.

How historians know the past — 4 types of sources

Source	What it is	Example
Literary	Written or oral texts: books, travelogues, letters, folklore, genealogies	Itihāsa-Purāṇa, travel accounts
Archaeological	Material remains dug up or standing	Monuments, pottery, tools, sculptures
Epigraphic	Inscriptions on stone, pillars, walls	Ashokan edicts, Krishnadeva Raya's inscription at Hampi
Numismatic	Coins	Samudragupta's coins, Jahangir's coins

- Modern history also uses science: **carbon-14 dating** and **human genetics** give accurate timelines. This is called **empirical evidence** (evidence from observation/testing).
- Geography's tools: maps, globes, atlases, **GIS** (Geographical Information System) and infographics.
- Other members of the Social Science family: **Sociology, Anthropology, Psychology, Philosophy**.
- Example of Political Science in daily life: the **Panchayati Raj** system — grassroots democracy in villages.

Memory trick for sources: "L-A-E-N" — **L**ibrary (literary), **A**rtefacts (archaeological), **E**ngraved (epigraphic), **N**otes/coins (numismatic).

PART B1 — NCERT TEXTBOOK QUESTIONS — SOLVED

Chapter 1 has **no separate end-of-chapter exercise**; these are its **in-text activities** plus the key questions it raises of your NCERT textbook, answered point-wise. Activity/project questions have a short 'how to do it' guide.

NCERT Q1

Textbook

Let's Analyse: Identify a change in your locality over the past five years (transport, housing, education, technology or environment). (a) What was the situation earlier? (b) What changed? (c) What caused it? (d) How has it affected people?

ACTIVITY — HOW TO DO IT

Write a short report in four headings. *Model (Indore)*: (a) earlier few city buses and narrow roads; (b) now AICTSL city buses, BRTS corridor and wider roads; (c) growing population, city planning (Smart City); (d) faster, cheaper travel, but more traffic in some areas. Link each point to a discipline: Geography (place), Economics (cost), Political Science (government decision), History (change over time).

NCERT Q2

Textbook

Let's Explore: Map your own village/city using NCERT's School Bhuvan portal.

ACTIVITY — HOW TO DO IT

Open the School Bhuvan portal (link printed in your textbook), search your city, and switch on layers for roads, water bodies and land use. Note 5 features (school, hospital, river, park, market) and draw a rough sketch map with a key.

NCERT Q3

Textbook

Explain how different sources help historians reconstruct the past.

- **Literary** sources (travelogues, memoirs, folklore, genealogies, Itihasa-Purana) tell us people's ideas and events.
- **Archaeological** sources (monuments, artefacts, excavated sites) give material proof.
- **Epigraphic** (inscriptions) and **numismatic** (coins) sources give dates, names of rulers and trade.
- Science (**carbon-14 dating, genetics**) checks the dates. Using many sources together gives a reliable picture.

NCERT Q4

Textbook

Explain the importance of the Panchamahabhutas.

- Five elements: earth (prithvi), water (apah), fire (agni), air (vayu), space (akasha).
- They show that humans and nature are **interconnected**.
- They help explain how environment shapes settlements, food, houses and health.
- Today the idea encourages **living in harmony with nature**.

NCERT Q5

Textbook

Explain the holistic approach of Indian political thought.

- Politics was linked with **dharma** (morality), **artha** (economic well-being) and **rajadharma** (duties of the ruler).
- Power was seen as a **responsibility** for justice and welfare, not a privilege.
- This idea continues today in grassroots democracy such as **Panchayati Raj**.

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)**Q1**

3 Marks

Explain the relevance of studying Social Science for understanding society, environment, economy and governance in our lives.

SOLUTION — THREE POINTS

- **It explains the world we actually live in.** Prices, elections, floods and festivals are not random events; Social Science gives the tools to see the causes behind them.
- **It builds decision-making ability.** A citizen who understands a budget, a ballot and a monsoon forecast makes better choices for the family and the community.
- **It creates responsible citizens.** By studying rights, duties, diversity and inequality, students learn to participate in democracy and to act with empathy and a sense of justice.

Q2

4 Marks

Explain the meaning and scope of Geography, History, Political Science and Economics, and show that they are interconnected.

MEANING AND SCOPE

- **History** — the study of the human past: how societies changed, and why.
- **Geography** — the study of the Earth's surface and the relationship between people and their physical environment.
- **Political Science** — the study of power, government, rights and the institutions that make and enforce rules.
- **Economics** — the study of how a society uses limited resources to produce, distribute and consume goods and services.

INTERCONNECTION — ONE WORKED EXAMPLE

- Take the Harappan civilisation: **Geography** explains why it grew on the Indus flood plain; **Economics** explains its trade in beads and cotton; **History** traces its rise and decline; and its standard weights and planned drains raise the **Political Science** question of who had the authority to enforce such uniformity.

Q3

3 Marks

"Diversity, inclusivity, sustainability and equity should guide the study of society." Explain any three of these values with an example each.

SOLUTION

- **Diversity** — recognising that people differ in language, faith, region and custom, and treating that as a strength. Example: India's 22 scheduled languages.
- **Inclusivity** — ensuring no group is left out of opportunity or decision-making. Example: reservation of seats for women in panchayats.
- **Sustainability** — using resources so that future generations are not left worse off. Example: limiting groundwater extraction in a water-stressed district.
- **Equity** — giving each person what they need to reach a fair outcome, which is not always the same thing. Example: free mid-day meals for children who would otherwise go hungry at school.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

Name the four disciplines that make up Social Science at the secondary stage.

History, Geography, Political Science and Economics.

E2**1 Mark**

What is a primary source? Give one example.

A source produced at the time of the event itself — for example, an Ashokan inscription or a census table.

E3**2 Marks**

Distinguish between a fact and an opinion, with one example of each.

ANSWER

- A **fact** can be checked against evidence and does not change with the speaker — 'The Election Commission of India was established in 1950.'
- An **opinion** is a personal judgment that others may reasonably disagree with — 'Voting should be made compulsory in India.'

E4**2 Marks**

Why can Social Science not produce laws as exact as the laws of physics?

ANSWER

- Its subject matter is **human beings, who think, choose and change their behaviour**, so the same cause need not produce the same effect twice.
- Social situations involve **very many variables at once** and cannot be isolated in a laboratory, so conclusions are stated as tendencies and probabilities.

E5**3 Marks**

A newspaper reports: 'Farmers in a district burnt their onion crop because the price fell to ₹2 a kilo.' Show how three different disciplines would study this single event.

ANSWER

- **Economics** — a bumper harvest raised supply; with demand unchanged, the equilibrium price crashed below the cost of production.
- **Geography** — a favourable monsoon and soil conditions in that region explain why the crop was so large there.
- **Political Science** — it raises the question of government responsibility: minimum support prices, procurement, storage policy and who the farmers can hold accountable.

E6**3 Marks**

What is meant by a stereotype? Why is it a problem in the study of society?

ANSWER

- A **stereotype** is a fixed, over-simplified image applied to every member of a group regardless of the individual.
- It replaces evidence with assumption, so the researcher stops looking at what people actually do.
- It causes real harm — it feeds discrimination in schools, workplaces and public life, and it hides the internal diversity that every group actually has.

E7**5 Marks**

Describe the steps a student should follow while investigating a social question. Why is cross-checking essential?

THE SIX STEPS

- **Frame a precise question** that can actually be answered with evidence.
- **Collect sources** — primary sources made at the time, and secondary sources written later.
- **Cross-check** each claim against at least one independent source.
- **Interpret** each source by asking who made it, for whom, and with what purpose.
- **Explain** by building an argument that accounts for all the evidence, including evidence that does not fit.
- **Revise** the conclusion honestly if new evidence turns up.

WHY CROSS-CHECKING MATTERS

- Every source carries the viewpoint of whoever made it. A royal inscription records the king's victories, not his defeats. Only by placing one source beside another can a student separate what happened from what someone wished to be remembered.

⚡ Quick Revision — last-minute points

1. Social Science = systematic study of human society.
2. 4 disciplines: History (when/why), Geography (where), Political Science (who decides), Economics (how resources are used).
3. Sources: literary, archaeological, epigraphic, numismatic.
4. Indian ideas: Panchamahābhūtas, Vasudhaiva Kuṭumbakam, Arthaśhāstra.
5. Fact = can be checked; opinion = personal judgment.

Memory trick: H-G-P-E: **H**ow **G**oes **P**eople's **E**conomy

CHAPTER 2

Shaping of the Earth's Surface

8 instructional hours · Geography · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes for this theme: describe plate tectonics and its relevance; **locate major tectonic plates on a world map**; explain weathering and erosion with examples; identify the agents of gradation working in a given region; describe major landforms and how they form; explain the causes of natural disasters and suggest mitigation.

This theme replaces the old *Physical Features of India* and *Drainage* chapters with something harder: the **process** behind the landforms. Expect diagram-based and case-based questions rather than simple recall.



2.1 Interior of the Earth

Interior of the Earth (cross-section)

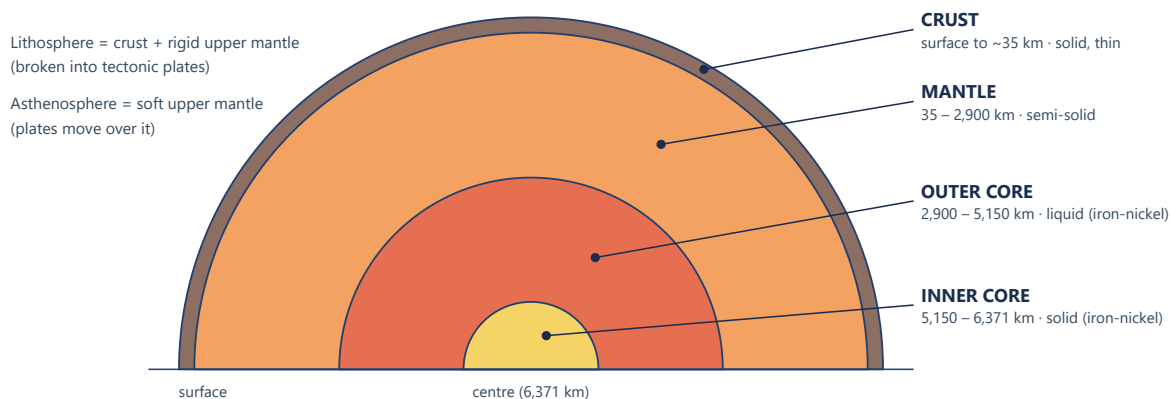


Fig. 2.A — Interior of the Earth. Layer radii are drawn to scale; only the crust is thickened so that it can be seen.

Note: MLI-drawn schematic for study. Labels and depths follow standard NCERT values; shapes are simplified.

Layer	Depth (approx.)	State	Made mainly of	Why it matters
Crust	5–30 km	Solid, brittle	Oceanic: basalt (SIMA); Continental: granite (SIAL)	We live on it; it is broken into plates
Mantle	30–2900 km	Semi-solid, plastic	Silicates of iron and magnesium	Convection currents here drive plate movement
Outer core	2900–5150 km	Liquid	Iron and nickel	Its movement generates the magnetic field
Inner core	5150 km to centre	Solid	Iron and nickel	Solid despite ~5500°C because pressure is enormous

The most commonly confused pair: the **crust** is a chemical layer; the **lithosphere** is a mechanical one (crust + the rigid uppermost mantle). It is the **lithosphere**, not the crust, that is broken into plates.

2.2 The theory of plate tectonics

- The lithosphere is broken into about **seven major and several minor plates** that float on the soft asthenosphere.
- **Major plates:** Pacific, North American, South American, Eurasian, African, Indo-Australian, Antarctic. **Minor plates** include the Arabian, Nazca, Philippine, Cocos, Caribbean and Scotia plates.
- **The driving force** is convection in the mantle: hot material rises, spreads sideways under the plates, cools and sinks, dragging the plates a few centimetres a year — about as fast as your fingernails grow.
- **Evidence for the theory:** the jigsaw fit of South America and Africa; matching fossils (*Mesosaurus*, *Glossopteris*) on continents now separated by oceans; matching rock ages and mountain chains; sea-floor spreading and magnetic striping at the mid-ocean ridges; and the fact that earthquakes and volcanoes cluster along plate margins.
- **Wegener's Continental Drift (1912)** proposed the single supercontinent **Pangaea** surrounded by the ocean **Panthalassa**, which broke into **Laurasia** and **Gondwanaland**. He could not explain the force; plate tectonics later supplied it.

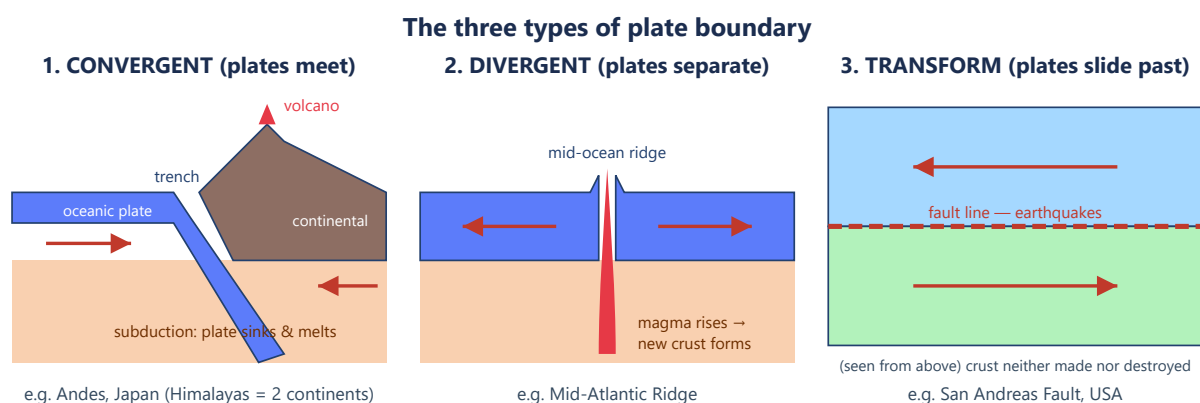


Fig. 2.B — Convergent, divergent and transform plate boundaries.

Note: Schematic cross-sections (panel 3 is a top view). For the world map of plates, see the map in your NCERT textbook (Fig. 2.3).

Map to see in your NCERT textbook

The world map of major tectonic plates (Fig. 2.3) and the earthquake–volcano map (Fig. 2.4).

A world map must be exactly right, so it is not redrawn here. Learn the seven major plates from the list above and see their shapes in your NCERT textbook.

India's own case. The Indian plate broke away from Gondwanaland and moved north, closing the Tethys Sea and colliding with the Eurasian plate about 50 million years ago. The sediments of the Tethys were folded up into the **Himalaya**, which is still rising by roughly 5 mm a year — which is exactly why the whole Himalayan belt is seismically active.

2.3 Weathering and erosion — the agents of gradation

	Weathering	Erosion
Meaning	Breaking down of rock in its own place	Wearing away and carrying off of the broken material
Movement	No transport involved	Transport is essential to it
Agents	Temperature change, frost, water, air, plants, animals	Running water, wind, glaciers, waves, groundwater
Example	A rock splitting because tree roots grow in a crack	A river carrying the fragments downstream to the sea

- **Physical (mechanical) weathering** — rock breaks without changing chemically: exfoliation in hot deserts (day–night temperature swings), frost action in cold mountains (water freezes in cracks and expands by 9%).
- **Chemical weathering** — the minerals themselves change: oxidation (rusting of iron-rich rock), carbonation (rainwater with dissolved CO₂ dissolving limestone, which creates caves and stalactites).
- **Biological weathering** — roots prise rock apart; lichens and burrowing animals break the surface.
- **Gradation** is the combined effect: **degradation** wears the high places down, **aggradation** fills the low places up, and the surface tends towards a level.

Order to remember: weathering breaks → erosion carries → transport moves → deposition drops. Every landform in this chapter is the product of one of these four acting on one type of rock.

2.4 Landforms made by each agent

Landforms made by a river along its three courses

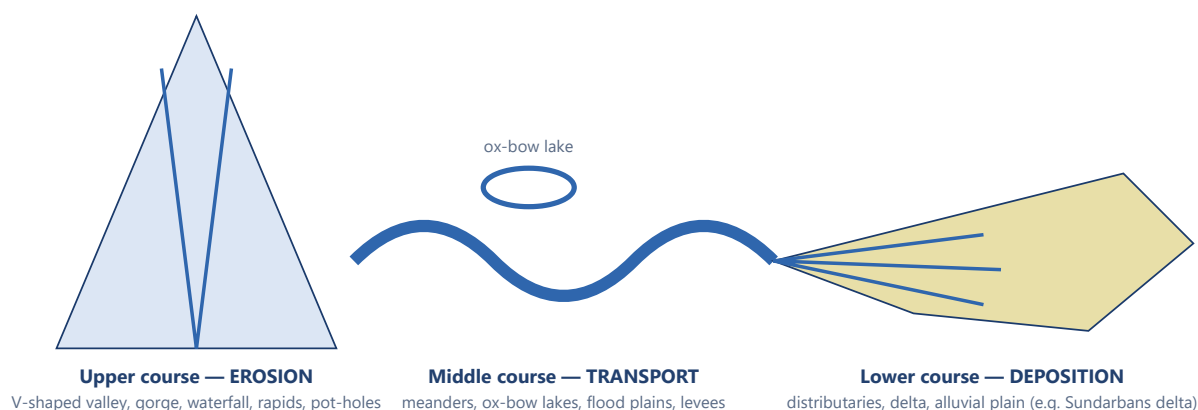


Fig. 2.1 — The three courses of a river and the landforms of each.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.

Agent	Erosional landforms	Depositional landforms	Indian example
River	V-shaped valley, gorge, waterfall, rapids, pot-holes, meander cliff	Flood plain, natural levee, ox-bow lake, alluvial fan, delta	Bhagirathi gorge; Sundarbans delta
Glacier	U-shaped valley, cirque, arête, horn, hanging valley	Moraine, esker, drumlin, outwash plain	Gangotri glacier valleys
Wind	Mushroom rock, yardang, deflation hollow, inselberg	Sand dune (barchan, seif), loess plain	Barchans of the Thar Desert
Waves	Sea cliff, sea cave, sea arch, stack, wave-cut platform	Beach, sand bar, spit, lagoon	Chilika lagoon, Odisha
Groundwater	Sinkhole, swallow hole, limestone cave, karst topography	Stalactite, stalagmite, pillar	Borra Caves, Andhra Pradesh

Karst topography forms only where the rock is **limestone**, because limestone dissolves in weak carbonic acid. A stalactite hangs from the roof (remember: tight to the roof), a stalagmite grows from the ground up, and when the two meet they form a pillar.

2.5 Landforms and disasters

Disaster	Cause	Where in India	Mitigation
Earthquake	Sudden release of stress along a fault at a plate margin; measured on the Richter scale (magnitude) and the Mercalli scale (intensity)	Himalayan belt, Kutch, Andaman — Zones IV and V	Earthquake-resistant building codes, retrofitting, mock drills, seismic zonation maps
Landslide	Steep slope + heavy rain + loss of vegetation + unplanned cutting of hill roads	Himachal, Uttarakhand, the Nilgiris, the Western Ghats	Terracing, retaining walls, afforestation, proper slope drainage, no construction on unstable slopes
Avalanche	Sudden slide of a mass of snow down a steep slope	High Himalaya — Jammu & Kashmir, Ladakh, Himachal	Snow fences and sheds, avalanche forecasting, controlled release, avoiding known chutes
GLOF	A glacial lake dammed by loose moraine bursts when the glacier retreats or a rockfall enters the lake	Sikkim, Uttarakhand, Himachal (Chamoli 2021; South Lhonak Lake, Sikkim 2023)	Satellite monitoring of glacial lakes, siphoning to lower lake level, early-warning sirens downstream
Dust storm	Strong hot winds lifting loose dry soil from unprotected land	Rajasthan, Haryana, western Uttar Pradesh in May–June	Shelter belts and windbreaks, keeping soil covered, air-quality warnings

The exam's favourite distinction: a **hazard** is the natural event; a **disaster** is what happens when a hazard strikes a vulnerable population. An earthquake in an uninhabited desert is a hazard, not a disaster. That is why mitigation focuses on reducing **vulnerability**, not on stopping the event.

PART A+ — NCERT TEXTBOOK TOPICS (SIMPLE NOTES)

Why this section? These topics are in your printed NCERT textbook but were missing above. Read them here — no need to open another book.

■ Endogenic and exogenic forces

	Endogenic (internal) forces	Exogenic (external) forces
Where they act	From inside the Earth	On the surface
Energy source	Heat from radioactive decay in the interior + gravity	The Sun's heat and gravity (moving water, wind, ice)

What they do	Build landforms: folding, faulting, volcanoes, earthquakes	Wear land down: weathering, erosion, deposition
Example	Himalayas, Deccan Traps	Delta, sand dune, U-shaped valley

Ring of Fire and earthquake facts

- The theory of plate tectonics was put forward in the late 1960s (NCERT names **W.J. Morgan**).
- **Ring of Fire**: the horseshoe-shaped belt around the Pacific Ocean. About **75% of the world's volcanoes** and **90% of its earthquakes** occur here. Countries: Japan, Philippines, Indonesia, New Zealand, Chile, Peru, Mexico, USA (California, Alaska).
- Earthquakes **cannot be predicted** exactly (time, place, magnitude). We can only mark risky zones.
- India's risk zones: Himalayan belt, North-East, Andaman & Nicobar, Kutch (Bhuj earthquake 2001).
- Safety rule during an earthquake: **Drop, Cover and Hold On**. Go to an open area only after shaking stops; never use lifts.

Physiographic divisions and the forces that made them

Division	How it was formed
Himalayas	Convergence: Indian plate collided with Eurasian plate → folding (fold mountains)
Northern Plains	A deep depression formed south of the rising Himalayas; rivers filled it with sediment (deposition)
Peninsular Plateau	Oldest block (part of Gondwanaland); lava flows made the Deccan Traps; faulting made rift valleys (Narmada, Tapi)
Coastal Plains	Deposition by rivers and sea waves along the edges of the plateau
Islands	Andaman & Nicobar: tectonic/volcanic (Barren Island volcano). Lakshadweep: coral islands

Recent landform disasters in India

Disaster	Year	Place
Landslides	July 2024	Wayanad, Kerala (heavy rain; hundreds of lives lost)
Land subsidence (sinking)	2023	Joshimath, Uttarakhand (unplanned construction)
GLOF	Feb 2021	Chamoli, Uttarakhand
GLOF	Oct 2023	South Lhonak Lake, Sikkim (Teesta valley)
Earthquake	2001	Bhuj, Gujarat

PART B1 — NCERT TEXTBOOK EXERCISE ('QUESTIONS AND ACTIVITIES') — SOLVED

These are the **actual end-of-chapter questions** of your NCERT textbook, answered point-wise. Activity/project questions have a short 'how to do it' guide.

NCERT Q1

Textbook

What are the sources of energy that cause movements associated with the internal forces of the Earth?

- **Heat from the interior** — produced mainly by the **decay of radioactive elements** (uranium, thorium, potassium). It sets up **convection currents** in the mantle that move the plates.
- **Gravity** — heavier material sinks and lighter material rises, which also drives circulation in the mantle.
- Together they cause folding, faulting, earthquakes and volcanoes.

NCERT Q2

Textbook

Relate the physiographic divisions you studied earlier with the endogenic forces responsible for their origin.

Division	Endogenic force
Himalayas	Convergence of Indian and Eurasian plates → folding
Northern Plains	Depression (trough) formed during Himalayan uplift, later filled by river deposits
Peninsular Plateau	Old stable block; faulting (Narmada–Tapi rift valleys); volcanic lava flows (Deccan Traps)
Islands	Andaman & Nicobar — tectonic and volcanic activity at plate margin

NCERT Q3

Textbook

Why and where do earthquakes occur frequently? Is it possible to predict earthquakes?

- **Why:** plates keep moving; stress builds up along plate boundaries and faults; when rocks suddenly break and slip, energy is released as seismic waves.
- **Where:** along plate boundaries — the **Ring of Fire** (Pacific), the Alpine–Himalayan belt; in India: Himalayas, North-East, Andaman & Nicobar, Kutch.
- **Prediction:** not possible exactly. Scientists can only identify earthquake-prone zones from past data.

"Plate movements are responsible for the distribution of earthquakes and volcanoes." Explain.

- **Convergent** boundaries: one plate sinks (subduction), melts and forms magma → volcanoes and strong earthquakes (Japan, Andes).
- **Divergent** boundaries: plates move apart, magma rises → volcanoes and mild earthquakes (Mid-Atlantic Ridge).
- **Transform** boundaries: plates slide past → frequent earthquakes (San Andreas Fault).
- Hence earthquakes and volcanoes form **narrow belts along plate edges**, e.g. the Ring of Fire (about 75% of volcanoes, 90% of earthquakes).

Draw a labelled diagram of a meander and a delta.

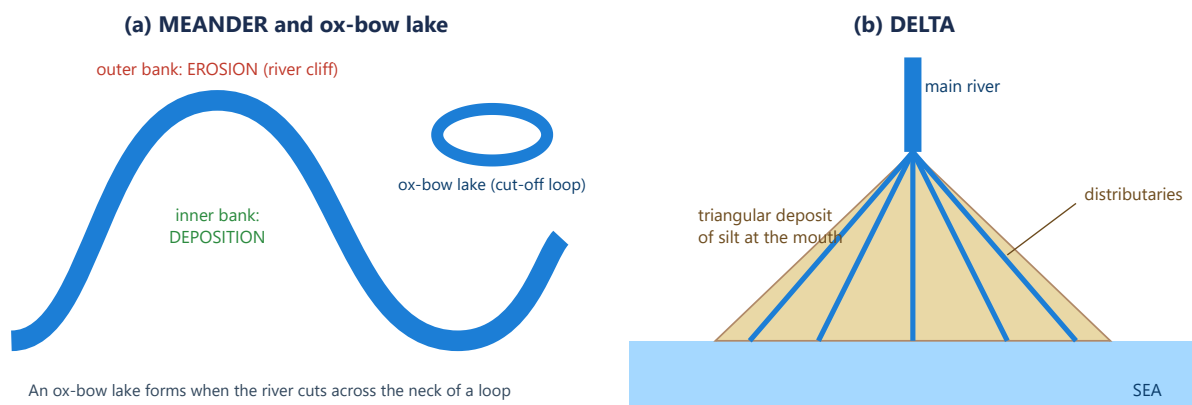


Fig. 2.C — Labelled diagrams of (a) a meander with an ox-bow lake and (b) a delta.

Note: MLI-drawn schematic for study. Labels and depths follow standard NCERT values; shapes are simplified.

How are deforestation and erosion associated with each other? Explain.

- Tree roots **bind the soil**; leaves reduce the force of falling rain.
- When forests are cut, soil is loose and bare → rain washes away topsoil (sheet and rill erosion).
- On slopes, deforestation causes **landslides**; in dry areas, **wind erosion** and desertification increase.
- Result: loss of fertile soil, lower crop yield, silting of rivers.

NCERT Q7**Textbook**

Develop a plan to protect the land in your local area from erosion.

- **Afforestation** on bare land, slopes and riverbanks.
- **Terrace farming** and **contour bunding** on slopes.
- **Check dams** on small streams to slow water.
- **Shelter belts** (rows of trees) against wind.
- Control **overgrazing**; keep soil covered; proper drainage; awareness among farmers.

NCERT Q8**Textbook**

Which disaster do you think you might experience in your region? Discuss a mitigation plan.

- **Example (Indore/Raipur):** urban flooding in heavy monsoon rain and heatwaves are the likely disasters (earthquake risk is low — Zone II/III).
- **Before:** clean drains, avoid building in low-lying areas, keep an emergency kit, follow IMD alerts.
- **During:** move to higher ground, avoid flooded roads and electric poles; in a heatwave drink water, avoid noon sun.
- **After:** drink boiled water, help the injured, report damage to local authorities.
- *If you live in the Himalaya or a coastal area, write for earthquake/landslide/cyclone instead.*

NCERT Q9**Textbook**

Prepare a model of landforms created by underground water.

ACTIVITY — HOW TO DO IT

Use clay on a cardboard base. Make a hollow **limestone cave**; hang cone-shaped **stalactites** from the roof, place **stalagmites** on the floor below them, join one pair to show a **pillar**. Make a funnel-shaped **sinkhole** on the top surface and a blue **underground stream**. Label every part.

NCERT Q10**Textbook**

What precautionary measures will you take if you stay in an earthquake-prone region?

- Live in **earthquake-resistant buildings**; fix heavy furniture to walls.
- Keep an **emergency kit** (water, food, torch, first-aid, documents).
- Practise '**Drop, Cover and Hold On**' through mock drills.
- During shaking stay away from windows and lifts; go to an open area only after shaking stops.

NCERT Q11**Textbook**

Prepare a map showing landform-associated disasters that happened in the current calendar year.

ACTIVITY — HOW TO DO IT

Take a blank world/India outline map. From newspapers, mark each disaster of this year with a symbol (e.g. ▲ earthquake, ● landslide, ■ flood/GLOF) and write the place and month. Add a key. Notice that most lie along plate boundaries, mountains or flood plains.

NCERT Q12**Textbook**

Create a poster of landforms considered sacred or important in your region, with folk stories.

ACTIVITY — HOW TO DO IT

Choose 3–4 landforms (e.g. the Narmada river and Omkareshwar near Indore; the Himalayas; Govardhan hill). For each: a drawing, the landform type, and a 2-line folk story. Title: 'Landforms and our culture'.

NCERT Q13**Textbook**

Document a disaster that hit your region in the past, highlighting its effects on human activities.

ACTIVITY — HOW TO DO IT

Write: What happened • When • Where • Causes • Effects on life, farming, transport, business • Lessons. Example to follow: Chamoli GLOF, February 2021 (hydro-projects destroyed, over 200 dead or missing, roads cut).

NCERT Q14**Textbook**

Translate the given poster on landslides into your native language and display it at home.

ACTIVITY — HOW TO DO IT

Translate the three parts — **Before** (plant trees, clear drains, no building on steep slopes), **During** (stay calm, move away from the slide path, inform authorities) and **After** (avoid fallen wires, help the injured, do not drink stream water) — into Hindi.

Group project on water, wind and glacier: causes, impact and mitigation.

ACTIVITY — HOW TO DO IT

Each group makes a chart with three columns: **Causes** (e.g. heavy rain / strong dry winds / glacier melting), **Impact** (floods and soil loss / dust storms and desertification / GLOFs and avalanches) and **Mitigation** (embankments, afforestation / shelter belts / lake monitoring, early warning).

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Q1

5 Marks

Describe the theory of plate tectonics and analyse its relevance in understanding the Earth's dynamics.

THE THEORY

- The Earth's **lithosphere** is broken into about seven major and several minor rigid **plates** that rest on the soft, plastic **asthenosphere** of the upper mantle.

HOW IT WORKS

- **Convection currents** in the mantle drag the plates a few centimetres a year.
- Where plates **converge**, crust is destroyed or folded → fold mountains, trenches, volcanoes.
- Where plates **diverge**, magma rises and new crust is made → mid-ocean ridges and rift valleys.
- Where plates **slide past** each other, crust is neither made nor destroyed → faults and earthquakes.

ITS RELEVANCE

- It explains in one framework the distribution of continents and oceans, the location of the world's mountain belts, and why **earthquakes and volcanoes cluster along narrow plate margins** rather than occurring at random — which is what makes seismic zoning, building codes and disaster planning possible.

Q2**4 Marks**

Explain the processes of weathering and erosion with suitable examples, and state clearly how the two differ.

WEATHERING

- The breaking down of rock **in place**, without transport. Physical: a desert rock peels in layers as it expands by day and contracts by night. Chemical: rainwater carrying dissolved carbon dioxide dissolves limestone. Biological: a peepal root widens a crack in a temple wall until the stone splits.

EROSION

- The **wearing away and removal** of that broken material by a moving agent. A river carries sand and pebbles downstream; wind lifts loose soil from a bare field; a glacier scrapes its valley floor as it slides.

THE DIFFERENCE IN ONE LINE

- **Weathering breaks rock where it stands; erosion takes the pieces away.** Weathering needs no movement, erosion is defined by it — and weathering usually has to happen first before erosion can act efficiently.

Q3**5 Marks**

Describe the major landforms produced by a river along its course, and explain the process involved in each.

UPPER COURSE — EROSION DOMINATES

- The slope is steep, so the river cuts **downwards**: this makes **V-shaped valleys** and, in hard rock, deep **gorges**.
- Where a hard rock band overlies a soft one, the soft rock is scooped out and a **waterfall** forms; swirling pebbles drill circular **pot-holes** in the bed.

MIDDLE COURSE — TRANSPORT DOMINATES

- The slope eases, so the river cuts **sideways**: it erodes the outer bank and deposits on the inner bank, creating large loops called **meanders**.
- When a meander neck is finally cut through, the abandoned loop is left as a crescent **ox-bow lake**.
- In flood, the river spreads over its **flood plain** and drops coarse material at its edges as **natural levees**.

LOWER COURSE — DEPOSITION DOMINATES

- Near the mouth the river is slow and heavily loaded, so it splits into **distributaries** and deposits silt to build a **delta** — the Sundarbans delta of the Ganga–Brahmaputra is the largest in the world.

Q4

4 Marks

Explain the causes of any two natural disasters studied in this theme and propose strategies for their mitigation.

LANDSLIDE

- **Cause:** a steep slope loses its grip when heavy rain saturates the soil, tree cover has been removed, and hill roads or buildings have cut into the slope without support.
- **Mitigation:** terrace the slope, build retaining walls and proper drainage so water does not collect, replant deep-rooted vegetation, and prohibit construction on slopes already mapped as unstable.

GLACIAL LAKE OUTBURST FLOOD (GLOF)

- **Cause:** as a glacier retreats it leaves a lake held back only by a loose wall of moraine; a rockfall, an avalanche or simple overfilling bursts that wall and releases the whole lake down the valley in minutes.
- **Mitigation:** monitor high-altitude lakes by satellite, lower dangerous lakes by siphoning or controlled channels, install automatic sirens in downstream villages, and keep settlements and hydel projects out of the flood path.

Q5

3 Marks

Identify the prominent agents of gradation operating in (i) Rajasthan, (ii) the Sundarbans, (iii) the upper Ganga valley near Gangotri. Give one landform for each.

SOLUTION

- **(i) Rajasthan — wind.** Dry, loose, unprotected soil is lifted and dropped by strong winds; landform: crescent-shaped **barchan dunes** (and mushroom rocks where wind abrades the base of a boulder).
- **(ii) Sundarbans — river deposition, helped by tidal waves.** The heavily silt-laden Ganga–Brahmaputra slows near the sea; landform: the world's largest **delta** with its distributaries.
- **(iii) Upper Ganga near Gangotri — glacier, then river erosion.** Landform: a **U-shaped glacial valley** with moraines, giving way downstream to a steep **V-shaped river gorge**.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

Which layer of the Earth's interior is liquid?

The outer core.

E2

1 Mark

Name the supercontinent proposed by Alfred Wegener.

Pangaea.

E3

1 Mark

On which scale is the magnitude of an earthquake measured?

The Richter scale.

E4

1 Mark

What is the full form of GLOF?

Glacial Lake Outburst Flood.

E5

2 Marks

Name any four major tectonic plates.

ANSWER

- Pacific plate, Eurasian plate, Indo-Australian plate and African plate. (Also acceptable: North American, South American, Antarctic.)

E6

2 Marks

Differentiate between the focus and the epicentre of an earthquake.

ANSWER

- The **focus** (hypocentre) is the point **inside** the Earth where the rock actually breaks and the energy is released.
- The **epicentre** is the point on the **surface** directly above the focus; it is where the shaking is usually strongest.

E7

2 Marks

Why is a stalactite different from a stalagmite?

ANSWER

- A **stalactite** hangs downward from the roof of a limestone cave, built up as dripping water deposits calcium carbonate.
- A **stalagmite** grows upward from the cave floor from the same drips; when the two join they form a **pillar**.

E8

3 Marks

Why is the Himalayan region highly prone to earthquakes?

ANSWER

- The Indian plate is still pushing north into the Eurasian plate along a **convergent boundary**, so enormous stress builds up.
- The stress is released suddenly along thrust faults, producing frequent and sometimes very large earthquakes.
- The rock is young, folded and weak, and the slopes are steep, so the shaking also triggers landslides — which is why the whole belt falls in seismic Zones IV and V.

E9

3 Marks

Explain, with the help of the water-freezing example, how frost action weathers rock in the mountains.

ANSWER

- Water seeps into a crack in the rock during the day when temperatures are above freezing.
- At night the temperature falls below 0°C and the water freezes; on freezing, water **expands by about 9%**, pushing the sides of the crack apart with great force.
- Repeated freezing and thawing over many nights widens the crack until the rock shatters — the broken angular fragments collect at the foot of the slope as scree.

Compare the landforms created by glaciers with those created by wind. Give two of each.

GLACIAL LANDFORMS

- **U-shaped valley** — a glacier grinds a former V-shaped river valley into a broad U with steep sides and a flat floor.
- **Moraine** — the ridge of rock debris dumped along the sides and snout of the glacier when it melts.

WIND LANDFORMS

- **Mushroom rock** — wind carries sand close to the ground, so it abrades the base of a boulder faster than the top, leaving a narrow stem and broad cap.
- **Barchan dune** — a crescent-shaped mound of sand with its horns pointing downwind, formed where sand is deposited around an obstacle.

THE KEY CONTRAST

- Glaciers are slow, heavy and work by **grinding and plucking**, so their forms are large and rounded. Wind is light and works by **abrasion and deflation** on fine dry material, so its forms are smaller, sharper and shift with the wind.

Case study. In October 2023 a glacial lake in northern Sikkim burst after heavy rain, sending a wall of water down the Teesta valley. A hydel dam downstream was destroyed and several villages were washed away. (i) Name this type of disaster. (ii) Explain why it happened. (iii) Which two plate-tectonic and climate factors make Sikkim vulnerable? (iv) Suggest two mitigation measures.

ANSWER

- (i) A **Glacial Lake Outburst Flood (GLOF)**.
- (ii) Retreating glaciers leave meltwater lakes dammed only by loose **moraine**. Heavy rain overfilled the lake and the unconsolidated moraine wall gave way, releasing the entire volume down a steep, narrow valley in minutes.
- (iii) Sikkim lies in the young, rising, seismically active **Himalayan convergent belt** with very steep slopes; and **global warming** is making its glaciers retreat faster, creating more and larger moraine-dammed lakes each decade.
- (iv) Satellite monitoring of every high-altitude lake with automatic downstream sirens; and lowering the water level of dangerous lakes by siphons or controlled outlet channels, while keeping dams and settlements out of the flood path.

What is gradation? Explain how degradation and aggradation together tend to level the Earth's surface, giving examples.

DEFINITION

- **Gradation** is the overall process by which the external (exogenic) agents wear down the high parts of the Earth's surface and fill up the low parts, tending to bring the surface towards a common level.

DEGRADATION — WEARING DOWN

- Running water cuts gorges and valleys in the mountains, as in the Bhagirathi gorge.
- Glaciers pluck and grind rock from high valleys; wind abrades desert rock into mushroom shapes.
- Waves cut back a coastline into cliffs and wave-cut platforms.

AGGRADATION — FILLING UP

- The same rivers drop their load in the plains as flood plains and deltas — the entire Indo-Gangetic plain is aggraded Himalayan sediment.
- Wind builds dunes and loess plains; glaciers leave outwash plains; waves build beaches, spits and bars.

THE NET RESULT

- Material removed from the highlands is deposited in the lowlands, so mountains lose height while basins gain it. The surface never actually becomes flat, because **internal (endogenic) forces keep raising new land** — the Himalaya is still rising about 5 mm a year even while rivers wear it away.

⚡ Quick Revision — last-minute points

1. Earth layers: crust → mantle → outer core (liquid) → inner core (solid).
2. Plates move on the soft asthenosphere, driven by convection currents.
3. 3 boundaries: convergent (fold mountains, trenches), divergent (ridges), transform (faults).
4. Weathering breaks rock in place; erosion carries it away.
5. River: upper course V-valley → middle meanders → lower delta.
6. Hazard + vulnerable people = disaster.

Memory trick: Weathering **W**aits, Erosion **E**scapes (moves)

CHAPTER 3

Atmosphere and Climate

7 instructional hours · Geography · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: explain the atmospheric layers and **represent them in sketches and diagrams**; observe and analyse local winds; understand the impact of the Indian monsoon on life, agriculture and livelihoods; explain the causes and effects of climate change; **represent climatic data through graphs and charts**; and analyse how climate change affects the frequency and intensity of natural disasters.

Two diagram questions are almost certain from this theme: the **five layers of the atmosphere**, and a **climograph** (bar for rainfall + line for temperature). Practise drawing both to scale on graph paper.



3.1 Structure and composition of the atmosphere

The five layers of the atmosphere

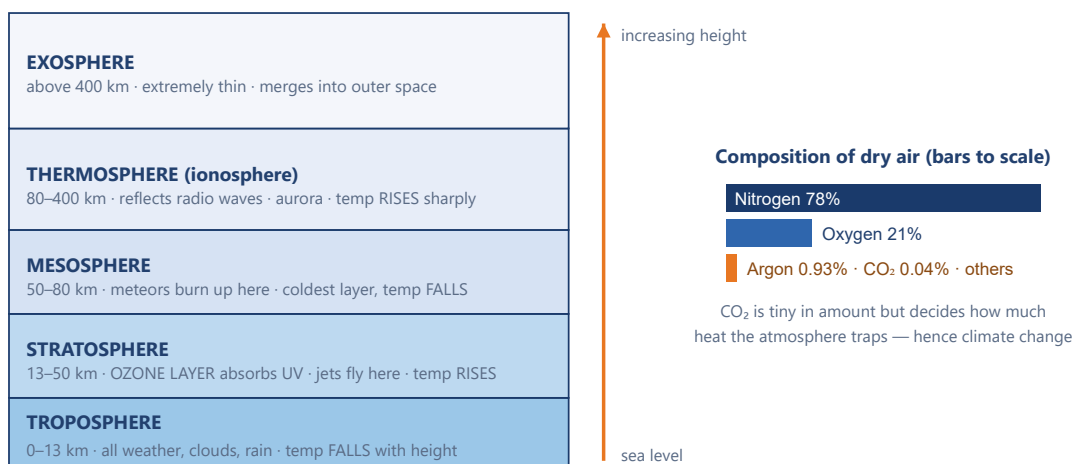


Fig. 3.1 — The layered atmosphere and the composition of dry air. Schematic; heights approximate.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.

- The **troposphere** holds about 75% of the atmosphere's mass and virtually all its water vapour, which is why **all weather happens here**. Temperature falls with height at about 6.5°C per km (the normal lapse rate).
- The **stratosphere** contains the **ozone layer**, which absorbs harmful ultraviolet radiation; because absorption warms it, temperature **rises** with height here. Being stable and cloud-free, it is where jet aircraft fly.
- The **mesosphere** is the coldest layer (down to about –90°C) and is where meteors burn up.
- The **thermosphere / ionosphere** has electrically charged particles that **reflect radio waves** back to Earth, making long-distance radio communication possible; the aurora occurs here.
- The **exosphere** is the outermost, extremely thin layer that merges into space; satellites orbit here.

Water vapour and dust are the two variable components that the percentage table leaves out. Water vapour makes clouds and rain possible; dust particles act as the **nuclei** on which water vapour condenses. Without dust, raindrops would not form easily.

3.2 Elements of weather and climate

	Weather	Climate
Meaning	The state of the atmosphere at a place at a given moment	The average weather of a place over a long period (about 30 years)
Time scale	Hours to a few days	Decades
Area	Usually small and local	Large regions
Changes	Changes rapidly, even within a day	Changes very slowly
Example	'It is raining in Indore this afternoon.'	'Indore has a tropical wet-and-dry climate.'

- **The six elements** of both weather and climate: temperature, atmospheric pressure, wind, humidity, clouds and precipitation.
- **Factors controlling temperature:** latitude (angle of the sun's rays), altitude (6.5°C fall per km), distance from the sea (continentality), ocean currents, prevailing winds, slope and aspect, and cloud cover.
- **Pressure and wind:** air always moves from high pressure to low pressure; the greater the pressure difference, the stronger the wind. The **Coriolis effect** deflects winds to the right in the Northern Hemisphere and to the left in the Southern.
- **Types of wind:** **permanent** (trade winds, westerlies, polar easterlies), **seasonal** (the monsoon), and **local** (loo, land and sea breezes, mountain and valley breezes).

Local winds you should be able to name for India: the **loo** — a hot, dry, dusty wind blowing over north-west India in May and June, dangerous enough to cause heat stroke; the **Kalbaisakhi** of Bengal and the **Mango showers** of Kerala and Karnataka, both pre-monsoon thunderstorms that help the jute and mango crops.

3.3 The Indian monsoon and the seasons

Map to see in your NCERT textbook

Wind-direction maps of the advancing **south-west monsoon** (June–September: winds blow from the sea towards the land, Arabian Sea branch hits the Western Ghats, Bay of Bengal branch turns west along the Himalayas) and the retreating **north-east monsoon** (October–December: winds blow from land to sea and bring rain to the Tamil Nadu coast).

A map of India must be exactly right, so it is not redrawn here. The written points above are enough for theory answers; for a map question, study the maps in your NCERT textbook.

Season	Months	Main features
Cold weather (winter)	December–February	Clear skies, low temperature and humidity; north-east trade winds blow from land to sea, so most of India is dry; western disturbances bring light rain and snow to the north-west, helping the rabi wheat crop; the Tamil Nadu coast gets rain from the retreating monsoon crossing the Bay of Bengal
Hot weather (summer)	March–May	Temperature rises steeply, pressure falls; the loo blows in the north-west; dust storms, Kalbaisakhi in Bengal and mango showers in the south
Advancing south-west monsoon	June–September	Low pressure over north-west India draws in moist winds from the sea; the monsoon bursts on the Kerala coast around 1 June and splits into the Arabian Sea branch and the Bay of Bengal branch ; about 75% of India's annual rainfall falls now, with breaks between spells
Retreating monsoon	October–November	Low pressure weakens and shifts south; clear skies and high humidity make October heat oppressive; cyclones strike the east coast; the north-east monsoon begins to bring rain to Tamil Nadu

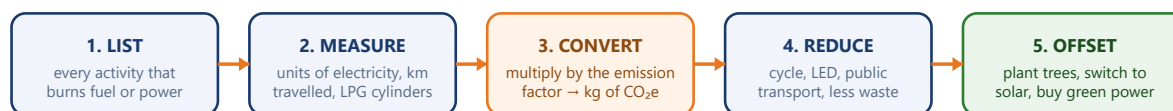
- **Why the monsoon reverses:** land heats and cools faster than water. In summer the land is much hotter, so a low-pressure area forms over north-west India and moist sea air rushes in. In winter the land is colder, pressure is high over the land, and dry air blows out towards the sea.
- **Other factors:** the northward shift of the Inter-Tropical Convergence Zone (ITCZ); the heating of the Tibetan Plateau; the tropical easterly jet stream; and **El Niño**, an abnormal warming of the eastern Pacific that usually weakens the Indian monsoon and can cause drought.
- **Characteristics:** the monsoon is seasonal, uncertain in timing, unevenly distributed, and comes in wet spells separated by breaks — which is why Indian agriculture is often called **a gamble on the monsoon**.

Impact on life and livelihood: the monsoon decides the kharif sowing date, the level of reservoirs and groundwater, hydroelectric generation, food prices, rural employment and even the festival calendar. A weak monsoon means crop failure, rural distress and inflation; too strong a monsoon means floods. This is the single most examined idea in the Geography portion.

3.4 Climate change, floods and the carbon footprint

- **The greenhouse effect** is natural and necessary: CO₂, methane, nitrous oxide and water vapour trap outgoing long-wave heat and keep the Earth about 33°C warmer than it would otherwise be. **The problem is the enhanced greenhouse effect** caused by human emissions.
- **Causes:** burning fossil fuels for power, industry and transport; deforestation, which removes the carbon sinks; methane from paddy fields, livestock and landfills; nitrous oxide from heavy fertiliser use; cement manufacture.
- **Effects:** rising average temperature; melting glaciers and polar ice; sea-level rise threatening coastal cities like Mumbai, Kolkata and Chennai; erratic monsoons; more frequent and more intense heat waves, droughts, floods and cyclones; ocean acidification and coral bleaching; shifting of crop belts and falling yields; loss of biodiversity.
- **Floods** — causes: excessive or concentrated rainfall, silting of river beds, deforestation in catchments, poor urban drainage and encroachment on flood plains and wetlands. Control: embankments and check dams, afforestation of catchments, restoring wetlands, flood-plain zoning, desilting, and early-warning systems.
- **Mitigation and adaptation:** *mitigation* reduces the cause (renewables, energy efficiency, afforestation, electric transport); *adaptation* reduces the damage (drought-resistant seeds, cyclone shelters, better drainage).

How to work out and cut a carbon footprint — a five-step workflow



Carbon footprint = total greenhouse gas released by a person, family, school or country in a year, written as kg or tonnes of CO₂ equivalent

Worked example: 300 units of electricity in a month × 0.82 kg CO₂ per unit = 246 kg CO₂, i.e. about 2.95 tonnes a year from electricity alone

Fig. 3.2 — Workflow for calculating and cutting a carbon footprint.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.

Indian and global initiatives to name: the National Action Plan on Climate Change (with its eight missions, including the National Solar Mission), the International Solar Alliance, Mission LiFE (Lifestyle for Environment), and internationally the UNFCCC, the Kyoto Protocol and the Paris Agreement of 2015.

PART A+ — NCERT TEXTBOOK TOPICS (SIMPLE NOTES)

Why this section? These topics are in your printed NCERT textbook but were missing above. Read them here — no need to open another book.

Elements of weather and climate

- **Weather** = hour-to-hour, day-to-day condition of the atmosphere. **Climate** = average weather of a place over a long time (about **30 years**).
- Five elements: **temperature, air pressure, wind, humidity, precipitation**.
- **Insolation** = incoming solar radiation received by the Earth. It decreases from the equator towards the poles.
- **Humidity** = water vapour in the air. Warm air can hold more water vapour.
- **Precipitation** = water falling from the sky: rain, snow, sleet, hail, drizzle.
- **Why we don't feel air pressure:** air presses on us equally from all sides, and the pressure inside our body balances it.
- **Wind** always blows from **high pressure** → **low pressure**.

Sea breeze	Land breeze
Blows in the day	Blows at night
From sea to land	From land to sea
Land heats faster → low pressure over land	Land cools faster → high pressure over land

Monsoon — seasons of India

- 'Monsoon' comes from the Arabic word **mausim** = season. It means a **seasonal reversal of winds**.
- **South-west monsoon** (June–September): land heats up → low pressure over India → moist winds blow from sea to land → most of India's rain.
- **North-east (retreating/winter) monsoon** (October–December): winds blow from land to sea; they pick up moisture over the Bay of Bengal and give rain to **Tamil Nadu** and south Andhra Pradesh.
- IMD's **four seasons**: Winter • Summer (pre-monsoon) • Monsoon (advancing) • Post-monsoon (retreating).

Traditional R̥tu	Season	Months (approx.)
Vasanta	Spring	March–April
Gr̥ishma	Summer	May–June
Var̥shā	Monsoon	July–August

Śharad	Autumn	September–October
Hemanta	Pre-winter	November–December
Śhishira	Winter	January–February

■ Case study — Punjab Floods, 2025

Natural causes	Human-made causes	Effects
Very heavy monsoon rain + western disturbances; rivers Satluj, Beas, Ravi (and Ghaggar) already flowing high	Weak old embankments (<i>dhussi bandh</i>); houses and farms built on riverbanks; silt reducing river and dam capacity; late or unclear warnings	Loss of lives; people in relief camps; paddy crops, dairy and poultry destroyed; roads and bridges damaged; water-borne diseases

Lesson of the case study: the monsoon is a blessing, but poor planning turns heavy rain into a disaster. Answer such questions in three parts: **causes** → **effects** → **solutions**.

PART B1 — NCERT TEXTBOOK EXERCISE ('QUESTIONS AND ACTIVITIES') — SOLVED

These are the **actual end-of-chapter questions** of your NCERT textbook, answered point-wise. Activity/project questions have a short 'how to do it' guide.

NCERT Q1

Textbook

What is atmosphere? Explain its composition with the help of a pie diagram.

The atmosphere is the **blanket of air around the Earth**, held by gravity. It is a mixture of gases, water vapour and dust. It protects us from harmful rays and keeps the Earth's temperature suitable for life.

Composition of the atmosphere (dry air, by volume)

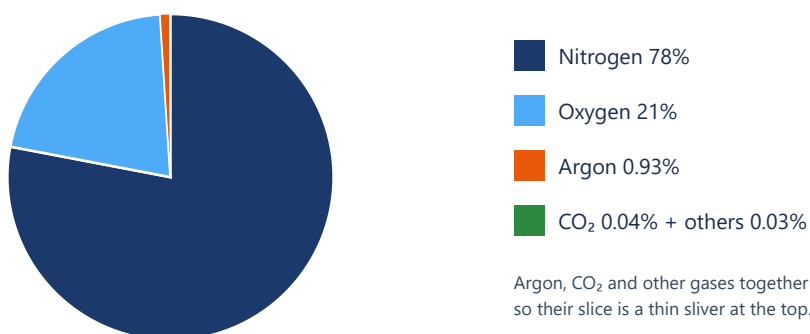


Fig. 3.A — Pie diagram of the composition of the atmosphere (angles drawn to scale).

Note: MLI-drawn schematic for study. Labels and depths follow standard NCERT values; shapes are simplified.

NCERT Q2**Textbook**

Draw a labelled diagram of the structure of the atmosphere.

See **Fig. 3.1** above (five layers). Label from bottom: **Troposphere** (weather) → **Stratosphere** (ozone layer) → **Mesosphere** (meteors burn) → **Thermosphere** (ionosphere, auroras) → **Exosphere** (merges with space).

NCERT Q3**Textbook**

Which are the four main seasons of India?

- **Winter** (cold season) — December–February are the coldest months in the north.
- **Summer / pre-monsoon** (hot season) — about April to June.
- **Monsoon / rainy season** (advancing monsoon) — June to September.
- **Post-monsoon** (retreating monsoon) — October to December; Tamil Nadu gets rain.

NCERT Q4**Textbook**

Why do you not feel the pressure of the atmosphere?

- Air presses on our body **equally from all sides**.
- The pressure of fluids inside our body pushes outward with an **equal force**, so the two balance and we feel nothing.

NCERT Q5**Textbook**

In which layer of the atmosphere do aeroplanes fly and why?

- Jet aeroplanes fly in the **lower stratosphere** (just above the troposphere).
- It is **free of clouds, storms and rain**, so flying is smooth and safe.
- The air is thin and calm, so there is less resistance and fuel is saved.

Distinguish between (a) troposphere and stratosphere, (b) south-west and north-east monsoon.

Troposphere	Stratosphere
Lowest layer, up to about 12–13 km	Above it, up to about 50 km
All weather happens here	No weather; calm
Temperature falls with height	Temperature rises with height
We live and breathe here	Contains the ozone layer; jets fly here

South-west monsoon	North-east monsoon
June–September (summer)	October–December (winter/retreating)
Sea → land winds	Land → sea winds
Rain over most of India	Rain mainly over Tamil Nadu coast
Low pressure over land	High pressure over land

Study Table 3.3 (temperature and rainfall of 10 stations) and answer.

- **7.1 Order from the equator** (by latitude): Thiruvananthapuram (8°N) → Bengaluru (13°N) → Chennai (13°N) → Mumbai (19°N) → Nagpur (21°N) → Kolkata (22.5°N) → Shillong (25.5°N) → Jodhpur (26°N) → Delhi (28.5°N) → Leh (34°N).
- **7.2** (a) Most extreme climate: **Leh** and **Delhi** (big gap between summer and winter). (b) Retreating monsoon: **Chennai** and **Thiruvananthapuram**. (c) Hottest in February: Thiruvananthapuram and Chennai; in June: Jodhpur and Nagpur. *Check the exact figures in your table.*
- **7.3** (a) **Shillong** gets more rain than Kolkata because it is on the Meghalaya hills; moist winds are forced to rise, cool and give heavy **relief (orographic) rain**. Kolkata is on flat plains. (b) **Delhi** gets more rain than Jodhpur because the Bay of Bengal branch still brings moisture to Delhi, while Jodhpur is in the dry Thar region; the Aravallis lie parallel to the Arabian Sea winds and do not stop them.
- **7.4** (a) Thiruvananthapuram has an **equable** climate: near the equator and next to the sea, so temperatures stay almost the same all year. (b) Chennai gets most rain in **October–November** from the north-east (retreating) monsoon, which picks up moisture over the Bay of Bengal; in June–September it lies in the rain-shadow. (c) Leh is a high cold desert in the rain-shadow of the Himalayas; it gets small amounts of snow/rain spread through the year.
- **7.5** Yes — almost every station gets most of its rain in the monsoon months and has the same rhythm of hot → rainy → cool seasons. So the monsoon gives **climatic unity** to India in spite of regional differences.

Collect pictures of houses and clothing from different regions. Do they reflect climate or relief?

Region	Houses	Clothing
Rajasthan (hot, dry)	Thick mud walls, small windows, flat roofs	Loose, light cotton; turbans
Kerala (hot, very rainy)	Sloping roofs, verandahs, good ventilation	Light cotton (mundu)
Ladakh/Himachal (cold)	Stone and wood, thick walls	Heavy woollens
North-East (heavy rain)	Houses on stilts, bamboo	Light cotton, rain gear

Yes — houses and clothes are adjusted to the local climate and relief.

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Q1

5 Marks

Explain the different atmospheric layers and represent them with a labelled sketch.

SOLUTION — SEE THE LABELLED DIAGRAM ABOVE (FIG. 3.1)

- **Troposphere (0–13 km):** holds almost all water vapour and dust; all clouds, rain and weather occur here; temperature falls about 6.5°C per km.
- **Stratosphere (13–50 km):** contains the ozone layer that absorbs ultraviolet radiation; temperature rises with height; stable and cloud-free, so aircraft cruise here.
- **Mesosphere (50–80 km):** the coldest layer; meteors entering the atmosphere burn up here.
- **Thermosphere / ionosphere (80–400 km):** temperature rises sharply; ionised particles reflect radio waves back to Earth; the aurora is seen here.
- **Exosphere (above 400 km):** extremely rarefied and gradually merges into outer space; satellites orbit in it.

Q2**4 Marks**

Observe the local winds of India and analyse their impact.

SOLUTION

- **Loo** — a hot, dry, dusty wind over north-west India in May and June. It pushes daytime temperature past 45°C, causes heat stroke and dehydration, dries up wells and wilts standing crops. Its one benefit is that it helps ripen mangoes.
- **Kalbaisakhi** — violent evening thunderstorms in Bengal and Assam in April–May. They damage huts and trees but bring badly needed pre-monsoon rain for rice, jute and tea.
- **Mango showers** — pre-monsoon showers in Kerala and coastal Karnataka that ripen mangoes and help the coffee blossom.
- **Land and sea breezes** — along the coast, the sea breeze blows inland by day and the land breeze seaward by night, moderating coastal temperature and helping fishermen sail out and return.

Q3**5 Marks**

Understand and explain the impact of the Indian monsoon on life, agriculture and livelihoods across different regions.

ON AGRICULTURE

- About **75% of India's rainfall** comes in four monsoon months, and around half the cropped area is unirrigated, so the sowing of the kharif crop — rice, maize, cotton, sugarcane, pulses — waits on the monsoon's arrival.
- A late or weak monsoon means crop failure; the stored moisture and full reservoirs also decide the following rabi crop.

ON LIVELIHOODS AND THE ECONOMY

- Rural employment, farm wages, food prices and inflation all move with the monsoon; a drought year raises food prices nationwide and pushes migration to the cities.
- Reservoir levels decide hydroelectricity and urban water supply; industries and power stations feel a bad monsoon too.

REGIONALLY

- The **windward Western Ghats and the north-east** receive very heavy rain (Mawsynram is the wettest place on Earth), so rice, tea and plantation crops dominate there.
- The **rain-shadow Deccan interior and western Rajasthan** get very little, so people depend on millets, dry farming and pastoralism; **Tamil Nadu** is unusual in getting most of its rain in October–December from the retreating monsoon.

CULTURAL IMPACT

- The monsoon shapes the festival calendar, folk songs, house design and the very rhythm of rural life — which is why Indian agriculture is described as **a gamble on the monsoon**.

Q4

4 Marks

Explain the causes and effects of climate change.

CAUSES

- Burning of **fossil fuels** in power stations, industry and vehicles, releasing carbon dioxide.
- **Deforestation**, which destroys the sinks that would otherwise absorb that carbon dioxide.
- **Methane** from paddy fields, livestock and landfills, and **nitrous oxide** from heavy fertiliser use — both far more powerful per molecule than CO₂.
- Cement manufacture, refrigerants and rapid, unplanned urbanisation.

EFFECTS

- Rising average global temperature and melting of glaciers and polar ice, leading to **sea-level rise** that threatens coastal cities.
- More frequent and more intense **heat waves, droughts, floods and cyclones**, and an erratic monsoon.
- Falling crop yields and shifting crop belts, threatening food security.
- Coral bleaching, ocean acidification and widespread loss of biodiversity.

Q5

4 Marks

Representing climatic data. The table gives the monthly rainfall and mean temperature of a station. State how you would draw a climograph and what the data shows.

Month	J	F	M	A	M	J	J	A	S	O	N	D
Rainfall (mm)	8	6	10	5	12	140	310	285	180	45	12	6
Temp (°C)	18	21	26	31	34	31	27	26	27	26	22	18

HOW TO DRAW IT

- Take months on the x-axis. Draw **rainfall as vertical bars** read against the left y-axis (0–350 mm), and **temperature as a smooth line** read against the right y-axis (0–40°C). Label both axes with their units and give the graph a title.

WHAT THE DATA SHOWS — THREE CONCLUSIONS

- **Rainfall is highly seasonal:** June–September alone gives about 915 of the 1,009 mm total, roughly **91%** — the signature of a monsoon climate.
- **The temperature peak comes before the rain.** May is hottest at 34°C, and temperature then *falls* through July–August because cloud cover and rain cool the surface.
- **The annual range is about 16°C** (34°C – 18°C), and the driest months are the cool ones — so this is a **tropical wet-and-dry (monsoon) climate**, typical of interior peninsular India.

Q6

3 Marks

Analyse how climate change influences the frequency and intensity of natural disasters.

SOLUTION

- **Warmer oceans feed stronger cyclones.** A cyclone draws its energy from warm surface water, so a hotter Bay of Bengal and Arabian Sea produce cyclones that intensify faster and carry more rain.
- **A warmer atmosphere holds more moisture** (about 7% more per degree Celsius), so rain arrives in shorter, heavier cloudbursts — the pattern behind recent flash floods and urban flooding.
- **Retreating glaciers and rising sea level** multiply the hazards at both ends: more moraine-dammed lakes and therefore more GLOFs in the Himalaya, and higher storm surges and saltwater intrusion on the coast. Longer dry spells between heavy spells also make droughts and forest fires more frequent.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

In which layer of the atmosphere does all weather occur?

The troposphere.

E2

1 Mark

Which gas makes up about 78% of dry air?

Nitrogen.

E3

1 Mark

Name the hot dry wind that blows over north-west India in summer.

The loo.

E4

1 Mark

Approximately what share of India's annual rainfall comes from the south-west monsoon?

About 75%.

E5

2 Marks

Why does temperature rise with height in the stratosphere but fall with height in the troposphere?

ANSWER

- In the **troposphere** the air is heated from below by the Earth's surface, so the further you go from that source, the colder it gets.
- In the **stratosphere** the ozone layer absorbs ultraviolet radiation directly from the Sun and converts it into heat, so the higher layers are warmer.

E6

2 Marks

What is the normal lapse rate? Calculate the temperature at a hill station 2 km above a plain where it is 30°C.

ANSWER

- The **normal lapse rate** is the fall in temperature with height in the troposphere, about **6.5°C per kilometre**.
- Fall = $6.5 \times 2 = 13^\circ\text{C}$, so the hill station temperature = $30 - 13 = 17^\circ\text{C}$.

E7

2 Marks

What is El Niño and how does it affect India?

ANSWER

- **El Niño** is an abnormal warming of the surface water of the eastern Pacific Ocean off the coast of South America, which shifts the global pattern of pressure and rainfall.
- In India it generally **weakens the south-west monsoon**, reducing rainfall and often causing drought and lower kharif output.

E8

3 Marks

Distinguish between weather and climate with one example of each.

ANSWER

- **Time:** weather is the state of the atmosphere at a place at a given moment or over a few days; climate is the average of that weather over about 30 years.
- **Variability:** weather can change within hours; climate changes only very slowly.
- **Example:** 'Indore received 40 mm of rain yesterday' is weather; 'Indore has a tropical wet-and-dry climate with hot summers and monsoon rain' is climate.

E9

3 Marks

Why does Mawsynram receive extremely heavy rainfall while Jaisalmer receives very little?

ANSWER

- **Mawsynram** lies on the funnel-shaped southern slope of the Khasi Hills, which faces the Bay of Bengal branch of the monsoon; the moist air is forced to rise steeply, cools and gives up almost all its moisture as **relief (orographic) rain**.
- **Jaisalmer** lies in western Rajasthan, where the Aravalli range runs **parallel** to the Arabian Sea branch instead of across it, so the winds are not forced to rise and shed their moisture.
- Jaisalmer is also far inland from the Bay branch, which has already rained out by then — so it lies in a rain-shadow, arid zone.

E10

3 Marks

Explain the greenhouse effect and state why it is both necessary and dangerous.

ANSWER

- **How it works:** short-wave solar radiation passes through the atmosphere and warms the Earth. The Earth re-radiates this energy as long-wave heat, which greenhouse gases — carbon dioxide, methane, nitrous oxide and water vapour — absorb and send back downwards.
- **Why it is necessary:** without it the Earth's average temperature would be about -18°C instead of about 15°C , and life as we know it could not exist.
- **Why it is dangerous now:** human emissions have raised greenhouse gas concentrations sharply, so more heat is trapped than before. This **enhanced** greenhouse effect is what is causing global warming and climate change.

A family in Indore uses 300 units of electricity a month, and the car covers 900 km a month at 12 km per litre. Taking 0.82 kg CO₂ per unit of electricity and 2.3 kg CO₂ per litre of petrol, calculate the annual carbon footprint from these two sources and suggest two ways to cut it.

STEP 1 — ELECTRICITY

- Monthly = $300 \times 0.82 = 246$ kg CO₂. Annual = $246 \times 12 = \mathbf{2,952}$ kg.

STEP 2 — PETROL

- Petrol used monthly = $900 \div 12 = 75$ litres. Monthly CO₂ = $75 \times 2.3 = 172.5$ kg. Annual = $172.5 \times 12 = \mathbf{2,070}$ kg.

STEP 3 — TOTAL

- $2,952 + 2,070 = \mathbf{5,022}$ kg, that is about **5.02 tonnes of CO₂ a year** from these two sources alone.

TWO WAYS TO CUT IT

- Install a rooftop solar system and replace all lighting with LEDs, cutting the grid electricity share sharply.
- Use public transport, car-pool or cycle for short trips within the city, which would remove a large part of the 900 km.

What are the main causes of floods in India? Suggest any three flood-control measures and explain how each works.

CAUSES

- Heavy or concentrated monsoon rainfall**, often as cloudbursts, delivering more water than rivers can carry.
- Silting of river beds**, which raises the bed and reduces the channel's capacity.
- Deforestation in the catchment**, so rain runs off the slopes at once instead of soaking in.
- Encroachment on flood plains and wetlands**, taking away the river's natural overflow space.
- Poor urban drainage**, choked with plastic and construction waste, causing urban flooding even in moderate rain.

THREE CONTROL MEASURES

- Afforestation of catchments** — tree roots hold soil and slow run-off, so less water reaches the river at once and less silt is carried into it.
- Embankments, check dams and reservoirs** — they confine the channel and hold back peak flow, releasing it gradually; they must be desilted regularly or they fail.
- Flood-plain zoning with early warning** — mapping the area the river floods and banning permanent construction there, combined with satellite-linked warning to evacuate in time. Restoring wetlands adds natural storage.

POINT TO REMEMBER

- Floods cannot be prevented altogether; the aim is to reduce **vulnerability** so that a natural hazard does not become a human disaster.

⚡ Quick Revision — last-minute points

1. Air: nitrogen 78%, oxygen 21%, argon 0.93%, CO₂ 0.04%.
2. 5 layers: Troposphere, Stratosphere, Mesosphere, Thermosphere, Exosphere.
3. Weather = daily; climate = 30-year average.
4. Monsoon = seasonal reversal of winds (mausim).
5. SW monsoon June–Sept; NE monsoon Oct–Dec (Tamil Nadu).
6. Carbon footprint = total greenhouse gas from our activities.

Memory trick: "The **S**mart **M**onkey **T**ook **E**xams" = T-S-M-T-E layers

CHAPTER 4

Early Humans and Beginning of Civilisation

9 instructional hours · History · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

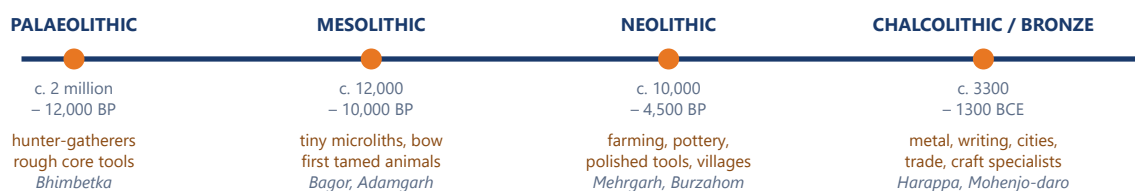
CBSE learning outcomes: describe how prehistoric time divisions are organised; explain how humans lived before writing; understand the beginning of settled life with agriculture and domestication; explore the factors of urban development; appreciate the diversity of crafts and trade; understand the diversity of food habits; and describe the social, political and religious structures of Egypt and Mesopotamia.

This theme is new in shape: **Indian prehistory, the Harappan civilisation, and Mesopotamia, Egypt and China are studied together**, so comparison questions across civilisations are likely. Also new: **radiocarbon dating** and the Sindhu–Sarasvati naming.



4.1 Periodisation — how the prehistoric past is divided

Periodisation — from the first stone tools to the first cities



The names come from the **TOOLS** and the way of life, not from a fixed date — the change happened at different times in different regions
BP = Before Present. Radiocarbon dating (C-14) is what lets archaeologists put numbers on these layers.

Fig. 4.1 — The archaeological ages, named after tools and ways of life.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.

- **Prehistory** is the period before writing; **proto-history** is the period with a script we cannot yet read (the Harappan script); **history** begins with readable written records.
- The divisions are named after **tools and technology**, not after dates, because the same change happened at very different times in different regions.
- **Radiocarbon (C-14) dating** is how absolute dates are obtained. All living things absorb carbon-14; when they die, absorption stops and the C-14 decays at a fixed rate (half-life about 5,730 years). Measuring how much is left gives the age of any organic material — charcoal, bone, seed or wood — up to about 50,000 years.
- Other dating methods: **stratigraphy** (deeper layers are older), **dendrochronology** (tree rings), and **thermoluminescence** for pottery.

Age	Tools	Way of life	Indian sites
Palaeolithic	Large rough core tools: hand-axes, cleavers, choppers	Nomadic hunting and gathering; fire; cave painting	Bhimbetka (MP), Hunsgi, Kurnool caves, Soan valley
Mesolithic	Microliths — tiny blades set in wood or bone handles; bow and arrow	Still hunting, but more settled; fishing; first taming of animals (dog, sheep, goat)	Bagor (Rajasthan), Adamgarh (MP), Sarai Nahar Rai (UP)
Neolithic	Polished stone tools; querns; pottery; the wheel	Farming and herding; permanent villages; storage	Mehrgarh (Baluchistan), Burzahom (Kashmir), Chirand (Bihar), Koldihwa
Chalcolithic / Bronze	Copper and then bronze alongside stone	Cities, writing, trade, craft specialisation, rulers	Harappa, Mohenjo-daro, Dholavira, Rakhigarhi, Lothal, Kalibangan

4.2 Human ancestors and the Palaeolithic way of life

- Humans belong to the family of **hominins**. The broad sequence recognised today is *Australopithecus* → *Homo habilis* (the tool-maker) → *Homo erectus* (upright, used fire, migrated out of Africa) → *Homo neanderthalensis* → *Homo sapiens*, our own species.
- **The decisive changes** were bipedalism (walking upright freed the hands), a larger brain, tool-making, the control of **fire**, and language.
- **Fire** mattered enormously: it gave warmth, light and protection from animals, made hard foods edible and safe, and made cooperation round a hearth possible.
- **Evidence of their minds:** the rock shelters of **Bhimbetka** in Madhya Pradesh, a UNESCO World Heritage Site, carry paintings of hunting scenes, dancing and animals in red and white pigment.
- **Society:** small bands, mobile, sharing food, with no private property and little visible inequality. Labour was probably divided by age and sex, but the group survived only by cooperating.

Why hunter-gatherers moved: they followed the seasonal movement of animals, the ripening of plants in different seasons, and the availability of water and of stone for tools. They were not wandering aimlessly — the movement was planned and repeated.

4.3 The Neolithic Revolution — the beginning of farming

- Around 10,000 years ago the climate warmed at the end of the Ice Age. Grasslands spread, and people who had long gathered wild wheat and barley began to **sow and harvest** them deliberately, and to keep animals instead of hunting them.
- **Domestication** is the process of taming and breeding plants and animals so that they serve human needs; humans select the best seeds and the tamest animals, and over generations the species itself changes.
- **Mehrgarh** (in the Bolan valley, Baluchistan, c. 7000 BCE) is the earliest farming village of the subcontinent, with wheat, barley, sheep, goat and cattle, mud-brick houses and storage pits.
- **Why it is called a revolution:** not because it was quick — it took thousands of years — but because it changed everything that followed.

What changed	Hunter-gatherer	Farmer
Settlement	Nomadic, temporary camps	Permanent villages, mud-brick houses
Food	Whatever could be found in season	Stored grain; a reliable surplus
Population	Small bands, slow growth	Larger communities, faster growth
Property	Few possessions, little inequality	Land, grain and herds owned → inequality begins
Work	All did broadly the same work	Surplus frees some people for crafts, priesthood, rule
Technology	Chipped stone tools	Polished tools, pottery, the wheel, weaving

The chain to remember: farming → surplus → specialists who need not farm → crafts and trade → larger settlements → the need to record, tax and defend → writing, rulers and cities. Every civilisation in this chapter runs along that same chain.

4.4 The first civilisations

Plan of a Harappan city — what town planning looked like 4,500 years ago

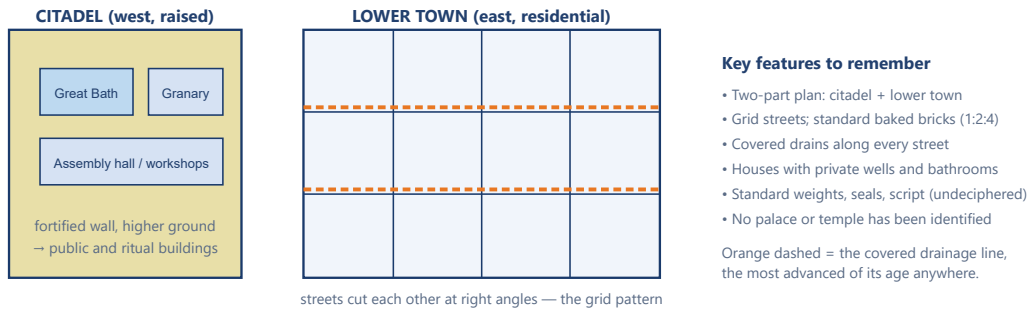


Fig. 4.2 — Schematic plan of a Harappan city.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.

- **The Harappan (Sindhu–Sarasvati) civilisation, c. 3300–1300 BCE.** The name is changing in current writing: it was first called the **Indus Valley Civilisation** after the first sites found; since a great many sites — Kalibangan, Banawali, Rakhigarhi — lie along the dried bed of the Ghaggar-Hakra, often identified with the **Sarasvati** of the Rigveda, many scholars now prefer **Sindhu–Sarasvati civilisation**. It is also called **Harappan** after the first site excavated.
- **Its distinctive features:** town planning on a grid with a citadel and lower town; standardised baked bricks in the ratio 1:2:4; covered street drains; wells and bathrooms in houses; the Great Bath at Mohenjo-daro; granaries; the dockyard at Lothal; a system of standard weights in multiples of 16; seals with a script that is still undeciphered; and the absence of any identified palace or temple.
- **Its economy:** wheat, barley, cotton (the earliest in the world), sesame and peas; crafts in bead-making, shell, copper and bronze; and long-distance trade with Mesopotamia, where Harappan seals have been found and which called the land *Meluhha*.
- **Its decline** is debated: the drying of the Sarasvati and shifts in river courses, climate change and prolonged drought, deforestation, floods, and the breakdown of trade are the main explanations. The single-cause 'Aryan invasion' theory is no longer accepted by most scholars.

	Sindhu–Sarasvati (Harappan)	Mesopotamian	Egyptian	Chinese (Shang)
River	Indus, Ghaggar-Hakra/Sarasvati	Tigris and Euphrates	Nile	Huang He (Yellow River)
Writing	Pictographic seal script (undeciphered)	Cuneiform on clay tablets	Hieroglyphs on papyrus and stone	Oracle-bone script
Rule	No palace or king identified; possibly merchant or council rule	City-states under kings and priests	Pharaoh, held to be divine	Kings supported by a priestly and warrior nobility
Religion	Mother goddess, a proto-Shiva figure,	Ziggurats to many gods	Many gods; elaborate belief in the afterlife;	Ancestor worship,

pipal tree, fire altars

mummies and pyramids

divination by
oracle bones

**Best
known
for**

Town planning,
drainage, standard
weights, cotton

First writing, the wheel,
the Code of
Hammurabi, the 60-
minute hour

Pyramids,
mummification, solar
calendar

Bronze casting,
silk, the earliest
Chinese script

Diversity of food habits — a likely question. Food followed geography: wheat and barley in the Indus and Mesopotamia, rice in the Ganga valley and China, millets in the Deccan, and emmer wheat along the Nile. Diet was decided by what the soil, rainfall and river would give — which is why food habits still differ across India today.

PART A+ — NCERT TEXTBOOK TOPICS (SIMPLE NOTES)

Why this section? These topics are in your printed NCERT textbook but were missing above. Read them here — no need to open another book.

Human evolution and the three-age system

- Humans evolved in **Africa: Homo habilis** ('handy man', first tool-maker) → **Homo erectus** (upright, used fire, first to leave Africa) → **Homo sapiens** (modern humans). Over time the brain became larger, the face flatter and the jaw smaller.
- Why humans left Africa: search for food, water, better climate, and growing population.
- Three-age system:** history is divided by the main material used for tools — **Stone Age** → **Bronze Age** → **Iron Age**.
- NCERT calls the Harappan civilisation the **Sindhu–Sarasvatī civilisation**. Both names mean the same civilisation.
- The Harappan script is **undeciphered** because no bilingual inscription has been found, the inscriptions are very short, and the language is unknown.

The other three river-valley civilisations — one-glance table

	Mesopotamia	Egypt	China
River	Tigris–Euphrates ('land between rivers', today Iraq)	Nile (flows south to north)	Huang He (Yellow River)
Writing	Cuneiform (wedge-shaped, on clay tablets)	Hieroglyphics (on papyrus and walls)	Logographic characters (oracle bones)

Famous for	Ziggurat temples; Epic of Gilgamesh (one of the earliest stories); Code of Hammurabi	Pyramids, pharaohs, mummies	Silk, bronze vessels; later the Great Wall
Society	King → priests/nobles → merchants/artisans → farmers → slaves	Pharaoh → officials, nobles, priests → landholders, artisans, merchants → serfs, slaves	Emperor ('Mandate of Heaven'), officials, peasants

- **Code of Hammurabi** (Babylon): one of the earliest written law codes. It gave clear punishments ('an eye for an eye'), but punishments **depended on social status**, so it was not equal for all.
- **Egypt — weighing of the heart**: after death the heart was weighed against the **feather of Ma'at** (goddess of truth). A light heart meant an honest life and entry to the afterlife.
- **Upper Egypt** is in the south and **Lower Egypt** in the north, because the Nile flows from south (higher land) to north (sea).
- **Great Wall of China**: defence against invaders, control of trade routes and taxes, signalling from watchtowers, and a symbol of the empire's power.
- **Contact**: strong trade between Harappans and Mesopotamia (Meluhha); little evidence of direct contact with Egypt or China.

PART B1 — NCERT TEXTBOOK EXERCISE ('QUESTIONS AND ACTIVITIES') — SOLVED

These are the **actual end-of-chapter questions** of your NCERT textbook, answered point-wise. Activity/project questions have a short 'how to do it' guide.

NCERT Q1

Textbook

Do you think life became easier or more challenging after humans started farming? Give two reasons.

- **Easier**: a steady food supply that could be stored; permanent homes and villages, new crafts like pottery and weaving.
- **(Also accept) More challenging**: hard work all year, risk of crop failure from floods or droughts. Write any one side with two reasons.

NCERT Q2

Textbook

The environment offers human societies both opportunities and challenges. Explain with reference to early farming communities and river-valley civilisations.

- **Opportunities**: fertile river soil, regular water, rivers as transport and trade routes, good climate for crops.
- **Challenges**: floods, droughts, change in river course, climate change that could destroy crops and settlements.
- People adapted by building drains, granaries, embankments and canals.

NCERT Q3

Textbook

Why do historians divide early history into Stone, Bronze and Iron Ages? What does this tell us about human progress?

- The ages are named after the **main material used for tools**.
- Each age shows a higher level of technology: stone → metal alloy (bronze) → strong, cheap iron.
- It shows gradual progress: better tools → more food → settlements → cities, trade, writing.

NCERT Q4

Textbook

Imagine you are a Neolithic farmer. Describe a day. What challenges would you face that a hunter-gatherer would not?

- **My day:** wake at sunrise, take cattle and goats to graze, sow or weed the field with polished stone tools, store grain in pots, make pottery in the evening.
- **New challenges:** protecting crops from animals and thieves, dependence on rain, storing grain safely, diseases in crowded villages, cannot simply move away when food is short.

NCERT Q5

Textbook

If the Harappan script is deciphered tomorrow, what might historians learn?

- Names of rulers, cities and important people.
- Their language, religious beliefs and festivals.
- Details of trade, taxes, weights and administration.
- Meaning of the seals and daily life of ordinary people.

NCERT Q6

Textbook

Prepare a table: Palaeolithic, Mesolithic, Neolithic — tools, settlements, art and subsistence.

Feature	Palaeolithic	Mesolithic	Neolithic
Tools	Large, rough stone tools	Small tools — microliths	Polished stone tools
Settlement	Caves, rock shelters; nomadic	Temporary camps near water	Permanent villages
Art	Cave/rock paintings (Bhimbetka)	More detailed rock art	Pottery, weaving, crafts
Food	Hunting and gathering	Hunting, fishing, early taming of animals	Farming and animal rearing

NCERT Q7

Textbook

"Bronze Age civilisations developed independently but shared common features." Examine.

- **Independent:** Sindhu–Sarasvatī, Mesopotamia, Egypt and China grew in different regions with their own scripts and rulers.
- **Common features:** all grew on **river banks**; used **bronze**; had **cities** and surplus food; **writing**; **trade**; organised **government** and social classes; skilled crafts.
- Similar needs and similar environments produced similar solutions.

NCERT Q8

Textbook

Discuss the advantages and disadvantages of settling near rivers.

Advantages	Disadvantages
Water for drinking and irrigation	Floods destroy crops and houses
Fertile alluvial soil	Rivers change course; settlements abandoned
Transport and trade routes	Droughts when river flow falls
Fish and food	Water-borne diseases

NCERT Q9

Textbook

Find out about the Code of Hammurabi. Why was it important? Was it fair to all?

- One of the **earliest written law codes**, from Babylon (Mesopotamia).
- **Importance:** laws were written and public, so people knew the rules and punishments; it kept order.
- **Not fair to all:** punishments depended on **social status** — nobles, commoners and slaves were treated differently.

NCERT Q10

Textbook

Which one innovation from early civilisations changed the world permanently, and why?

- **Writing** (or the wheel/farming — any one with reasons).
- Writing let people record laws, trade and history; knowledge could pass across generations; it made administration, literature and science possible.

NCERT Q11**Textbook**

Compare the social hierarchy and daily life in Egypt with Mesopotamia or China.

- **Similarities:** pyramid-like society — ruler at top, priests/nobles/officials, then merchants and artisans, and most people were farmers and labourers at the bottom.
- **Differences:** the Egyptian pharaoh was seen as a **god**; the Mesopotamian king was the gods' **representative**; the Chinese emperor ruled by the '**Mandate of Heaven**'.
- Egyptian life focused on the **afterlife**; Chinese life on **ancestor worship** and family.

NCERT Q12**Textbook**

Locate rivers and civilisations of Mesopotamia, Egypt, China and the Sindhu-Sarasvatī valley on a map; mark trade links.

ACTIVITY — HOW TO DO IT

On a world outline map mark: **Tigris–Euphrates** (Iraq), **Nile** (Egypt), **Huang He** (China), **Indus–Ghaggar/Hakra** (Pakistan–NW India). Draw an arrow between the Harappan region and Mesopotamia (sea route via the Persian Gulf, Dilmun and Magan). See the Map Work book, Themes 4–5.

NCERT Q13**Textbook**

Prepare a mini-scrapbook on one early civilisation (tools, writing, art, architecture).

ACTIVITY — HOW TO DO IT

Four pages: **Tools** (bronze sickles, ploughs) • **Writing** (hieroglyphics/cuneiform) • **Art** (wall paintings, statues) • **Architecture** (pyramids/ziggurats). Each page: picture + 2-line description + why it matters.

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Q1**4 Marks**

Describe how prehistoric time divisions are organised, and explain the method used to date them.

HOW THE DIVISIONS ARE ORGANISED

- The prehistoric past is divided by **tools and ways of life**, not by fixed dates: Palaeolithic (old stone), Mesolithic (middle stone), Neolithic (new stone) and Chalcolithic/Bronze.
- Dates are therefore **approximate and regional** — farming began in West Asia thousands of years before it began in parts of India, so the same 'Neolithic' label covers different centuries in different places.

HOW THE DATES ARE OBTAINED

- **Stratigraphy:** in an undisturbed excavation, deeper layers are older than the layers above them, giving a relative sequence.
- **Radiocarbon (C-14) dating:** living things absorb carbon-14 from the atmosphere; at death absorption stops and the C-14 decays at a known fixed rate (half-life about 5,730 years). Measuring the remaining C-14 in charcoal, bone or seed gives an absolute age up to roughly 50,000 years — this is what turned prehistory from guesswork into measurement.

Q2**5 Marks**

Explain how humans lived before the invention of writing.

FOOD AND SHELTER

- They lived by **hunting animals, fishing and gathering** fruits, roots, nuts and honey; nothing was grown or stored.
- They were **nomadic**, moving with the seasons in search of game, ripening plants, water and good stone, and sheltering in caves and rock shelters such as Bhimbetka or in temporary camps.

TOOLS AND FIRE

- They made tools by chipping stone — heavy hand-axes and choppers in the Palaeolithic, tiny **microliths** hafted into wood or bone in the Mesolithic, along with the bow and arrow.
- The control of **fire** gave warmth, light, protection from animals and cooked food that was safer and easier to digest.

SOCIETY AND EXPRESSION

- They lived in **small bands** that shared food, owned little, and showed no great inequality; survival depended on cooperation.
- They had a rich inner life even without writing: the **rock paintings of Bhimbetka** show hunts, dances and animals, and burials with grave goods suggest beliefs about death.

Explain the beginning of settled life with the development of agriculture and the domestication of plants and animals.

THE TRIGGER

- About 10,000 years ago the Ice Age ended and the climate became warmer and wetter. Grasslands with wild wheat and barley spread, and animals like sheep, goat and cattle grazed near human camps.

WHAT PEOPLE DID

- People who had long gathered these grains noticed that fallen seed sprouted, and began deliberately to **sow, tend and harvest** them — and to keep the tamer animals rather than hunt them. This is **domestication**.
- Over generations they selected the best seeds and the most docile animals, so the species themselves changed.

CONSEQUENCES

- **Settled villages** appeared, because a sown field must be guarded and harvested — mud-brick houses, storage pits and pottery all follow from this.
- A **surplus** could be stored, so population grew and some people could specialise as potters, weavers, metal workers and priests.
- But **property and inequality** also began, because land, herds and stored grain could now be owned unequally.

INDIAN EVIDENCE

- **Mehrgarh** (c. 7000 BCE) shows wheat, barley, sheep, goat, cattle, mud-brick houses and storage; **Burzahom** in Kashmir shows pit dwellings; **Koldihwa** and **Chirand** show early rice in the Ganga valley.

Q4**5 Marks**

Explore the factors that led to urban development and transformation through time, with reference to the Harappan cities.

THE FACTORS

- **Agricultural surplus** on fertile flood plains fed people who did not farm — the first condition for any city.
- **Craft specialisation:** bead-makers, potters, weavers, shell and metal workers produced goods for exchange, not for their own use.
- **Trade**, inland and overseas — Lothal's dockyard and Harappan seals found in Mesopotamia show it — brought raw material in and finished goods out.
- **Technology:** standard baked bricks, the wheel, bronze tools and a system of weights made large-scale building and exchange possible.
- **Organisation and authority:** grid streets, covered drains, granaries and uniform weights across a thousand kilometres cannot happen without some body able to plan and enforce standards.

TRANSFORMATION OVER TIME

- Villages grew into towns and towns into cities as surplus, trade and specialisation reinforced each other; when the rivers shifted and trade broke down, the process reversed and the great cities were abandoned for smaller settlements.

Q5**4 Marks**

Describe the social, political and religious structures of the civilisations of Egypt and Mesopotamia.

EGYPT

- **Social:** a pyramid-shaped society — pharaoh and royal family at the top, then priests, nobles and scribes, then artisans and merchants, and the peasants and slaves who did the work at the base.
- **Political:** a single unified kingdom along the Nile ruled by the **pharaoh**, regarded as a living god, with a bureaucracy of scribes to tax and administer.
- **Religious:** many gods (Ra the sun god, Osiris, Isis); an elaborate belief in the afterlife, shown in mummification, the pyramids and the Book of the Dead.

MESOPOTAMIA

- **Social:** nobles and priests, then free commoners (farmers, merchants, artisans), then slaves; the **Code of Hammurabi** laid down different penalties for different classes.
- **Political:** not one kingdom but rival **city-states** — Ur, Uruk, Lagash — each ruled by a king who was the god's representative, later united under empires such as Babylon and Assyria.
- **Religious:** each city had its own patron god housed in a stepped temple-tower, the **ziggurat**, which was also the centre of the city's economy and record-keeping.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

What does the term 'prehistory' mean?

The period of the human past before the invention of writing.

E2

1 Mark

Name the earliest known farming village of the Indian subcontinent.

Mehrgarh, in the Bolan valley of Baluchistan.

E3

1 Mark

What are microliths?

Very small stone blades of the Mesolithic age, fitted into wooden or bone handles to make tools.

E4

1 Mark

Which Harappan site had a dockyard?

Lothal, in Gujarat.

E5

1 Mark

What is the half-life of carbon-14?

About 5,730 years.

E6

2 Marks

Why is the Harappan civilisation now often called the *Sindhu–Sarasvati* civilisation?

ANSWER

- A very large number of its sites — Kalibangan, Banawali, Rakhigarhi and others — lie not along the Indus but along the dried bed of the Ghaggar-Hakra river, which many scholars identify with the **Sarasvati** of the Rigveda.
- Since the civilisation spread over both river systems, the wider name **Sindhu–Sarasvati** is felt to describe it more accurately than 'Indus Valley', which was coined when only the Indus sites were known.

E7**2 Marks**

Give any two evidences that show the Harappans had a well-organised system of weights and measures.

ANSWER

- Cubical stone weights in a fixed series of multiples of 16 have been found at sites separated by hundreds of kilometres, all of the same standard.
- Baked bricks everywhere follow the same 1:2:4 ratio of thickness to width to length, which shows a common standard being enforced across the whole civilisation.

E8**3 Marks**

How did the discovery of fire change the life of early humans? Give three effects.

ANSWER

- **Protection and warmth:** fire kept dangerous animals away at night and made survival possible in cold regions, which helped humans spread into new lands.
- **Food:** cooking killed parasites, made hard roots and meat easier to chew and digest, and allowed food to be preserved by smoking — improving health and nutrition.
- **Technology and society:** fire hardened wooden spear tips, later made pottery and metal-working possible, and the hearth became a gathering point that extended the working day and encouraged language and social bonds.

E9**3 Marks**

Why is the beginning of agriculture called a 'revolution' even though it took thousands of years?

ANSWER

- The word describes the **depth of the change, not its speed**. Every later development rests on it.
- It ended nomadic life and created permanent villages, storage, pottery and new technology.
- It produced a food surplus, and the surplus in turn produced specialists, trade, property, social inequality, rulers, writing and eventually cities — so the whole later shape of human society follows from it.

E10**4 Marks**

Compare the political organisation of the Harappan civilisation with that of Egypt.

HARAPPAN

- **No palace, throne, royal tomb or ruler's portrait has been identified**, and there are no grand monuments to any individual.
- Yet grid town planning, uniform bricks and uniform weights over an enormous area prove that **some central authority existed** — scholars suggest a council of merchants or priests rather than a king.

EGYPTIAN

- Power was concentrated in a single figure, the **pharaoh**, held to be a living god and the owner of the land.
- He ruled through an organised bureaucracy of scribes and priests who collected taxes, and the **pyramids** stand as monuments to the personal power of individual rulers.

THE CONTRAST IN ONE LINE

- Egypt displayed its authority in enormous royal monuments; the Harappans left no monument to a ruler at all, but left the evidence of authority in their drains, bricks and weights.

E11**4 Marks**

Source-based question. Excavation at a site reveals: a lower layer with rough chipped hand-axes and animal bones; above it a layer with microliths and fish bones; above that a layer with polished stone tools, charred wheat grains and pottery. (i) Name the three ages in order. (ii) What does the charred wheat prove? (iii) Which principle lets you say the bottom layer is the oldest? (iv) Which dating method would give an absolute age for the wheat?

ANSWER

- (i) Bottom to top: **Palaeolithic → Mesolithic → Neolithic**.
- (ii) The charred wheat grains, with polished tools and pottery, prove that the people of that layer had begun **cultivating and storing grain** — they were farmers living a settled life, not hunter-gatherers.
- (iii) The principle of **stratigraphy**: in an undisturbed deposit, each layer was laid down on top of an older one, so the deeper the layer, the earlier it is.
- (iv) **Radiocarbon (C-14) dating**, because the wheat is organic material and its remaining carbon-14 can be measured to give an age in calendar years.

Describe any five features of Harappan town planning and explain what each tells us about Harappan society.

ANSWER

- **The two-part plan — a raised, walled citadel to the west and a larger lower town to the east.** It shows a deliberate separation of public and ritual buildings from ordinary housing, and a society capable of planning a city before building it.
- **Streets crossing at right angles in a grid.** This is not how a town grows by itself; it proves central planning and an authority able to stop people building where they pleased.
- **Covered drains running along every street, with manholes for cleaning.** The most advanced drainage of the ancient world — it shows a remarkable concern for public health and sanitation, and continuing civic maintenance.
- **Standardised baked bricks in the ratio 1:2:4, used from Harappa to Lothal.** It shows a common standard enforced across a vast area and organised, large-scale brick production.
- **Wells, bathrooms and granaries; and the Great Bath at Mohenjo-daro.** Private bathrooms suggest widespread prosperity rather than a tiny rich elite; the granary shows systematic storage of surplus; and the Great Bath, carefully waterproofed with bitumen, suggests ritual bathing and therefore an organised religious life.

WHAT THEY ADD UP TO

- Together these features show a prosperous, well-organised, largely egalitarian urban society with strong civic authority, advanced technology and a striking emphasis on cleanliness — but no visible king.

⚡ Quick Revision — last-minute points

1. Homo habilis → Homo erectus → Homo sapiens (all began in Africa).
2. Palaeolithic (rough tools) → Mesolithic (microliths) → Neolithic (polished tools, farming).
3. Neolithic Revolution = shift to farming and settled villages.
4. 4 river civilisations: Sindhu–Sarasvatī, Mesopotamia, Egypt, China.
5. Harappan: grid streets, drains, baked bricks, standard weights, undeciphered script.

Memory trick: P-M-N = Pick, Mini, Neat tools

CHAPTER 5

State and Society (up to 1000 CE)

9 instructional hours · History · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: explain various facets of Vedic society and polity; appreciate the achievements of Indian empires and their cultural legacy; understand the knowledge traditions and practices of India; and understand the foundations of Indian social and political institutions and their continuity.

Continuity is the examiner's favourite word in this theme. Be ready to trace an institution — the sabha, the guild, the village council — from the Vedic age to the present.



5.1 The Vedic Age

- **Sources:** the four Vedas — Rigveda (hymns, the oldest), Samaveda (melodies), Yajurveda (sacrificial formulae) and Atharvaveda (charms and everyday concerns) — with the Brahmanas, Aranyakas and Upanishads, supported by archaeological evidence such as Painted Grey Ware.
- **Geography:** the Early Vedic period centres on the **Sapta Sindhu**, the land of seven rivers in the Punjab and the Sarasvati region; in the Later Vedic period the centre shifts east to the **Ganga–Yamuna doab**, as iron tools made clearing the forest and wet-rice farming possible.

	Early Vedic (c. 1500–1000 BCE)	Later Vedic (c. 1000–600 BCE)
Economy	Mainly pastoral; cattle the chief wealth; some farming	Settled agriculture with iron ploughshares; land becomes wealth
Polity	Tribal chief (<i>rajan</i>) checked by the assemblies sabha , samiti and vidatha ; no regular tax	Larger territorial kingdoms (<i>janapadas</i>); hereditary kings; great sacrifices (rajasuya, ashvamedha) to legitimise rule; regular tribute (<i>bali</i>)
Society	Family-based, comparatively fluid; varna appears in the Purusha Sukta but is not rigid	Varna hardens; the ashrama scheme of four stages of life develops
Religion	Nature deities — Indra, Agni, Varuna, Usha; simple household sacrifice	Elaborate, expensive ritual by priests; the Upanishads react against ritual and turn to atman, brahman, karma and moksha

Early Indian democratic practice — a heavily examined point. The **sabha** and **samiti** of the Rigveda were deliberative assemblies that could debate and restrain the chief. Later, the *ganas* and *sanghas* (such as the Vajji confederacy under the Lichchhavis) were republics governed by assemblies rather than kings, and the tenth-century **Uthiramerur inscriptions** of the Cholas record village committees chosen by lot, with written qualifications, fixed terms and disqualification for corruption — evidence of a long indigenous tradition of self-government that Chapter 6 picks up again.

5.2 Administrative structure of the early empires

Empire	Period	Key rulers	Administration and achievements
Magadha / Nanda	c. 6th–4th century BCE	Bimbisara, Ajatashatru, Mahapadma Nanda	Rise of the first great territorial power, helped by iron, fertile land and control of river trade
Maurya	c. 321–185 BCE	Chandragupta, Bindusara, Ashoka	Centralised empire described in Kautilya's <i>Arthashastra</i> ; provinces under princes; districts and villages under officials; a network of spies; Ashoka's Dhamma proclaimed in rock and pillar edicts — the earliest deciphered Indian writing; state hospitals, wells and roads
Kushana	c. 1st–3rd century CE	Kanishka	Controlled the Silk Route; gold coinage; patronage of Buddhism; the Gandhara and Mathura schools of art
Gupta	c. 320–550 CE	Chandragupta I, Samudragupta, Chandragupta II	Less centralised, with vassal kings and land grants; the 'classical age' of Sanskrit literature, the decimal place-value system and zero, Aryabhata's astronomy, Nalanda, the Ajanta paintings and the rust-free Iron Pillar of Delhi
Chola	c. 9th–13th century CE	Rajaraja I, Rajendra I	Powerful navy and overseas expeditions to Southeast Asia; magnificent temples (Brihadeshwara at Thanjavur); and above all highly developed village self-government recorded at Uthiramerur

- **The common pattern of administration:** king → council of ministers (*mantri parishad*) → provinces → districts → villages, with revenue usually about one-sixth of the produce, and an army and judiciary under royal control.
- **The village** remained the basic self-governing unit throughout, which is why the institution survived every change of dynasty above it.



5.3 The quest for knowledge — India's educational heritage

Institution / tradition	What it was	Why it matters
Gurukula	Students lived with the teacher's family and learnt through oral instruction and service	The oldest Indian system of education, based on close personal transmission
Takshashila	A great centre of learning in the north-west (Gandhara), famous for medicine, grammar and politics	Attracted students from across Asia; Kautilya and Charaka are associated with it
Nalanda	A residential Buddhist <i>mahavihara</i> in Bihar with thousands of students and a nine-storey library	Described by the Chinese pilgrim Xuanzang; one of the world's earliest universities
Vikramshila, Valabhi, Odantapuri	Other great monastic universities	Show that Nalanda was not an isolated case
Oral tradition	Texts memorised and transmitted with exact phonetic accuracy over centuries	Preserved the Vedas intact long before writing was used for them

- **Achievements in knowledge: Mathematics** — the decimal place-value system, **zero as a number**, and Aryabhata's approximation of π and his statement that the Earth rotates on its axis; Brahmagupta's rules for negative numbers. **Astronomy** — the *Aryabhatiya*, and Varahamihira's *Brihat Samhita*. **Medicine** — the *Charaka Samhita* on internal medicine and the *Sushruta Samhita*, which describes surgery including cataract operations and plastic surgery of the nose. **Grammar** — Panini's *Ashtadhyayi*, an analysis of Sanskrit so rigorous that it is studied by computer scientists today. **Metallurgy** — the Iron Pillar of Delhi, which has not rusted in 1,600 years.
- **Transmission:** Indian numerals reached Europe through the Arab world, which is why they are called Hindu-Arabic numerals; Indian medicine, mathematics and religion travelled along the trade routes to Central Asia, China and Southeast Asia.

5.4 Traders, trade routes, guilds and crafts

- **Guilds (*shreni*)** were associations of merchants or craftsmen of the same trade. They fixed standards of quality and price, trained apprentices, settled disputes among members, acted as bankers accepting deposits, and even made endowments to temples and monasteries recorded in inscriptions. A guild had its own rules that the king recognised — an early example of self-regulation.
- **Inland routes:** the **Uttarapatha** (the northern route from the north-west across the Ganga plain towards Bengal, the ancestor of the Grand Trunk Road) and the **Dakshinapatha** (the southern route into the Deccan and peninsular India).
- **Overland international route:** the **Silk Route**, controlled in part by the Kushanas, carrying silk, spices, precious stones — and, just as importantly, Buddhism, art styles and technology.
- **Maritime routes:** ports such as **Bharuch (Barygaza), Muziris, Arikamedu and Tamralipti** traded with Rome, West Asia and Southeast Asia. Roman writers complained of gold draining to India for pepper, muslin and gems; hoards of Roman coins in south India confirm it.
- **Main exports:** cotton textiles and muslin, spices (especially black pepper, called 'black gold'), precious stones, ivory, indigo and steel. **Imports:** gold, silver, wine, horses and glassware.

Continuity to notice: the guild's functions — setting standards, training, arbitration, credit — are exactly what modern trade associations and chambers of commerce do; and the sabha of the Rigveda, the Uthiramerur village assembly and today's gram panchayat form one long line of local self-government.

PART A+ — NCERT TEXTBOOK TOPICS (SIMPLE NOTES)

Why this section? These topics are in your printed NCERT textbook but were missing above. Read them here — no need to open another book.

■ From clan to empire — the growth of the state

kula (family) → **jana** (clan/people, led by a raja) → **janapada** (territory where a jana settled) → **mahājanapada** (16 big states, c. 6th century BCE; Magadha became strongest) → **empires** (Mauryas, Guptas; Satavahanas in the Deccan; Cholas, Cheras, Pandyas in the south).

- **Sources:** the **Rig Veda** is the earliest text. Four Vedas: Rig, **Sama** (hymns set to music — base of the seven svaras), Yajur, Atharva. Also Arthashastra, Mahabharata, Sangam literature, inscriptions.
- Vedic assemblies that advised and checked the raja: **sabha, samiti, vidatha**.
- Why the Ganga plains grew in the 1st millennium BCE: **iron tools** to clear forests, fertile soil, **paddy** cultivation, food surplus. Pottery: **PGW** (Painted Grey Ware), later **NBPW** (Northern Black Polished Ware).
- The name '**Bharata**' first appears in the Rig Veda (Bharata jana).
- **Chakravarti samrāt** = universal ruler; **Ashvamedha** and **Rajasuya** yajnas showed his supremacy. Ideas like **Jambudvipa** and **Bharatavarsha** saw the subcontinent as one land.
- Chandragupta Maurya founded the Mauryan Empire in **321 BCE** with the help of **Kautilya**; capital **Pataliputra**.

■ Saptāṅga — the seven limbs of the state (Arthashastra)

No.	Limb	Meaning
1	Swami	King
2	Amatya	Ministers/officials
3	Janapada	Territory and people
4	Durga	Fort
5	Kosha	Treasury
6	Danda / Bala	Army and force
7	Mitra	Ally

Memory trick: "**S-A-J-D-K-D-M** = **Sir Amit Just Drove Kota Delhi Mumbai**". Also remember: the king's highest duty was **yogakshema** (welfare of the people).

- Officers: **mantriparishad** (council of ministers), **purohita** (priest), **senapati** (army chief), **samaharta** (revenue collector). Empires were divided into **provinces** → **districts** → **villages**.

■ Three inscriptions you must know

Inscription	What it tells us
Junagadh (Girnar) rock , Rudradaman, c. 150 CE	The Sudarshana lake was built under Chandragupta Maurya by governor Pushyagupta ; later rulers (Rudradaman, then Skandagupta) repaired it and recorded this on the same

rock → continuity of public works.

Uttaramerur, Chola
period (10th century CE)

Rules of the village assembly; members of committees chosen by **kudavolai** (names in a pot, drawn by lot); qualifications for members → local self-government.

Nashik cave, Ushavadata,
2nd century CE

Money deposited with **weavers' guilds** at Govardhana; the interest was used for monks
→ guilds worked like **banks**.

Society, women, education and trade

Varna	Jati
Broad 4-fold division: brahmin, kshatriya, vaishya, shudra	Thousands of smaller, local groups
Originally flexible, linked to occupation	Became fixed by birth over time
Fixed at four	Kept growing: new occupations, migration, intermarriage, tribes joining

- A Rig Veda verse describes one family with a **poet, a physician and a grain-grinder** → occupations were not fixed by birth in early Vedic times.
- Other institutions: **ashrama** (4 stages of life: brahmacharya, grihastha, vanaprastha, sannyasa) and **gotra** (lineage).
- Women sages who composed Rig Veda hymns: **Apala, Ghosha, Lopamudra, Vishvavara**. Scholars **Gargi** and **Maitreyi**.
- Education: **gurukula** (student lives with the guru; knowledge + values). Centres: **Takshashila, Nalanda, Vikramashila**.
- Trade routes: **Uttarapatha** (north) and **Dakshinapatha** (south). **Guilds (shreni)** of artisans/merchants set quality, trained workers and kept deposits.
- **Amarakosha** (by Amarasimha) — Sanskrit dictionary with chapters on crops, plants and manure.
- **Bhakti** devotional tradition grew in the Tamil region from about the **6th century CE**.

PART B1 — NCERT TEXTBOOK EXERCISE ('QUESTIONS AND ACTIVITIES') — SOLVED

These are the **actual end-of-chapter questions** of your NCERT textbook, answered point-wise. Activity/project questions have a short 'how to do it' guide.

NCERT Q1**Textbook**

How did political organisation change from the Vedic period to the age of large empires? Explain the administrative system of early Indian states.

- **Vedic period:** small kin-based **janas** led by a raja who was guided by **sabha, samiti and vidatha**.
- Then territorial **janapadas** and 16 **mahajanapadas**; Magadha grew strongest.
- **Empires** (Mauryas, Guptas): large, centralised, with a council of ministers, army and tax system.
- **Administration:** king at top; empire divided into **provinces** (governors) → **districts** → **villages** (headmen, village assemblies).

NCERT Q2**Textbook**

Describe the role of the king, important officers and the methods used to govern large territories.

- **King:** protect people, give justice, uphold dharma, ensure welfare (**yogakshema**).
- **Officers:** mantriparishad, purohita (priest), senapati (army chief), samaharta (revenue).
- **Methods:** division into provinces, districts and villages; roads; spies; taxes; public works like dams and lakes.

NCERT Q3**Textbook**

What were the most important features of state and society in India before 1000 CE?

- Growth from janas to janapadas, mahajanapadas and empires.
- Governance guided by **dharma**; king's duty was people's welfare.
- Organised administration with local village assemblies (Uttaramerur).
- Growth of farming, irrigation, trade and **guilds**.
- Learning centres — Takshashila, Nalanda.
- Ideas like **chakravarti samrāt** and Bharatavarsha gave a sense of unity.

NCERT Q4**Textbook**

What do the Rig Veda, Arthashastra and Mahabharata reveal about political and social life?

- **Rig Veda:** kin-based janas, assemblies sabha and samiti, flexible occupations (poet, physician and grinder in one family).
- **Arthashastra:** a large, organised state; Saptāṅga; spies, taxes, law; king's duty is yogakshema.
- **Mahabharata: rajadharma** — the king must protect the weak and give justice; shows what happens when moral duty breaks down.

NCERT Q5

Textbook

What can we learn from early Indian society about varna and the role of women?

- **Varna** was at first flexible and based on occupation; later **jatis** grew and became fixed by birth.
- **Women** were educated and respected in early Vedic times: Apala, Ghosha, Lopamudra, Vishvavara composed hymns; Gargi and Maitreyi were scholars.
- Their position declined in later periods, but women continued to contribute to farming, crafts, literature and religion.

NCERT Q6

Textbook

Explain how sabha and samiti limited the power of the raja. Which modern institutions do similar work?

- The raja had to **discuss and consult** these assemblies on important matters; decisions were collective.
- Modern equivalents: **Parliament, State Legislatures**, and local bodies like **Gram Sabhas/Panchayats** and Municipalities.

NCERT Q7

Textbook

What do varna and jati mean? How were they different, and what formed various jatis?

Varna	Jati
Four broad groups	Thousands of local groups
Originally flexible, based on work	Hereditary, fixed by birth
Number fixed	Kept increasing

Factors forming jatis: new occupations and crafts, migration, intermarriage, and tribes joining settled society.

NCERT Q8

Textbook

Why did education in early India stress both knowledge and moral values? How did it help society?

- Aim was **all-round development**: Vedas, grammar, logic, mathematics, medicine, astronomy, crafts + values like truth, self-control and discipline.
- The **gurukula** built a close bond with the teacher and simple living.
- Society got educated, **responsible and ethical citizens**.

NCERT Q9

Textbook

How did trade routes help exchange of goods, skills, beliefs and culture?

- **Uttarapatha** (north) and **Dakshinapatha** (south) linked distant regions.
- Goods like textiles, spices and metals moved along them.
- Artisans shared skills, scholars shared knowledge, and monks spread religions like Buddhism → a shared Indian culture.

NCERT Q10

Textbook

Advantages and challenges of ruling a large empire without modern communication?

Advantages	Challenges
Local officials handled daily work	Orders and news travelled slowly
Division into provinces/districts made it organised	Hard to collect taxes and control rebellions
Regions could solve local problems quickly	Difficult to supervise distant officials

NCERT Q11

Textbook

What are the limitations of relying only on texts written by scholars and royal advisors?

- They show the **ruler's point of view**; may be biased or idealised (how the state *should* work).
- They say little about **common people, women and poorer groups**.
- So historians cross-check them with inscriptions, coins, archaeology and folk traditions.

NCERT Q12

Textbook

Source: Nashik cave inscription of Ushavadata. (a) Economic role of guilds? (b) Why were guilds trusted with deposits? (c) Donor and donees?

- (a) Guilds **accepted deposits and paid interest** — they worked like banks and supported religious charity.
- (b) They were **well-organised, permanent and reliable**, and managed money honestly.
- (c) **Donor:** Ushavadata (son-in-law of king Nahapana). **Donees:** the Buddhist monks (Sangha) living in the cave.

NCERT Q13**Textbook**

Locate on the map of India: Pataliputra, Nashik, Ujjayini, Vikramashila, Kanchipuram, Mathura, Rajgriha.

ACTIVITY — HOW TO DO IT

Pataliputra — Patna, Bihar • Nashik — Maharashtra • Ujjayini — Ujjain, MP (near Indore) • Vikramashila — Bhagalpur, Bihar • Kanchipuram — Tamil Nadu • Mathura — UP, on the Yamuna • Rajgriha — Rajgir, Bihar. Mark with a dot and label.

NCERT Q14**Textbook**

Prepare a presentation/poster on Vedic society, gurukula, trade and guilds, or role of women.

ACTIVITY — HOW TO DO IT

Pick one. Four slides: title • 3 key facts from Part A+ above • one source/example (e.g. Nashik inscription for guilds) • one lesson for today.

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Explain the various facets of Vedic society and polity.

POLITY

- The Early Vedic people were organised in **tribes (jana)** led by a chief, the **rajan**, who was a war leader rather than an absolute ruler and received voluntary gifts (*bali*) rather than fixed taxes.
- He was checked by the assemblies **sabha** (a council of elders), **samiti** (a wider assembly) and **vidatha**, which could debate and influence decisions.
- In the Later Vedic period, iron tools and settled farming produced surplus and larger territorial kingdoms (*janapadas*); kingship became hereditary and was legitimised by great sacrifices such as the **rajasuya** and **ashvamedha**, and regular tribute replaced gifts.

SOCIETY

- Early Vedic society was based on the family and was comparatively fluid; the four-fold **varna** order appears in the Purusha Sukta but occupation was not yet rigidly fixed by birth.
- In the Later Vedic period varna hardened and birth mattered more; the **ashrama** scheme of four stages of life (brahmacharya, grihastha, vanaprastha, sannyasa) took shape. Women who had participated in assemblies and composed hymns — Gargi, Maitreyi, Lopamudra — found their position gradually restricted.

RELIGION

- Worship of nature deities (Indra, Agni, Varuna, Usha) through simple sacrifice gave way to elaborate, costly ritual controlled by priests; the **Upanishads** reacted against this by turning inward to atman, brahman, karma and moksha.

Appreciate the achievements of Indian empires and their cultural legacy.

THE MAURYAS

- Built the first empire covering almost the whole subcontinent, administered on the lines described in Kautilya's *Arthashastra*.
- Ashoka's **rock and pillar edicts** — the earliest deciphered Indian writing — proclaimed **Dhamma**: non-violence, tolerance of all sects, care for animals and welfare works such as hospitals, wells and shade trees. The **Sarnath lion capital** is India's State Emblem and its wheel is on the national flag.

THE KUSHANAS

- Controlled the Silk Route, issued fine gold coinage, and patronised the **Gandhara and Mathura schools of art** in which the Buddha was first shown in human form.

THE GUPTAS

- The classical age of Sanskrit literature (Kalidasa), of the **decimal place-value system and zero**, of Aryabhata's astronomy, of Nalanda, the Ajanta paintings and the rust-free Iron Pillar of Delhi.

THE CHOLAS

- A powerful navy and overseas expeditions to Southeast Asia; the Brihadeshwara temple at Thanjavur; bronze sculpture; and the remarkable village self-government recorded at Uthiramerur.

THE LEGACY IN ONE LINE

- Administration, script, art, mathematics, literature and above all the habit of local self-government — none of these died with the dynasties that produced them; they were absorbed into later Indian life and survive in it.

Understand the knowledge traditions and practices of India.

INSTITUTIONS

- The **gurukula**, where a student lived with the teacher and learnt by oral instruction; the great centres at **Takshashila** (medicine, grammar, politics) and **Nalanda** (a residential Buddhist university with a nine-storey library, described by Xuanzang), along with Vikramshila and Valabhi.

ACHIEVEMENTS

- **Mathematics:** the decimal place-value system and the treatment of **zero as a number**; Aryabhata's value of π and his statement that the Earth rotates; Brahmagupta's rules for negative numbers.
- **Astronomy:** the *Aryabhatiya*; Varahamihira's *Brihat Samhita*.
- **Medicine:** the *Charaka Samhita* on diagnosis and internal medicine, and the *Sushruta Samhita*, which describes surgical instruments, cataract operations and reconstructive surgery of the nose.
- **Language:** Panini's *Ashtadhyayi*, a formal grammar of Sanskrit of such precision that it is still studied by linguists and computer scientists.
- **Metallurgy:** the Iron Pillar of Delhi, unruined after 1,600 years.

HOW THE KNOWLEDGE TRAVELLED

- Along the trade routes: Indian numerals passed to the Arab world and from there to Europe as 'Hindu-Arabic' numerals, while medicine, art and Buddhism travelled to Central Asia, China and Southeast Asia.

Understand the foundations of Indian social and political institutions and their continuity.

INSTITUTIONS AND THEIR CONTINUITY

- **Local self-government:** the Vedic **sabha** → the *ganas* and *sanghas* of the Vajji confederacy → the Chola village assemblies of Uthiramerur, which chose committee members by lot with written qualifications and fixed terms → today's **gram panchayat** under the 73rd Amendment.
- **Guilds (shreni):** they set standards, trained apprentices, arbitrated disputes and acted as bankers — exactly what trade associations and chambers of commerce do now.
- **The joint family and the village community** as the basic units of social organisation, surviving every change of dynasty above them.
- **Knowledge traditions:** Ayurveda, yoga, Sanskrit grammar and classical music and dance are living practices, not museum pieces.

WHY THIS MATTERS

- It shows that Indian democracy was not simply imported in 1950: the Constitution built on a long indigenous habit of deliberation, assembly and local self-rule.

Q5

3 Marks

Appreciate the diversity of crafts and trade and their role in establishing a prosperous economy.

SOLUTION

- **The range of crafts** was enormous — cotton textiles and muslin, dyeing with indigo, bead and shell work, ivory carving, bronze casting, iron and high-carbon steel, and stone sculpture — each concentrated in particular regions and organised into **guilds** that set standards and trained apprentices.
- **Trade carried them:** along the Uttarapatha and Dakshinapatha inland, along the Silk Route overland, and by sea from Bharuch, Muziris and Tamralipti to Rome, West Asia and Southeast Asia.
- **The result was prosperity:** Roman gold flowed into India for pepper and muslin (Roman coin hoards in south India prove it), cities and ports grew rich, guilds endowed temples and monasteries, and India became one of the world's leading economies — while the same routes carried ideas, art and religion outwards.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

Which is the oldest of the four Vedas?

The Rigveda.

E2

1 Mark

What was a shreni?

A guild — an association of merchants or craftsmen of the same trade.

E3

1 Mark

Name the Chinese pilgrim who studied at Nalanda.

Xuanzang (Hiuen Tsang).

E4

1 Mark

Which Mauryan ruler issued the rock and pillar edicts?

Ashoka.

E5

1 Mark

Name the two great inland trade routes of ancient India.

The Uttarapatha (northern) and the Dakshinapatha (southern).

E6

2 Marks

What were the sabha and the samiti?

ANSWER

- The **sabha** was a smaller assembly of elders and senior men that advised the chief and also acted as a court.
- The **samiti** was a larger, more general assembly of the tribe that discussed important matters and could influence the choice and conduct of the rajan — both were checks on the chief's power.

E7

2 Marks

State any two functions of an ancient Indian guild.

ANSWER

- It **fixed standards of quality, weights and prices** for its trade and trained apprentices in the craft.
- It acted as a **banker and arbitrator** — accepting deposits, lending, settling disputes among members, and making endowments to temples and monasteries.

E8

3 Marks

Why is the Uthiramerur inscription considered important evidence of early democratic practice in India?

ANSWER

- It records in detail how the **village assembly of a Chola village chose its committees** — by drawing lots from among eligible candidates, a method designed to prevent the powerful from capturing office.
- It lays down **written qualifications** for candidates (ownership of land, a house, a minimum age, knowledge of the Vedas) and **fixed terms** of office.
- It provides for **disqualification** of anyone guilty of corruption or failing to submit accounts, and bars his relatives too — showing that accountability, not merely election, was already understood as essential to self-government.

E9

3 Marks

Explain any three contributions of ancient India to mathematics and astronomy.

ANSWER

- **The decimal place-value system and zero:** Indian mathematicians treated zero as a number with its own rules, not merely as a blank — the single most important idea in the history of calculation, which passed through the Arab world to Europe.
- **Aryabhata** gave a remarkably accurate value of π (3.1416), worked out the rules for sines, and stated that the Earth **rotates on its own axis**, explaining the apparent daily motion of the stars.
- **Brahmagupta** set out the rules for operating with negative numbers and zero, and made accurate calculations of planetary positions and eclipses; Varahamihira's *Brihat Samhita* compiled astronomy alongside geography and natural science.

E10

4 Marks

Compare the polity of the Early Vedic period with that of the Later Vedic period.

EARLY VEDIC

- Power rested with a **tribal chief (rajan)** who was primarily a leader in war, not an owner of territory.
- He was restrained by the **sabha, samiti and vidatha**, and received only voluntary gifts (*bali*) — there was no regular taxation, no standing army and no bureaucracy.

LATER VEDIC

- Iron tools allowed clearing of the Ganga–Yamuna doab and settled agriculture, which produced a surplus; power now rested on **land and territory**, and kingdoms called *janapadas* emerged.
- Kingship became **hereditary and much stronger**, legitimised by grand sacrifices (rajasuya, ashvamedha) performed by priests; regular tribute was collected, officials appeared, and the assemblies lost most of their influence.

THE UNDERLYING CAUSE

- The change was driven by economy: as the basis of wealth shifted from **cattle to land**, power shifted from the tribe to the territorial king.

E11

4 Marks

Case study. A Gupta-period inscription records that a guild of silk weavers migrated from Lata (Gujarat) to Mandasor (Madhya Pradesh), and that the guild used its funds to build and later repair a temple of the Sun. (i) What does the migration tell us about craftsmen? (ii) What does the temple-building tell us about guilds? (iii) Name two other functions of a guild. (iv) What kind of source is this inscription?

ANSWER

- **(i) Craftsmen were mobile and organised:** a whole guild could move across the subcontinent together in search of better patronage and markets, which also means routes were reasonably safe and demand for fine silk existed far from where it was woven.
- **(ii) Guilds were wealthy and enjoyed high social standing.** They had collective funds, acted as endowment bodies, and undertook public religious works in their own name — not as individuals but as a corporate body, and they maintained the work over generations.
- **(iii) Fixing standards of quality and price and training apprentices; and acting as bankers and arbitrators —** accepting deposits, lending money and settling disputes among members.
- **(iv) A primary source —** an inscription made at the time by the people involved, and therefore contemporary evidence rather than a later account.

E12

5 Marks

"Ancient Indian trade carried goods outwards and brought prosperity inwards, but it also carried ideas." Explain with five examples.

ANSWER

- **The Silk Route** carried silk, spices and gems westward under Kushana control, but it also carried **Buddhism** into Central Asia, China and beyond — the cave monasteries along the route are the physical evidence.
- **The Roman trade** through Muziris and Bharuch drew so much gold into India for pepper, muslin and gems that Roman writers complained of the drain; Roman coin hoards in south India confirm the scale of it, and Roman glass and wine came back the other way.
- **Southeast Asia** received Indian scripts, Sanskrit, the Ramayana and Mahabharata, and Hindu and Buddhist temple architecture — which is why Angkor Wat in Cambodia and Borobudur in Java exist.
- **Indian numerals and mathematics**, including zero, travelled through Arab traders and scholars to Europe, where they are still called Hindu-Arabic numerals.
- **Indian medicine and astronomy** were translated into Arabic and Chinese, while in return India received the horse trade, new artistic influences from Gandhara, and West Asian glass and wine.

CONCLUSION

- Trade routes were therefore also **knowledge routes**: goods paid for the journey, but ideas, faiths, art styles and technologies travelled free of cost along with them.

 Quick Revision — last-minute points

1. kula → jana → janapada → mahajanapada → empire.
2. Vedic assemblies: sabha, samiti, vidatha.
3. Saptāṅga: swami, amatya, janapada, durga, kosha, danda, mitra.
4. Inscriptions: Junagadh (Sudarshana lake), Uttaramerur (village assembly), Nashik (guild deposits).
5. Varna = 4, flexible at first; jati = many, by birth.
6. Learning centres: Takshashila, Nalanda, Vikramashila.

Memory trick: Sudarshana = **S**ame stone, **S**everal rulers

CHAPTER 6

Democracy

9 instructional hours · Political Science · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: understand the features of democracy; appreciate early democratic traditions in India and how they influenced modern democracy; **differentiate between parliamentary and presidential systems**; and identify examples of both across countries such as India, the USA, France, Russia and Canada.

The parliamentary-versus-presidential comparison and the 'roots of democracy in India' are the two new points here. The old chapters never asked you to compare India with France or Russia — this one does.



6.1 What democracy means

- **Democracy** comes from the Greek *demos* (people) and *kratos* (rule) — rule by the people.
- Abraham Lincoln’s definition, still the most quoted: government **of the people, by the people, for the people**.
- The working definition for this course: **a form of government in which the rulers are chosen by the people through free and fair elections, and are accountable to them.**

Feature	What it means	What happens without it
Elected rulers	The people’s representatives, not hereditary or self-appointed leaders, take the final decisions	A monarchy or dictatorship, however popular
Free and fair elections	Real choice, a level playing field, and a genuine chance of the ruling party losing	A sham election, as in a one-party state
One person, one vote, one value	Universal adult franchise with every vote counting equally	Rule by a privileged section only
Rule of law and respect for rights	Government works within a constitution that guarantees basic rights and an independent judiciary enforces them	An elected government that turns majoritarian and tyrannical
Accountability and transparency	Citizens can question, scrutinise and remove the government	Corruption and arbitrary rule

Type	Meaning	Example
Direct democracy	Citizens themselves take decisions in an assembly or referendum	Ancient Athens; the referendum in Switzerland; the Indian gram sabha
Indirect (representative) democracy	People elect representatives who decide on their behalf	India, the UK, the USA — unavoidable in large populations
Parliamentary democracy	The executive is drawn from and answerable to the legislature	India, the UK, Canada
Presidential democracy	A separately elected President heads the executive, independent of the legislature	The USA, Russia, Brazil

Merits: it is the most accountable form of government; it accommodates differences and conflicts peacefully; it enhances the dignity of the citizen; it allows its own mistakes to be corrected without violence. **Demerits:** frequent elections make it slower; coalition politics can cause instability; decisions may be delayed by debate; and elected leaders may still be corrupt or ignorant of policy.

NN 6.2 Roots of democracy in India

- **Vedic assemblies:** the **sabha** and **samiti** debated public matters and could restrain the tribal chief.
- **Ganas and sanghas:** republics such as the **Vajji confederacy** under the Lichchhavis of Vaishali, and the Shakyas and Mallas, were governed by assemblies of many members rather than by a single king; the Buddha himself praised their practice of meeting regularly and deciding in concord.
- **Guilds (shreni)** framed their own written rules, elected their own heads and settled their own disputes — self-government in economic life.
- **The Uthiramerur inscriptions** (Chola, 10th century CE) record village committees chosen **by lot** from qualified candidates, with fixed terms, compulsory submission of accounts, and disqualification of anyone found corrupt — along with his relatives.
- **The village panchayat** survived as a working institution across every change of dynasty, and was given constitutional status by the **73rd Amendment (1992)**.

Why this matters for the exam. The point is not that ancient India had modern democracy — it did not; these assemblies were restricted in membership and were not based on universal adult franchise. The point is that **the habits of deliberation, election, fixed terms and accountability were already familiar**, so the Constituent Assembly was building on Indian ground as well as on Western models. Write it that way and you will get full marks.

6.3 Parliamentary and presidential systems

Point of difference	Parliamentary system	Presidential system
Head of state and head of government	Two different people — a nominal head of state (President or monarch) and a real head of government (Prime Minister)	The same person — the President is both
Source of the executive	The executive is drawn from the legislature and must be a member of it	The President is elected separately by the people and is not a member of the legislature
Responsibility	The Council of Ministers is collectively responsible to the legislature and falls if it loses confidence	The President has a fixed term and cannot normally be removed except by impeachment
Separation of powers	Partial — the executive and legislature are fused	Strict — the three organs are kept separate with checks and balances
Tenure	Uncertain; the government can fall at any time	Fixed and certain
Advantage	Harmony between executive and legislature; continuous accountability	Stability, decisiveness, expert ministers
Drawback	Instability, especially with coalitions	Risk of deadlock between President and legislature; risk of autocracy
Countries	India, the UK, Canada, Japan, Australia	The USA, Brazil, Indonesia

- **India:** a parliamentary democracy — the President is the constitutional head; the **Prime Minister and the Council of Ministers** hold real power and are collectively responsible to the Lok Sabha.
- **The USA:** presidential — the President is elected separately (through an electoral college), appoints a cabinet from outside Congress, and serves a fixed four-year term.
- **France:** a **semi-presidential** system — a directly elected President with real power *and* a Prime Minister answerable to the National Assembly.
- **Russia:** also semi-presidential in form, with a very powerful President.
- **Canada:** parliamentary, a constitutional monarchy in which the British monarch is represented by a Governor General while the Prime Minister governs.

⚠ 6.4 Challenges to democracy in India

Challenge	What it looks like	What can be done
Poverty and inequality	Political equality without economic equality; the poor are easily influenced	Welfare programmes, employment guarantees, quality public education and health
Illiteracy and low awareness	Voters cannot judge manifestos or hold leaders to account	Universal education; voter awareness drives
Casteism, communalism and regionalism	Votes sought in the name of identity rather than performance	Strict enforcement of electoral law; civic education; a strong shared national identity that respects diversity
Money and muscle power	Spending far beyond legal limits; candidates with criminal cases	Expenditure ceilings and audit; mandatory disclosure of assets and cases; electoral reform
Criminalisation of politics	Persons facing serious charges winning seats	Fast-track courts for elected representatives; disqualification rules
Corruption and lack of transparency	Decisions bought and sold	Right to Information, Lokpal and Lokayukta, e-governance, citizen vigilance
Defection and instability	Legislators changing parties for office	The Anti-Defection Law (Tenth Schedule)
Low voter turnout, especially urban	Educated city voters staying away	SVEEP awareness campaigns; convenient polling; NOTA as a signal

How to write a 5-mark answer on challenges: name the challenge, explain it in one sentence, give one concrete Indian example, and end with one remedy. Never list challenges without remedies — the competency-based marking scheme expects the solution.

PART A+ — NCERT TEXTBOOK TOPICS (SIMPLE NOTES)

Why this section? These topics are in your printed NCERT textbook but were missing above. Read them here — no need to open another book.

Key features of democracy (NCERT terms)

Term	Simple meaning	Example
Popular sovereignty	Final power belongs to the people	Citizens vote to choose representatives
Rule of law	Everyone is equal before law; no one is above it	A minister can also be taken to court

Separation of powers	Legislature makes laws, executive implements, judiciary interprets — checks and balances	Courts can review government actions
Accountability & transparency	Government must answer to people	Question Hour, audit, RTI Act 2005
Multi-party system	Many parties compete; coalition if no single majority	Over 2,800 registered parties in India
Federalism	Power shared between Union and States	Delhi govt vs municipal body vs Union govt
Civil society	Citizens' groups outside government	NGOs, cooperatives, trade unions, media

Rights, duties and directive principles

Fundamental Rights	Fundamental Duties	Directive Principles
Basic freedoms of citizens	Moral responsibilities of citizens (Article 51A)	Guidelines for the government
Enforceable in courts	Not enforceable	Not enforceable
e.g. Right to Education, Art. 21A (2009) : free & compulsory education for age 6–14	e.g. respect the Constitution, protect environment	e.g. welfare, equal pay

- **Forms of democracy:** **Direct** (people decide themselves, e.g. Switzerland) and **Representative** — **Parliamentary** (India, UK, Canada: executive answerable to legislature) or **Presidential** (USA).
- **Quorum** = minimum number of members who must be present for a meeting to take decisions.
- Case studies: **Jethipura Gram Panchayat** (regular and special Gram Sabhas, **Mahila Sabhas**, inclusion of women, SC and ST) and **South Manubankul Gram Panchayat** (self-help groups, women-friendly development).
- India in numbers: about **96.8 crore** registered voters, over **10 lakh** polling stations, elections in **22** scheduled languages.
- Grassroots leaders: Gandhiji's **Gram Swaraj**, Vinoba Bhave's **Bhoodan**, Jayaprakash Narayan's decentralisation.
- Challenges: illiteracy, poverty, inequality, caste/gender divisions, and **fake news/misinformation** on social media.

Challenges to democratic practices — the Emergency (1975–77)

Point	What the textbook covers
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Background	Early 1970s: growing public dissatisfaction — rising unemployment, inflation and allegations of misgovernance led to widespread protests (movement led by Jayaprakash Narayan).
Declaration	25 June 1975 : President Fakhruddin Ali Ahmed proclaimed a National Emergency under Article 352 , on the recommendation of Prime Minister Indira Gandhi , on grounds of ' internal disturbance ' (not war or external aggression).
What happened	Fundamental Rights were restricted, the press was censored, and many opposition leaders and activists were arrested.
End	Lifted in March 1977 (about 21 months). In the general election that followed, the ruling government was defeated .
Lesson	Voters used the ballot to correct the course → this showed the strength of Indian democracy . Later, the 44th Amendment (1978) replaced 'internal disturbance' with 'armed rebellion' as a ground for emergency, to prevent misuse.

- **Media — the 'fourth pillar of democracy'** (after legislature, executive and judiciary): it informs citizens, raises public concerns and keeps government accountable. A free press is essential — its censorship in 1975–77 shows why.
- **Democracy and You**: democracy works only when citizens take part — vote, stay informed, check facts before sharing, respect others' views, and perform Fundamental Duties.

Exam tip: In an answer on the Emergency, write facts (date, Article 352, ground, restrictions, 1977 election) and the lesson for democracy. Keep the language neutral and factual.

PART B1 — NCERT TEXTBOOK EXERCISE ('QUESTIONS AND ACTIVITIES') — SOLVED

These are the **actual end-of-chapter questions** of your NCERT textbook, answered point-wise. Activity/project questions have a short 'how to do it' guide.

NCERT Q1

Textbook

Passage: a school cabinet voted on Republic Day activities. (a) Democratic values? (b) How does voting resolve differences? (c) Why is majority decision important? (d) Responsibilities of representatives after the decision?

- (a) Participation, equality, discussion, majority rule, respect for others' views.
- (b) Everyone expresses a choice fairly; the majority choice is accepted **peacefully**.
- (c) It reflects what most people want and allows a decision to be made.
- (d) Implement the decision honestly, include everyone, remain accountable, respect the minority view.

NCERT Q2**Textbook**

How would democracy be affected if citizens stopped following laws and civic duties? Give an example.

- There would be disorder, misuse of rights and loss of trust in institutions.
- **Example:** if people forward fake news without checking, voters are misled and democracy is weakened.

NCERT Q3**Textbook**

Which situation best reflects popular sovereignty?

(b) Citizens vote to choose their representatives — power comes from the people.

NCERT Q4**Textbook**

The Rule of Law is violated when:

(c) Powerful individuals are treated above the law.

NCERT Q5**Textbook**

Why is the Rule of Law essential for protecting democracy?

- Everyone is **equal before law**; no one is above it.
- It protects citizens' rights and prevents misuse of power.
- It ensures justice through fair legal procedures and builds trust.

NCERT Q6**Textbook**

Is voting alone enough to make a country democratic? Give examples from the chapter.

- **No.** Democracy also needs rule of law, rights, accountability, transparency and active participation.
- Example: **Jethipura** and **South Manubankul** Gram Panchayats involve people through Gram Sabhas and Mahila Sabhas.
- The **RTI Act 2005** lets citizens question the government.

NCERT Q7**Textbook**

Social media: (a) how can it strengthen democracy? (b) how can it weaken democracy?

Strengthens	Weakens (if misused)
Citizens express views, discuss issues	Fake news and rumours spread fast
Awareness and information	Public opinion is misled
Holds government accountable	Can create conflict and distrust

NCERT Q8**Textbook**

Write a paragraph on what democracy means to you as a young citizen.

Model: To me democracy means equal rights, freedom to speak and a fair chance to take part in decisions. I practise it at school when we choose class representatives and respect every view, and at home when my opinion is heard. As a young citizen I must follow rules, check facts before sharing, do my Fundamental Duties and, at 18, vote. Democracy is not only a government; it is a way of life.

NCERT Q9**Textbook**

Conduct a model Parliament or Gram Sabha in class on a local issue.

ACTIVITY — HOW TO DO IT

Choose a Sarpanch/Speaker; pick one issue (cleanliness, safety); let 5–6 members give suggestions; vote; record the decision and who will implement it.

NCERT Q10**Textbook**

Choose one democratic institution (e.g. Panchayat). Explain (a) its role, (b) how it ensures accountability and participation.

- (a) Panchayat: basic unit of local self-government; looks after water, sanitation, roads; brings democracy to the village.
- (b) The **Gram Sabha** reviews its work and asks questions (accountability); seats reserved for women, SC and ST ensure inclusive participation.

NCERT Q11

Textbook

What role does the Constitution play in strengthening democracy in India?

- Gives the framework of government and **separation of powers**.
- Guarantees **Fundamental Rights**; lists Duties and Directive Principles.
- Creates institutions — Parliament, judiciary, Election Commission — for free and fair elections and rule of law.

NCERT Q12

Textbook

What challenges does democracy in India face today?

- Illiteracy and poverty limit equal participation.
- Inequality and divisions of caste, region and gender.
- **Misinformation/fake news** on social media.
- Poor implementation of laws and low civic participation.

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)**Q1**

5 Marks

What is democracy? Explain any four features of a democratic government.

MEANING

- **Democracy is a form of government in which the rulers are chosen by the people through free and fair elections and remain accountable to them** — government of the people, by the people and for the people.

FOUR FEATURES

- **The final decision-making power rests with elected representatives.** Real authority must lie with those the people chose, not with a hereditary monarch, an army chief or officials.
- **Free and fair elections** held at regular intervals, with real choice between alternatives and a genuine possibility that the ruling party can lose.
- **One person, one vote, one value** — universal adult franchise, with every adult citizen's vote counting equally regardless of wealth, gender, caste or religion.
- **Rule of law and respect for rights** — the government works within a constitution that guarantees fundamental rights, and an independent judiciary can strike down any law or action that violates them.

Appreciate the early democratic traditions in India and explain how they influenced modern democracy.

THE EARLY TRADITIONS

- The Vedic **sabha and samiti** were assemblies that debated public questions and could restrain the chief.
- The **ganas and sanghas** — the Vajji confederacy of the Lichchavis, the Shakyas, the Mallas — were republics governed by assemblies of many members instead of a single hereditary king.
- **Guilds (shreni)** framed their own rules, elected their heads and arbitrated disputes — self-government in the economic sphere.
- The **Uthiramerur inscriptions** of the Cholas record village committees chosen by lot from candidates with written qualifications, holding office for a fixed term, obliged to submit accounts, and disqualified for corruption along with their relatives.

THEIR INFLUENCE

- They made the ideas of **deliberation, election, fixed tenure and accountability** familiar in Indian life long before 1947, so democracy was not felt to be a purely foreign import.
- The village assembly survived into modern times and was given constitutional status by the **73rd Amendment**, which created elected panchayats at three levels with reservation for women and weaker sections.

AN HONEST QUALIFICATION

- These older assemblies were **not** based on universal adult franchise and their membership was restricted. The continuity lies in the **habit and the principle** of self-government, not in the modern form of it.

Q3**5 Marks**

Differentiate between the parliamentary and the presidential systems of government, and identify examples of each.

THE DIFFERENCES

- **Heads:** in a parliamentary system the head of state (President or monarch) and the head of government (Prime Minister) are different people; in a presidential system one person is both.
- **Origin of the executive:** the parliamentary executive is drawn from the legislature and must be a member of it; the President is elected separately by the people and is not a member of the legislature.
- **Responsibility:** the parliamentary Council of Ministers is collectively responsible to the legislature and must resign if it loses confidence; the President has a fixed term and can be removed only by impeachment.
- **Separation of powers:** partial in the parliamentary system, where executive and legislature are fused; strict in the presidential system, with elaborate checks and balances.
- **Stability against accountability:** the presidential system gives a stable fixed tenure; the parliamentary system gives continuous day-to-day accountability but risks instability.

EXAMPLES

- **Parliamentary:** India, the United Kingdom, Canada, Japan, Australia.
- **Presidential:** the United States of America, Brazil, Indonesia.
- **Semi-presidential (a mix of the two):** France and Russia, where a powerful directly elected President coexists with a Prime Minister answerable to the legislature.

Q4**4 Marks**

Explain any four challenges to democracy in India and suggest one measure to address each.

SOLUTION

- **Poverty and inequality.** Political equality means little when large numbers lack food, education or secure work, and poor voters can be bought or pressured. — *Remedy:* employment guarantee schemes, quality public education and health care.
- **Money and muscle power in elections.** Spending far beyond the legal ceiling and intimidation of voters distort the level playing field. — *Remedy:* strict expenditure audit by the Election Commission and mandatory disclosure of assets and criminal cases by candidates.
- **Casteism, communalism and regionalism.** Votes sought in the name of identity rather than performance divide society and weaken accountability. — *Remedy:* firm enforcement of the law against appeals on grounds of religion or caste, together with civic education.
- **Corruption and lack of transparency.** Decisions taken for private gain destroy public trust. — *Remedy:* effective use of the Right to Information Act, Lokpal and Lokayukta institutions, and e-governance that reduces discretion.

E1

1 Mark

From which language does the word 'democracy' come, and what do its parts mean?

Greek — *demos* (people) and *kratos* (rule).

E2

1 Mark

Name the body of a village in India that is an example of direct democracy.

The gram sabha.

E3

1 Mark

Which amendment gave constitutional status to panchayati raj?

The 73rd Amendment, 1992.

E4

1 Mark

Name one country with a semi-presidential system.

France (Russia is also acceptable).

E5

2 Marks

Distinguish between direct and indirect democracy.

ANSWER

- In a **direct democracy** citizens themselves take the decisions in person, as in ancient Athens, a Swiss referendum or an Indian gram sabha.
- In an **indirect (representative) democracy** citizens elect representatives who take decisions on their behalf — the only workable form in a country as large as India.

E6**2 Marks**

Why is universal adult franchise essential to democracy?

ANSWER

- It puts into practice the principle of **political equality** — one person, one vote, one value — so no citizen is treated as less worthy because of wealth, gender, caste or religion.
- It forces the government to be answerable to **everyone**, including the poorest, because every adult's vote counts the same at the ballot box.

E7**3 Marks**

"Democracy is slow and inefficient, but it is still better than other forms of government." Give three reasons in support.

ANSWER

- **It is the most accountable form of government.** Rulers must face the voters again, so they have a continuing reason to explain and justify what they do — no dictator ever has to.
- **It handles conflict peacefully.** In a diverse society, disagreements are settled by debate, negotiation, courts and elections rather than by force, which holds the country together.
- **It corrects its own mistakes.** A bad government can be voted out without bloodshed; a dictatorship can usually be changed only by violence. Democracy also enhances the dignity of the individual by treating every citizen as an equal.

E8**3 Marks**

Explain how poverty and illiteracy weaken democracy in practice.

ANSWER

- **Poverty makes voters vulnerable.** Cash, liquor or the promise of immediate relief can influence a voter whose daily survival is uncertain, so the vote stops being a free judgment on performance.
- **Illiteracy limits informed choice.** A voter who cannot read a manifesto, a budget or a news report finds it hard to compare parties or to detect false promises.
- **Together they weaken accountability.** Citizens who lack information and bargaining power cannot effectively demand schools, hospitals or clean water — so the government faces less pressure to deliver, and inequality deepens further.

Case study. A country holds elections every five years. Only one party is allowed to contest, newspapers need government permission to publish, and courts cannot question government orders. (i) Is this a democracy? (ii) Give three reasons for your answer. (iii) Name one feature it does satisfy.

ANSWER

- (i) No. Holding elections is not by itself enough — this is an **authoritarian state wearing the outward form of democracy**.
- (ii) **Reason 1 — no real choice:** with only one party permitted, voters cannot remove the rulers, and the ruling party can never lose. An election without an alternative is not a free and fair election.
- **Reason 2 — no freedom of expression:** if newspapers need permission to publish, citizens cannot get independent information or criticise the government, so they cannot judge it.
- **Reason 3 — no rule of law:** if courts cannot review government orders, there is nothing to stop the violation of rights; the government is above the law rather than under it.
- (iii) It does satisfy the feature of **regular elections at fixed intervals** — which is exactly why that feature alone is never a sufficient test of democracy.

"India chose a parliamentary system rather than a presidential one." Explain the parliamentary system and give reasons why it suited India.

WHAT THE PARLIAMENTARY SYSTEM IS

- The **President is the constitutional (nominal) head** of the State, while real executive power rests with the **Prime Minister and the Council of Ministers**.
- Ministers are drawn from the legislature and must be members of it; they are **collectively responsible to the Lok Sabha** and must resign if they lose its confidence.

WHY IT SUITED INDIA

- **Familiarity:** Indians had already worked this system under the Government of India Acts of 1919 and 1935, so it did not have to be learnt from scratch.
- **Continuous accountability:** ministers face question hour, debates, motions and the threat of a no-confidence vote every working day, not merely once in five years.
- **Better for a plural society:** a coalition or a broad-based cabinet can represent many regions, languages and communities, whereas a single elected President represents only the winning side.
- **Avoids deadlock and personal rule:** because the executive comes out of the majority in the legislature, the two organs cannot be locked in permanent conflict as they can under a presidential system, and no single individual holds a fixed, unremovable term.

THE TRADE-OFF ACCEPTED

- India accepted a degree of **instability** — governments can fall mid-term — in exchange for stronger day-to-day accountability. The Anti-Defection Law was later added to reduce that instability.

Quick Revision — last-minute points

1. Democracy = rule by the people (Greek demos + kratos).
2. Features: popular sovereignty, rule of law, separation of powers, rights, accountability, multi-party system.
3. Fundamental Rights enforceable; Duties and Directive Principles not.
4. RTE = Article 21A (2009), age 6–14.
5. Emergency 1975–77: Article 352, 'internal disturbance'; rights restricted; 1977 election → ruling party defeated.
6. Direct (Switzerland) vs representative — parliamentary (India) / presidential (USA).

Memory trick: “**PRSFAM**” = Popular, Rule, Separation, Fundamental, Accountability, Multi-party

CHAPTER 7

Elections

9 instructional hours · Political Science · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: identify why elections matter in a democracy; **categorise three types of electoral system**; identify the major laws governing elections in India; describe the main provisions of the Representation of the People Acts; define **delimitation** and its purpose; identify the role of the Election Commission of India; explain constituency, electoral roll and enumerator; understand the party system; and explain coalition government and the key provisions of the **Anti-Defection Law**.

Three things here are new and will certainly be examined: the **three types of electoral system**, the **Delimitation Commission**, and the **Anti-Defection Law**. None of these was in the old Class 9 syllabus.



7.1 Why elections are necessary

- A country of 140 crore people cannot govern itself directly, so representatives must be chosen — and chosen **periodically**, so that they can be replaced.
- **What elections achieve:** they let people choose who will make laws and form the government; they let people judge the record of those already in power and remove them; they give the government **legitimacy**, because it can claim to speak for the people; they force parties to state policies and make promises that can later be held against them; and they give even the poorest citizen a moment of real, equal power.
- **What makes an election democratic:** everyone gets one vote of equal value; there is real choice between parties; elections are held regularly at fixed intervals; the voter's preference is genuinely free and secret; and the process is conducted fairly by an independent authority.



7.2 The three types of electoral system

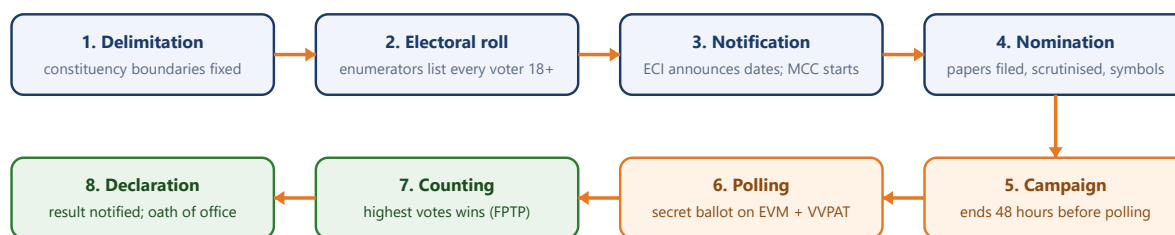
System	How it works	Strengths	Weaknesses	Where used
First Past The Post (FPTP) / plurality	The country is divided into constituencies; the candidate with the most votes in each constituency wins, even without a majority	Simple to understand and count; gives a clear local representative; usually produces a stable single-party majority	A party can win many seats with a minority of the total votes; smaller parties are under-represented; many votes are 'wasted'	India (Lok Sabha and State Assemblies), the UK, the USA, Canada
Proportional Representation (PR)	Seats are allotted to parties in proportion to the votes they win , usually from party lists over large multi-member areas	Fair to small parties and minorities; almost no vote is wasted; the legislature mirrors public opinion	Usually produces coalitions and instability; the voter has no single personal representative; parties, not voters, pick who fills the seats	Israel, the Netherlands, South Africa; in India, for Rajya Sabha and presidential elections (as the single transferable vote)
Mixed / hybrid	Part of the legislature is elected by FPTP from constituencies and part by PR from lists	Combines local representation with overall fairness	Complicated; creates two classes of member	Germany, New Zealand

Why India chose FPTP: the Constituent Assembly wanted a system that **ordinary voters, many of them not literate in 1950, could understand at once**; that gave every area its own identifiable MP; and that would produce a stable government in a newly independent and fragile country. PR was considered and rejected as too complex and too fragmenting.

7.3 Constituencies, delimitation and electoral rolls

- A **constituency** is the geographical area from which voters elect one representative. India is divided into 543 Lok Sabha constituencies, each further divided into assembly constituencies.
- **Reserved constituencies:** some seats are reserved for Scheduled Castes and Scheduled Tribes so that these communities get fair representation. Any voter of the constituency may vote, but only a candidate from the reserved community may contest.
- **Delimitation** is the fixing or redrawing of the boundaries and number of constituencies so that each has roughly **equal population**. It is carried out by a **Delimitation Commission**, a high-powered independent body headed by a retired Supreme Court judge, whose orders have the force of law and cannot be questioned in court.
- **Its purpose:** to keep the value of a vote equal. Populations grow unevenly, so without periodic redrawing one MP might represent 30 lakh people and another 8 lakh — a clear violation of 'one person, one vote, one value'. It also revises the reserved seats in line with the latest census.
- The **electoral roll** (voters' list) contains the name of every citizen aged 18 and above who is eligible to vote. It is revised regularly; **enumerators** are the officials who go house to house to add new voters, delete those who have died or moved, and correct errors. Every registered voter is issued an **EPIC** (voter identity card).

How an election is actually conducted in India — the workflow



The Election Commission of India (Article 324) supervises every one of these eight stages and can postpone or cancel a poll.

Governing laws: Representation of the People Acts, 1950 (rolls) and 1951 (conduct, offences, disqualification).

MCC = Model Code of Conduct · FPTP = First Past The Post · VVPAT = Voter Verifiable Paper Audit Trail

Fig. 7.1 — The eight stages of an Indian election.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.



7.4 The Election Commission of India and the election laws

- The **Election Commission of India (ECI)** is an independent constitutional body created by **Article 324**. It consists of a Chief Election Commissioner and other Election Commissioners, appointed by the President; the CEC can be removed only in the same manner as a Supreme Court judge, which protects the Commission's independence.
- **Its functions:** prepare and revise electoral rolls; announce the schedule and conduct elections to Parliament, State Legislatures and the offices of President and Vice-President; register political parties and allot symbols; recognise national and state parties; enforce the **Model Code of Conduct**; monitor campaign expenditure; order re-polls or cancel a poll where it has been vitiated; and transfer officials it considers partisan during the election period.
- **The Model Code of Conduct** comes into force the moment elections are announced. Parties and candidates may not use government machinery or funds for campaigning, announce new projects or grants, appeal to voters on grounds of religion or caste, or bribe or intimidate voters; campaigning must stop 48 hours before polling ends.

Law	Year	Main provisions
Representation of the People Act, 1950	1950	Allocation of seats to States; delimitation of constituencies; qualifications of voters; preparation and revision of electoral rolls; appointment of electoral registration officers
Representation of the People Act, 1951	1951	The actual conduct of elections; qualifications and disqualifications of candidates; registration of political parties; corrupt practices (bribery, undue influence, appeals on grounds of religion, race, caste, community or language, booth capturing); election offences; and election petitions to challenge a result

Key voting facts: the voting age was lowered from 21 to 18 by the **61st Amendment, 1988**. Voting is by **secret ballot** on an **EVM** backed by a **VVPAT** slip. **NOTA** (None Of The Above) lets a voter reject all candidates, though the candidate with the most valid votes still wins.

7.5 The party system, coalitions and the Anti-Defection Law

- A **political party** is a group of people who share a set of policies, contest elections to capture power and, failing that, act as the opposition. Its functions: contest elections, put forward policies and programmes, make laws, form and run governments, shape public opinion, act as the link between citizens and government, and provide access to welfare schemes.
- **Types of party system:** a **one-party system** (China — not democratic); a **two-party system** (the USA, the UK — stable but limited choice); and a **multi-party system** (India — representative of many interests and regions, but often producing coalitions).
- **India's parties** are of two recognised kinds: **national parties**, recognised in four or more states, and **state (regional) parties**. Recognition and the reserved election symbol are granted by the ECI on the basis of votes and seats won.
- **Coalition government:** a government formed by two or more parties when no single party wins a majority, based on a common minimum programme and sharing of ministries. **Merits** — it represents a wider spread of regions and interests, encourages consensus and checks any one party's dominance. **Demerits** — it can be unstable, slow to decide, and vulnerable to blackmail by small allies.

The Anti-Defection Law — the Tenth Schedule, added by the 52nd Amendment, 1985. Why it was needed: through the 1960s and 1970s legislators changed parties in exchange for office or money — the era of *Aaya Ram, Gaya Ram* — toppling governments the voters had chosen. **Grounds for disqualification:** (i) an elected member **voluntarily gives up membership** of the party on whose ticket he was elected; (ii) he **votes or abstains against the party whip** without permission; (iii) an independent member joins a party after the election; (iv) a nominated member joins a party more than six months after taking his seat. **Exception:** a **merger** in which not less than **two-thirds** of the party's legislators agree. **Who decides:** the Speaker or Chairman of the House, whose decision is subject to judicial review. **Criticism:** it strengthens the party high command at the cost of the individual legislator's conscience, and Speakers have sometimes delayed decisions for political advantage.

PART A+ — NCERT TEXTBOOK TOPICS (SIMPLE NOTES)

Why this section? These topics are in your printed NCERT textbook but were missing above. Read them here — no need to open another book.

- **Direct election:** people vote themselves — Lok Sabha, State Vidhan Sabhas, Panchayats. **Indirect election:** elected representatives vote — Rajya Sabha, President of India.
- **Inclusive elections:** the ECI provides ramps, Braille, wheelchairs and a **home-voting** facility for very senior citizens (85+) and persons with disabilities.
- **Misinformation / fake news** is a new challenge: check the source, verify with official sites (ECI), do not forward unverified messages.
- **Digital initiatives** of the ECI: online voter registration, voter helpline app, cVIGIL app to report code-of-conduct violations.

More NCERT facts on elections

- **ETPBS** lets service voters (armed forces, state police serving outside their state, government staff abroad, and their spouses) vote by e-postal ballot.
- **Home voting**: senior citizens aged **85+** and PwDs with 40%+ disability. The **Saksham app** helps PwD voters.
- Prisoners serving a sentence cannot vote; persons in **preventive detention** can (postal ballot).
- **SIR** (Special Intensive Revision) = thorough check and update of voter lists.
- **Delimitation**: Article 82; commissions in 1952, 1963, 1973 and 2002. The **42nd Amendment (1976)** froze seats on the 1971 census so that states that controlled population were not punished.
- Voter registration: **Form 6** (online on the voters' portal or Voter Helpline app, or offline to the BLO) → you get the **EPIC** card.
- **cVIGIL** app: any citizen can report MCC violations with photo/video.
- Rajya Sabha is elected by **proportional representation – single transferable vote (STV)**.
- Debate topic: **One Nation, One Election** (simultaneous Lok Sabha and Assembly polls).

PART B1 — NCERT TEXTBOOK EXERCISE ('QUESTIONS AND ACTIVITIES') — SOLVED

These are the **actual end-of-chapter questions** of your NCERT textbook, answered point-wise. Activity/project questions have a short 'how to do it' guide.

NCERT Q1

Textbook

What reforms has the ECI introduced to make voting more inclusive for: (a) People with Disabilities (b) Service voters (c) Senior citizens (d) Prisoners (e) Persons in preventive detention?

Group	Reform
(a) PwDs	Ramps, wheelchairs, volunteers, Braille on EVMs, transport help, Saksham app ; home voting for benchmark disability (40%+)
(b) Service voters	ETPBS — Electronically Transmitted Postal Ballot System (armed forces, police serving outside their state, government staff posted abroad, and their spouses)
(c) Senior citizens	Priority queues and help at booths; home voting by postal ballot for 85 years and above
(d) Prisoners	Persons in prison serving a sentence or in police custody cannot vote (RPA 1951)
(e) Preventive detention	Not convicted, so they can vote by postal ballot

NCERT Q2

Textbook

What are the functions of the ECI? Which is most important for free and fair elections?

- Prepares and updates **electoral rolls**; fixes the election schedule.
- Conducts elections to Parliament, State Legislatures, President and Vice-President.
- Registers parties and allots **symbols**; enforces the **Model Code of Conduct**.
- Supervises polling and counting; declares results.
- **Most important:** ensuring **free and fair polling** — without it, all other work is meaningless and people lose trust.

NCERT Q3

Textbook

"Elections are the soul of a democracy." Do you agree?

- **Yes.** People choose their representatives — popular sovereignty.
- Leaders are **accountable**; they can be voted out.
- Power changes hands **peacefully**.
- Diverse groups get representation. (But elections alone are not enough — rights and rule of law are also needed.)

NCERT Q4

Textbook

Explain three differences between national and state/regional parties.

National party	State/regional party
Works in many states	Works mainly in one state/region
National issues: defence, economy, foreign policy	Regional issues: language, local development
Recognised by ECI on performance in several states	Recognised on performance within the state
e.g. BJP, INC, AAP	e.g. DMK, TMC, BJD

NCERT Q5

Textbook

Why should you vote? Arrange in descending order: (a) choose my representative (b) makes me responsible (c) change a non-performing representative (d) strengthens democracy.

Suggested order: (d) > (a) > (c) > (b). Strengthening democracy is the biggest purpose; choosing the representative is the core act; removing a bad one ensures accountability; becoming responsible is a personal benefit. (Any order with good reasons is accepted.)

NCERT Q6**Textbook**

What is the Special Intensive Revision (SIR) of the ECI? Explain its objectives and necessity.

- SIR = a special, house-to-house **updating and checking of electoral rolls**.
- Objectives: add all eligible voters; remove dead, shifted and duplicate names; correct errors.
- Necessity: an accurate roll prevents **bogus voting** and protects every genuine voter's right.

NCERT Q7**Textbook**

Match the political party with its symbol.

ACTIVITY — HOW TO DO IT

Use the symbol chart in your textbook. Tip: BJP – lotus; INC – hand; AAP – broom; BSP – elephant; CPI(M) – hammer, sickle and star; NPP – book.

NCERT Q8**Textbook**

Case study: Ishani votes for the first time. (a) ECI initiatives seen (b) other valid document (c) MCC violations (d) title (e) how police/army vote.

- (a) Online registration, police security, wheelchair and volunteers, **VVPAT, home voting** for her 89-year-old grandmother.
- (b) Any ECI-approved photo ID: passport, driving licence, PAN card, MNREGA job card, bank/post-office passbook with photo, pension document with photo, etc.
- (c) Wall writing, posters, pamphlets and slogans **a day before polling** — campaigning must stop **48 hours before** polling ends.
- (d) 'My First Vote' / 'A Day at the Polling Booth'.
- (e) By **postal ballot** (election duty) and **ETPBS** (service voters).

NCERT Q9**Textbook**

From the comparative chart: (a) difference between voting in a multi-party vs single-party system (b) where would you like to live and why?

- (a) Multi-party: real **choice** among parties and policies. Single-party: vote without real choice.
- (b) The country with a written Constitution, regular elections and a **multi-party system** — because citizens have freedom and real choice.

NCERT Q10

Textbook

What are the challenges to free and fair elections?

- Misinformation and **fake news**; hate speech.
- **Money power**, gifts and inducements.
- Intimidation and violence.
- Misuse of social media.
- **Remedies**: MCC, cVIGIL app, EVM + VVPAT, security forces, voter awareness.

NCERT Q11

Textbook

On the Stage: school elections role-play.

ACTIVITY — HOW TO DO IT

Roles: Election Commissioner (announces schedule), Returning Officer (checks nominations, declares result), candidates and campaigners (campaign within rules, stop before polling), polling officer (checks ID, secret ballot), polling agent (watches fairness), police (keeps order), journalist (reports). End with a class discussion on what made it free and fair.

NCERT Q12

Textbook

Make videos/audios: 'My Vote My Nation', 'No Voter to be Left Behind', 'Eliminating Money Power'.

ACTIVITY — HOW TO DO IT

60-second script: a hook ('One vote can decide an election'), one fact (India has about 97 crore voters), one message (register at 18 through Form 6; never sell your vote), and a closing slogan.

NCERT Q13

Textbook

Comparative chart of one party in the last two State Assembly elections: promises, vote %, seats, women contested, women elected.

ACTIVITY — HOW TO DO IT

Take data only from the **ECI results website** and the party's manifesto. Make a two-column table (Election 1 | Election 2) with the five rows and cite your sources below it. For MP, compare the 2018 and 2023 Assembly elections.

Can 'One Nation, One Election' improve efficiency? Advantages and limitations.

Advantages	Limitations
Saves money and time	Very large logistics at one time
Less load on security and staff	National issues may overshadow state issues
MCC not imposed again and again; governance continues	If a government falls early, what then? Needs constitutional changes and consensus

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Q1

4 Marks

Identify the factors that highlight the importance of elections in a democracy.

SOLUTION

- **They make representation possible.** Direct rule by 140 crore people is impossible, so elections are the practical device by which the people choose who will legislate and govern in their name.
- **They enforce accountability.** Because rulers must return to the voters at fixed intervals, they can be judged on their record and thrown out — this is the strongest check that exists on any government.
- **They give legitimacy.** A government that has won a fair election can claim to speak for the people, so its laws are obeyed willingly rather than by force.
- **They set the policy agenda and give the citizen power.** Parties must state programmes and make promises that can be quoted back at them, and on polling day the vote of the poorest citizen counts exactly as much as that of the richest.

Q2**5 Marks**

Categorise the three types of electoral system and list examples of each.

1. FIRST PAST THE POST (PLURALITY)

- The area is divided into single-member constituencies and the candidate with the **largest number of votes** wins, even without an absolute majority. It is simple and gives a clear local representative and usually a stable majority, but a party can win a large number of seats on a minority of votes. *Used in:* India (Lok Sabha and Assemblies), the UK, the USA, Canada.

2. PROPORTIONAL REPRESENTATION

- Seats are allotted to parties **in proportion to the votes polled**, usually from party lists in large multi-member constituencies. It is fair to smaller parties and wastes almost no votes, but it usually produces coalitions and the voter does not get one personal representative. *Used in:* Israel, the Netherlands, South Africa; and in India for the Rajya Sabha and the presidential election, by the single transferable vote.

3. MIXED OR HYBRID SYSTEM

- Part of the house is elected by FPTP from constituencies and part by proportional representation from party lists, so that local representation and overall fairness are combined. It is, however, complex and creates two kinds of member. *Used in:* Germany, New Zealand.

WHY INDIA CHOSE FPTP

- It was simple enough for every voter to understand in 1950, it gave every constituency its own MP, and it was expected to give the new republic a stable government.

Q3**4 Marks**

Define delimitation and explain its purpose in the Indian electoral system.

DEFINITION

- **Delimitation** is the process of fixing or redrawing the boundaries and the number of territorial constituencies for the Lok Sabha and the State Legislative Assemblies, based on the latest census.

WHO DOES IT

- A **Delimitation Commission**, an independent high-powered body headed by a retired judge of the Supreme Court, with the Chief Election Commissioner and the State Election Commissioners as members. Its orders have the force of law and cannot be called in question before any court.

ITS PURPOSE

- **To keep every vote of equal value.** Population grows unevenly, so unless boundaries are revised one MP may represent 30 lakh people while another represents 8 lakh — which destroys the principle of *one person, one vote, one value*.
- **To revise reserved seats** for Scheduled Castes and Scheduled Tribes in line with their population in each area, and to keep constituencies geographically compact and administratively convenient.

Q4

5 Marks

Identify the role and functions of the Election Commission of India in the electoral process.

ITS STATUS

- The ECI is an **independent constitutional body established by Article 324**, consisting of a Chief Election Commissioner and other Election Commissioners. The CEC can be removed only in the same way as a Supreme Court judge, which is what secures the Commission's independence from the government of the day.

ITS FUNCTIONS

- **Preparing and revising electoral rolls**, and issuing voter identity cards.
- **Announcing the schedule and conducting the whole election** to Parliament, the State Legislatures and the offices of President and Vice-President.
- **Registering political parties, recognising national and state parties and allotting symbols.**
- **Enforcing the Model Code of Conduct** and monitoring campaign expenditure; it can order a re-poll, cancel a poll, postpone an election or transfer officials it finds partisan.
- **Deciding on disputes** about party recognition and symbols, and advising the President or Governor on questions of disqualification of sitting members.

Q5

4 Marks

Explain the terms constituency, electoral roll and enumerator, and describe the main provisions of the Representation of the People Acts.

THE THREE TERMS

- **Constituency** — the geographical area whose voters elect one representative; India has 543 Lok Sabha constituencies, some of them reserved for Scheduled Castes and Scheduled Tribes.
- **Electoral roll** — the official list of all citizens of a constituency aged 18 and above who are entitled to vote; it is revised periodically and published before every election.
- **Enumerator** — the official who goes house to house during revision to add the names of new voters, delete those who have died or moved away, and correct errors in the roll.

THE REPRESENTATION OF THE PEOPLE ACT, 1950

- Deals with the **preliminaries**: allocation of seats to States, delimitation of constituencies, qualifications of voters and the preparation and revision of electoral rolls.

THE REPRESENTATION OF THE PEOPLE ACT, 1951

- Deals with the **conduct** of elections: qualifications and disqualifications of candidates, registration of political parties, **corrupt practices** such as bribery, undue influence, booth capturing and appeals on grounds of religion, race, caste, community or language, election offences and their punishment, and election petitions by which a result can be challenged in the High Court.

Q6

5 Marks

Explain the meaning and features of a coalition government, and the key provisions of the Anti-Defection Law with reference to political instability.

COALITION GOVERNMENT

- A **coalition government** is formed when no single party wins a majority and two or more parties agree to govern together, usually on the basis of a common minimum programme with ministries shared among the partners.
- **Merits:** it represents a wider range of regions, communities and interests; it forces consensus and consultation; and it checks the dominance of any one party.
- **Demerits:** it can be unstable, slow in taking hard decisions, and open to pressure from small allies who threaten to withdraw support.

WHY THE ANTI-DEFECTION LAW WAS NEEDED

- In the decades after independence, legislators frequently changed parties in return for office or money — the *Aaya Ram, Gaya Ram* phenomenon — which brought down governments the voters had elected and made a mockery of the mandate.

ITS KEY PROVISIONS — THE TENTH SCHEDULE, 52ND AMENDMENT, 1985

- A member is **disqualified** if he voluntarily gives up membership of the party on whose ticket he was elected, or if he votes or abstains contrary to the party whip without prior permission.
- An **independent** member is disqualified if he joins any party after being elected; a **nominated** member if he joins a party more than six months after taking his seat.
- The one **exception is a merger**, valid only if not less than **two-thirds** of the legislators of that party agree to it.
- The **Speaker or Chairman** of the House decides, and the decision is subject to judicial review.

CRITICISM

- It has reduced defections, but it also binds a legislator to the party whip even against his own judgment, strengthening the party high command at the cost of independent debate; and Speakers have sometimes delayed decisions for political advantage.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

Under which Article is the Election Commission of India established?

Article 324.

E2

1 Mark

What is the full form of EPIC?

Electors Photo Identity Card.

E3

1 Mark

Which amendment reduced the voting age from 21 to 18?

The 61st Amendment, 1988.

E4

1 Mark

In which Schedule of the Constitution is the Anti-Defection Law contained?

The Tenth Schedule.

E5

1 Mark

What does NOTA stand for?

None Of The Above.

E6

2 Marks

What is the Model Code of Conduct? State any two of its provisions.

ANSWER

- It is a set of norms enforced by the Election Commission from the moment an election is announced until the result is declared, to keep the contest fair.
- **Two provisions:** a party in power may not use government vehicles, offices or funds for campaigning or announce new projects and grants once elections are notified; and no candidate may appeal to voters on grounds of religion, caste or community, or campaign in the 48 hours before polling closes.

E7

2 Marks

What is a reserved constituency and why does India have them?

ANSWER

- A **reserved constituency** is one where only a candidate belonging to the Scheduled Castes or Scheduled Tribes may contest, although every voter of the area votes as usual.
- They exist so that communities which have suffered long social and economic disadvantage get **fair representation** in the legislature, which they might not secure in open contests.

E8

3 Marks

A party wins 37% of the votes but 55% of the seats. Explain how this is possible and what it tells us about FPTP.

ANSWER

- Under **First Past The Post**, only the winner in each constituency matters — and the winner needs only **more votes than anyone else**, not more than half.
- If the opposition vote is **split among several parties**, a candidate can win a seat with, say, 38% against 33% and 29%; repeated across hundreds of constituencies, this converts a modest vote share into a comfortable seat majority.
- It shows FPTP's central weakness: **seats do not match votes**, and the millions who voted for losing candidates get no representation at all — which is exactly the defect proportional representation is designed to cure.

E9

3 Marks

Why is the independence of the Election Commission essential? Give three safeguards that protect it.

ANSWER

- **Why:** the Commission has to conduct elections in which the government of the day is itself a contestant. If it could be pressured or dismissed by that government, no election could be fair.
- **Safeguard 1:** it is a **constitutional body under Article 324**, not a department created by an ordinary law that a government could abolish.
- **Safeguard 2:** the **Chief Election Commissioner can be removed only in the same manner as a Supreme Court judge** — by an address of Parliament on grounds of proved misbehaviour or incapacity; and his service conditions cannot be varied to his disadvantage after appointment. Further, during the election period all officials engaged in election duty come under the Commission's control, and it can transfer or discipline them.

E10

4 Marks

Compare the merits and demerits of a multi-party system with those of a two-party system.

MULTI-PARTY SYSTEM (INDIA)

- **Merits:** many regions, languages, castes and interests find a voice; voters have real choice; no single party can dominate unchecked.
- **Demerits:** it often produces coalitions, hence instability, slow decision-making and bargaining by small parties for disproportionate gains.

TWO-PARTY SYSTEM (THE USA, THE UK)

- **Merits:** a clear choice between two alternatives, almost always a stable single-party majority, and easy accountability — the voter knows exactly whom to blame.
- **Demerits:** limited choice; minorities, small regions and new ideas struggle to be represented; and third parties rarely get seats however many votes they poll.

CONCLUSION

- A country as diverse as India could not be fairly represented by only two parties; the multi-party system is the price and the proof of that diversity.

E11

4 Marks

Case study. An MLA elected on Party A's ticket votes against Party A's whip in a confidence motion and joins Party B the next day. (i) Which law applies? (ii) On what grounds can he be disqualified? (iii) Who decides? (iv) Under what circumstances would he NOT be disqualified?

ANSWER

- (i) The **Anti-Defection Law**, contained in the **Tenth Schedule** of the Constitution, inserted by the 52nd Amendment, 1985.
- (ii) On **two independent grounds**: he voted contrary to the direction (whip) of his party without its prior permission and without being pardoned within fifteen days; and by joining another party he has **voluntarily given up membership** of the party on whose ticket he was elected.
- (iii) The **Speaker of the Legislative Assembly** decides the question of disqualification; his decision is subject to judicial review by the courts.
- (iv) Only if his action formed part of a genuine **merger** of Party A with Party B agreed to by **not less than two-thirds** of Party A's legislators — a single member or a small group cannot claim this protection.

Describe the stages through which an election in India is conducted, from delimitation to the declaration of the result.

ANSWER — THE EIGHT STAGES (SEE FIG. 7.1)

- **1. Delimitation.** The Delimitation Commission fixes the boundaries and number of constituencies so that each has roughly equal population, and decides which seats are reserved.
- **2. Preparation of the electoral roll.** Enumerators revise the voters' list house to house, adding every citizen who has turned 18, deleting those who have died or moved, and issuing EPIC cards.
- **3. Notification and 4. Nomination.** The Election Commission announces the schedule — from that moment the Model Code of Conduct binds every party. Candidates file nomination papers with a security deposit and an affidavit declaring assets and criminal cases; papers are scrutinised and symbols allotted.
- **5. Campaign.** Parties publish manifestos and hold meetings and rallies within the expenditure ceiling; all campaigning must stop 48 hours before polling ends.
- **6. Polling and 7. Counting.** Voters cast a secret ballot on an EVM with a VVPAT slip, and the finger is marked with indelible ink. On counting day the EVMs are opened under the eyes of candidates' agents and the candidate with the most votes wins under FPTP.
- **8. Declaration.** The Returning Officer declares the result and the Commission notifies the elected members; the majority party or coalition then forms the government and members take the oath of office. A defeated candidate may challenge the result by an election petition in the High Court.

THE THREAD RUNNING THROUGH ALL OF IT

- Every one of these stages is supervised by the **Election Commission of India**, which can postpone, cancel or order a re-poll at any stage where the process has been vitiated.

⚡ Quick Revision — last-minute points

1. ECI set up under Article 324.
2. RPA 1950 (voter lists) and RPA 1951 (conduct of elections).
3. FPTP: candidate with most votes wins, no majority needed.
4. Model Code of Conduct starts when elections are announced.
5. Anti-Defection Law = Tenth Schedule.
6. Direct elections: Lok Sabha; indirect: Rajya Sabha, President.

Memory trick: 324 → the ECI; 10th Schedule → defection

CHAPTER 8

Building Blocks in Economics: The Problem of Choice

7 instructional hours · Economics · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

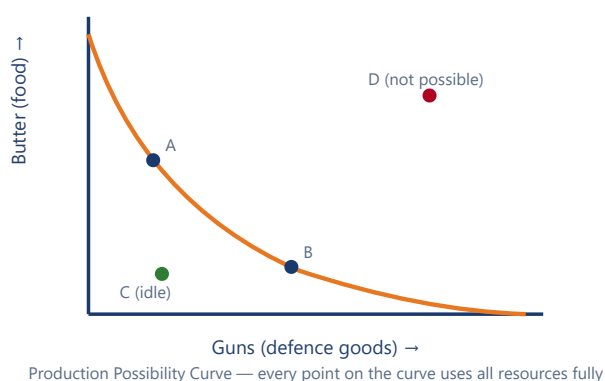
CBSE learning outcomes: explain scarcity, choice and opportunity cost in everyday life; describe what economists do; recognise how economic analysis helps policy-making; describe the three central problems of an economy; differentiate planned, free-market and mixed systems; and explain the welfare economy and the importance of social safety nets.

This theme replaces *The Story of Village Palampur*. It is far more conceptual — and it is the foundation on which Chapters 9, 15 and 16 are built. Learn the definitions word-perfect.



8.1 Scarcity, choice and opportunity cost

Scarcity, choice and opportunity cost



Read the graph like this

- Resources are limited, wants are unlimited → SCARCITY.
- Scarcity forces CHOICE: you cannot have A and D both.
- Moving A → B gets more guns but gives up butter.
- The butter given up is the OPPORTUNITY COST of the guns.
- C lies inside → resources lying idle (unemployment).
- D lies outside → unattainable with present resources and technology.

The three central problems every economy must answer:

1. WHAT to produce · 2. HOW to produce ·
3. FOR WHOM to produce

Fig. 8.1 — The production possibility curve: scarcity forces choice, and choice has a cost.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.

- **Economics** is the study of how individuals and societies use **limited resources** to satisfy **unlimited wants**.
- **Scarcity** is the central fact: human wants are unlimited, but the resources (land, labour, capital, enterprise, time) available to satisfy them are limited. Scarcity is **relative** — it is not the same as shortage; even a rich country faces it, because its wants grow too.
- **Choice** follows from scarcity: because we cannot have everything, we must decide what to have first.
- **Opportunity cost** is the **value of the next-best alternative given up** when a choice is made. It is the most important idea in the whole chapter.
- **Free goods and economic goods:** a good that is unlimited in supply (air in an open field) is a free good and has no price; an economic good is scarce and therefore has a price. Note that clean bottled air is an economic good — scarcity, not the substance, decides.

Situation	Choice made	Opportunity cost
A student has ₹500 and three hours on Sunday	Buys a book and studies	The film ticket and the cricket match given up
A farmer with one hectare	Grows sugarcane	The wheat crop that the same land could have produced
The government has ₹1,000 crore	Builds a highway	The hospitals and schools that money could have built
A person after Class 12	Takes a job at ₹15,000 a month	The degree — and the higher lifetime earnings it might have brought

Opportunity cost is not the money spent. If you spend ₹500 on a book, the opportunity cost is not ₹500 — it is the **best single thing** you would otherwise have bought with it. Students lose marks by writing the money amount.

8.2 What economists do

- Economists study how goods and services are **produced, distributed and consumed**, and why people and firms behave as they do.
- **They collect and analyse data** — prices, incomes, employment, output, trade — and look for patterns.
- **They build models**: deliberate simplifications (such as the demand curve) that isolate one relationship at a time, using the assumption *ceteris paribus*, 'other things remaining equal'.
- **They advise on policy**: what a tax will do to consumption, whether a subsidy will reach the intended people, how to control inflation, how to create jobs.
- **Microeconomics** studies individual units — a household, a firm, a single market. **Macroeconomics** studies the economy as a whole — national income, inflation, unemployment, growth.
- **Positive economics** describes what *is* ('a 10% rise in price reduced sales by 6%'); **normative economics** says what *ought* to be ('the government should subsidise food grain').

8.3 The three central problems

Problem	The question it answers	What it really decides	Example
What to produce, and in what quantity?	Which goods, and how much of each, out of the many possible	The allocation of scarce resources between competing uses	More food grain or more cash crops? More defence or more schools?
How to produce?	By which technique — labour-intensive or capital-intensive	The combination of factors , and hence employment and cost	Handloom or power loom? Manual harvesting or a combine harvester?
For whom to produce?	Who gets the goods that are produced	The distribution of income and wealth	Luxury cars for a few, or affordable public transport for many?

Why every economy faces these three. They arise directly from scarcity, so they exist in every country, rich or poor, capitalist or socialist — what differs is only **who answers them**. In a market economy the price mechanism answers them; in a planned economy the government does; in a mixed economy both do.

8.4 The three economic systems

	Free market (capitalist)	Centrally planned (socialist)	Mixed
Who owns resources	Private individuals and firms	The State	Both private and public sectors
Who decides what to produce	The price mechanism — consumer demand and the profit motive	A central planning authority	The market for most goods; the government for essentials and public goods
Motive	Private profit	Social welfare as defined by the plan	Profit, regulated in the public interest
Advantages	Efficiency, innovation, wide consumer choice, no bureaucratic delay	Less inequality, no unemployment by design, essentials guaranteed	Combines efficiency with equity; the State supplies what the market will not
Disadvantages	Great inequality; public goods and merit goods under-supplied; booms and slumps	Inefficiency, shortages, poor quality, no consumer choice, little innovation	Can be slow, over-regulated and prone to corruption if badly managed
Examples	The USA (close to it), Hong Kong	The former USSR, North Korea, Cuba	India , the UK, France, Sweden

- **India's position:** India adopted a mixed economy after independence — a large public sector in steel, railways, power and banking alongside private industry and agriculture, coordinated by Five Year Plans. After the **reforms of 1991** (liberalisation, privatisation, globalisation) the market's role expanded greatly, but India remains a mixed economy, and the Constitution's Directive Principles still commit the State to social justice.

8.5 The welfare economy and social safety nets

- A **welfare economy** is one in which the State accepts responsibility for the basic well-being of every citizen — food, health, education, work and security in old age — instead of leaving everything to the market.
- **Why the market alone is not enough:** it distributes according to **purchasing power**, not need; it will not supply **public goods** such as street lighting or defence, because no one can be made to pay for them; it under-supplies **merit goods** such as vaccination and schooling, whose benefits spread to everyone; and it ignores the very poor, who have no money to vote with in the marketplace.
- **A social safety net** is the set of programmes that catch people when income fails — illness, unemployment, disability, old age, crop failure, a pandemic.
- **Indian examples:** the Public Distribution System and the National Food Security Act; **MGNREGA**, which guarantees 100 days of wage employment a year to a rural household; mid-day meals; Ayushman Bharat health cover; old-age, widow and disability pensions; PM Jan Dhan bank accounts; and crop insurance under PM Fasal Bima Yojana.
- **The trade-off:** welfare spending must be paid for by taxes or borrowing; too little leaves people destitute, too much can strain the budget and blunt incentives. Balancing the two is a central question of economic policy — and is exactly the kind of question a competency-based paper will put to you.

PART A+ — NCERT TEXTBOOK TOPICS (SIMPLE NOTES)

Why this section? These topics are in your printed NCERT textbook but were missing above. Read them here — no need to open another book.

- **Needs** = things essential for survival (food, shelter, clothing, health). **Wants** = desires beyond needs (a new phone). Wants are unlimited; resources are limited → **scarcity**.
- Four factors of production: **land, labour, capital** and **entrepreneurship** (the person who brings the other three together and takes the risk).

More NCERT facts on economic choice

Planned economy	Market economy	Mixed economy
Government decides what, how, for whom	Demand and supply decide	Both government and private sector
Equality aimed, but less efficiency	Efficiency and innovation, but inequality	Balance of both (India, especially after 1991)

- **Labour-intensive** production uses more workers (handicrafts, farming); **capital-intensive** uses more machines (steel, cars).
- **Public goods** (street lights, roads, parks) are used by all and are usually provided by government.
- Unlimited wants put pressure on the environment → need for **sustainable development**.

PART B1 — NCERT TEXTBOOK EXERCISE ('QUESTIONS AND ACTIVITIES') — SOLVED

These are the **actual end-of-chapter questions** of your NCERT textbook, answered point-wise. Activity/project questions have a short 'how to do it' guide.

NCERT Q1

Textbook

Why do people's wants keep changing? How does it affect production? Why can't all wants be satisfied?

- Wants change with **income, technology, fashion, advertisements and lifestyle**.
- Producers must change **what and how** they produce; new industries grow, old ones decline.
- All wants cannot be satisfied because wants are **unlimited** but resources are **limited** (scarcity).

NCERT Q2

Textbook

How does the constant desire for more pressure the environment? Can wants and resource extraction be balanced?

- More consumption → more mining, deforestation, pollution and waste.
- **Balance is possible** through sustainable production, recycling, efficient use and green technology — meeting today's needs without harming future generations (**sustainable development**).

NCERT Q3

Textbook

Name a resource in your region that is scarce but wasted. How can it be managed?

- **Water** (Indore/Malwa depends on Narmada water and falling groundwater).
- Wasted by leaking pipes, washing vehicles with hoses, flood irrigation.
- Manage by **rainwater harvesting**, repairing leaks, drip irrigation, reusing water, awareness.

NCERT Q4

Textbook

Which economic system gives the most freedom? Which is best for innovation?

- **Market economy** gives the most individual freedom — people decide what to buy and produce; competition and profit drive **innovation**.
- But a **mixed economy** is the most practical: private freedom + government regulation and public goods.
(Either answer with reasons is accepted.)

NCERT Q5

Textbook

Why do pure economic systems rarely exist? Why is a mixed economy more practical?

- Pure **market**: inequality, no public goods, neglect of the poor.
- Pure **planned**: less efficiency and innovation, too much control.
- **Mixed** combines private enterprise with government welfare — e.g. India, especially after the **1991 reforms**.

NCERT Q6

Textbook

A student with ₹100 must choose between a notebook and saving for a racket. Which concept?

(b) Opportunity cost — choosing one means giving up the other.

NCERT Q7

Textbook

How does understanding opportunity cost improve decision-making?

- It makes us **compare alternatives** before choosing.
- It shows the hidden cost of every choice.
- Limited resources are used where they give the **greatest benefit**.

NCERT Q8

Textbook

Can effective economic decisions be made without reliable data? Give an example.

- **No**. Without data, decisions are guesses.
- Example: the government uses data on prices, jobs and income to prepare the **Union Budget**; a company studies demand before increasing production.

NCERT Q9

Textbook

How do present economic choices shape a country's future? Why consider future consequences?

- Investing in education, health and infrastructure today → skilled workers and growth tomorrow.
- Over-using resources today → shortages later.
- So decisions must be **sustainable**, keeping future generations in mind.

NCERT Q10

Textbook

Find a news article where producers decide how much to produce. Explain in 2–3 sentences.

ACTIVITY — HOW TO DO IT

Pick any news item (e.g. farmers sowing more tomatoes/onions after high prices last season, or a car company cutting output). Write: what is produced → decision taken → reason (price, demand, cost).

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)**Q1**

4 Marks

Explain the meaning of scarcity, choice and opportunity cost in everyday life and in economic decision-making.

SCARCITY

- Human wants are **unlimited** but the resources to satisfy them — land, labour, capital, enterprise and time — are **limited**. This gap is scarcity, and it is the starting point of all economics. It is relative, not absolute: even a wealthy person faces it, because his wants grow as his means do.

CHOICE

- Because everything cannot be had at once, every individual, firm and government must **decide what to have first**. Economics is therefore often defined as the science of choice.

OPPORTUNITY COST

- Every choice means giving something up. The **value of the next-best alternative forgone** is the opportunity cost of the choice made.

EVERYDAY EXAMPLES

- A student with three free hours who studies gives up the film — that film is the opportunity cost.
- A farmer who sows sugarcane on his one hectare gives up the wheat that land could have grown.
- A government that spends ₹1,000 crore on a highway gives up the hospitals that money could have built — which is why every budget decision is really a decision about opportunity cost.

Q2**3 Marks**

Describe what economists do, and how they study production, distribution and consumption.

SOLUTION

- **They gather and analyse evidence.** Economists collect data on prices, incomes, output, employment and trade and look for patterns — for example, how a rise in fuel price feeds through to transport costs and then to food prices.
- **They build models.** A model is a deliberate simplification — the demand curve, the production possibility curve — that isolates one relationship at a time, using the assumption *ceteris paribus* ('other things remaining equal'), because the real economy has too many variables to study all at once.
- **They advise on policy.** They study **production** (what is made, by whom, with what technique), **distribution** (how the income from it is shared) and **consumption** (who finally uses it), and use this to advise on taxes, subsidies, interest rates and welfare programmes. Microeconomics does this for individual households and firms, macroeconomics for the economy as a whole.

Q3**4 Marks**

Describe the three central problems of an economy and explain why every economy faces them.

THE THREE PROBLEMS

- **What to produce and in what quantity?** Since resources are limited, producing more of one good means producing less of another — more defence equipment means fewer schools. This decides the **allocation** of resources.
- **How to produce?** The same good can be made by a **labour-intensive** technique, which creates jobs, or a **capital-intensive** one, which is cheaper per unit — handloom against power loom. This decides the combination of factors used and hence employment.
- **For whom to produce?** Who actually gets the goods produced — this decides the **distribution** of income and wealth, and whether the economy produces luxury cars for a few or affordable transport for many.

WHY EVERY ECONOMY FACES THEM

- All three arise directly from **scarcity**, which is universal. Rich or poor, capitalist or socialist, every economy must answer them; what differs between economies is only **who answers** — the price mechanism, the government, or both together.

Identify and differentiate the characteristics of planned, free-market and mixed economic systems.

FREE MARKET (CAPITALIST) ECONOMY

- Resources are privately owned; the **price mechanism** answers the three central problems, guided by consumer demand and the profit motive; government interference is minimal.
- Strength:** efficiency, innovation and wide consumer choice. **Weakness:** severe inequality, under-supply of public goods, and recurring booms and slumps. Closest example: the USA.

CENTRALLY PLANNED (SOCIALIST) ECONOMY

- The State owns the means of production and a central planning authority decides what, how and for whom to produce, with social welfare rather than profit as the stated motive.
- Strength:** less inequality and guaranteed essentials. **Weakness:** inefficiency, chronic shortages, poor quality and no consumer choice. Example: the former USSR.

MIXED ECONOMY

- Public and private sectors **coexist**: the market decides most production, while the government owns or regulates key industries, supplies public and merit goods, and redistributes through taxes and welfare.
- Strength:** it seeks efficiency and equity together. **Weakness:** it can become over-regulated, slow and corrupt if badly managed. Example: **India**, along with the UK, France and Sweden.

INDIA'S OWN CASE

- India chose a mixed economy at independence, with a large public sector and Five Year Plans; after the reforms of **1991** the private sector's role widened greatly, but the State remains responsible for social justice under the Directive Principles.

Q5

4 Marks

Explain the concept of a welfare economy and the importance of social safety nets.

WELFARE ECONOMY

- A **welfare economy** is one in which the State takes responsibility for the basic well-being of every citizen — food, health, education, employment and security in old age — rather than leaving these entirely to the market.

WHY IT IS NEEDED

- The market distributes goods according to **purchasing power, not need**, so the poorest simply drop out of it.
- It will not supply **public goods** like street lighting or defence, from which no one can be excluded, and it under-supplies **merit goods** like vaccination and schooling whose benefits spread beyond the buyer.

SOCIAL SAFETY NETS AND THEIR IMPORTANCE

- A **social safety net** is the set of programmes that protect people when income fails — through illness, unemployment, disability, old age, crop failure or a pandemic.
- Indian examples: the Public Distribution System under the National Food Security Act; **MGNREGA's** guarantee of 100 days of wage work; mid-day meals; Ayushman Bharat; old-age and widow pensions; and crop insurance.
- They matter because they **prevent destitution, keep children in school, sustain demand in a downturn and give people the security to take risks** — but they must be financed by taxation, so their size is always a matter of balance.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

Define opportunity cost.

The value of the next-best alternative that has to be given up when a choice is made.

E2

1 Mark

Name the four factors of production.

Land, labour, capital and enterprise.

E3

1 Mark

Give one example of a public good.

Street lighting (also acceptable: national defence, a public park).

E4

1 Mark

In which year did India begin its economic reforms of liberalisation, privatisation and globalisation?

1991.

E5

2 Marks

Distinguish between a free good and an economic good.

ANSWER

- A **free good** is available in unlimited supply relative to demand, so it commands no price — air in an open field, sunlight.
- An **economic good** is scarce relative to demand and therefore has a price, and an opportunity cost attaches to using it — wheat, a bicycle, a litre of clean bottled water.

E6

2 Marks

Ravi has ₹200 and can buy either a novel or two cinema tickets. He buys the novel. What is his opportunity cost and what is it NOT?

ANSWER

- His **opportunity cost is the two cinema tickets** — the next-best alternative he gave up by choosing the novel.
- It is **not the ₹200** he spent. Opportunity cost is measured in the alternative forgone, not in the money paid.

E7**3 Marks**

Distinguish between microeconomics and macroeconomics with one example each, and state how they are connected.

ANSWER

- **Microeconomics** studies individual economic units — a household, a firm, a single market. Example: why the price of onions rose in Indore last month.
- **Macroeconomics** studies the economy as a whole — national income, growth, inflation, unemployment. Example: why India's overall inflation rate was 5% last year.
- **Connection:** the two are two views of the same thing. Overall inflation is simply what happens when prices rise across many individual markets at once, so macro questions cannot be answered without micro understanding.

E8**3 Marks**

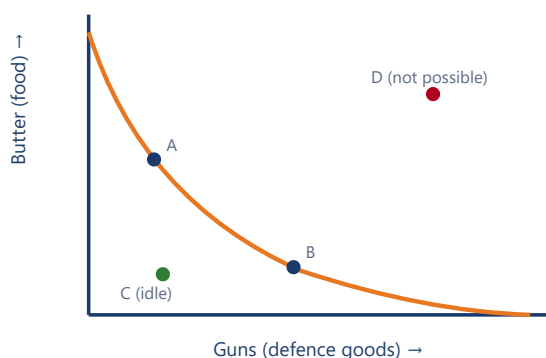
Why can the price mechanism alone not run an economy justly? Give three reasons.

ANSWER

- **It responds to purchasing power, not to need.** A market will produce cosmetic surgery for the rich before it produces cheap medicine for the poor, because the first is backed by money and the second is not.
- **It will not supply public goods.** No firm can charge people for street lighting or clean air, since no one can be excluded from the benefit, so private producers simply will not supply them.
- **It ignores externalities.** A factory that pollutes a river does not bear the cost of the damage, so the market price of its product understates its real cost to society — which is why regulation and taxation are needed.

Draw and explain a production possibility curve to show scarcity, choice, opportunity cost and unemployment.

Scarcity, choice and opportunity cost



Production Possibility Curve — every point on the curve uses all resources fully

Read the graph like this

- Resources are limited, wants are unlimited → SCARCITY.
- Scarcity forces CHOICE: you cannot have A and D both.
- Moving A → B gets more guns but gives up butter.
- The butter given up is the OPPORTUNITY COST of the guns.
- C lies inside → resources lying idle (unemployment).
- D lies outside → unattainable with present resources and technology.

The three central problems every economy must answer:

1. WHAT to produce
2. HOW to produce
3. FOR WHOM to produce

Fig. 8.2 — The production possibility curve.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.

EXPLANATION

- **The curve itself shows scarcity:** it marks the maximum combinations of the two goods that can be produced with all the economy's resources and existing technology fully used. Nothing beyond it is possible.
- **Movement along the curve shows choice and opportunity cost:** moving from A to B gives more guns but less butter, and the butter given up is the opportunity cost of the extra guns.
- **A point inside the curve (C) shows unemployment** — resources are lying idle, so the economy could produce more of *both* goods without giving up anything.
- **A point outside the curve (D) is unattainable** with present resources; only economic growth — more resources or better technology — can shift the whole curve outward and make it reachable.

E10**4 Marks**

Compare a centrally planned economy with a free-market economy on any four points.

ANSWER

- **Ownership:** in a planned economy the State owns the means of production; in a free-market economy they are privately owned.
- **Decision-maker:** a central planning authority decides what, how and for whom in a planned economy; the price mechanism and the profit motive decide in a free market.
- **Motive and outcome:** social welfare as defined by the plan, with far less inequality but chronic shortages and poor quality; against private profit, which brings efficiency, innovation and choice but also severe inequality.
- **Consumer position:** in a planned economy the consumer takes what the plan provides; in a free market the consumer is sovereign — what people are willing to buy decides what gets produced.

E11**5 Marks**

"India is a mixed economy." Explain with five points, mentioning the change after 1991.

ANSWER

- **Both sectors coexist.** Private firms operate in agriculture, manufacturing, retail and services, while the government runs railways, defence production, much of power and a large part of banking.
- **The government supplies what the market will not:** public goods such as defence, roads and street lighting, and merit goods such as school education, vaccination and public health.
- **Planning and regulation exist alongside the market.** Five Year Plans guided investment for four decades; today NITI Aayog and sectoral regulators such as the RBI, SEBI and TRAI perform the steering role.
- **Redistribution is a stated goal.** Progressive income tax, subsidies, the Public Distribution System, MGNREGA and reservation policies are all aimed at social justice, in line with the Directive Principles of State Policy.
- **After 1991 the balance shifted towards the market.** Liberalisation removed industrial licensing, privatisation sold stakes in public enterprises, and globalisation opened the economy to foreign trade and investment — but the State retained responsibility for welfare and regulation, so India remains a mixed economy, not a purely capitalist one.

What are social safety nets? Describe any four Indian programmes and explain why such nets matter.

MEANING

- A **social safety net** is the set of government programmes that protect people from falling into destitution when their income fails — through unemployment, illness, disability, old age, crop failure or disaster.

FOUR INDIAN PROGRAMMES

- **Public Distribution System under the National Food Security Act** — subsidised food grain through ration shops, which protects households against hunger when prices rise.
- **MGNREGA** — a legal guarantee of 100 days of unskilled wage employment a year to every rural household that asks for it, which puts a floor under rural wages in a bad season.
- **Mid-day Meal scheme** — a cooked meal in government schools, which improves child nutrition and raises school attendance at the same time.
- **Ayushman Bharat** — health insurance cover for poor families, which prevents a single hospital bill from wiping out a family's savings; alongside old-age, widow and disability pensions and crop insurance.

WHY THEY MATTER

- They **prevent destitution** and keep children in school rather than at work; they **sustain demand** in a downturn because the poor spend what they receive; and they give people the **security to take risks**, such as migrating for work or trying a new crop. The cost falls on taxation, so the size of the net is always a matter of judgment.

Quick Revision — last-minute points

1. Scarcity: unlimited wants, limited resources → choice.
2. Opportunity cost = value of the next-best option given up.
3. Three central problems: what, how, for whom to produce.
4. PPC shows scarcity, choice and opportunity cost.
5. Factors of production: land, labour, capital, entrepreneur.

Memory trick: L-L-C-E = Land Labour Capital Entrepreneur

CHAPTER 9

The Price Puzzle: What Drives the Market

8 instructional hours · Economics · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: explain the Law of Demand and the Law of Supply with real-life examples; interpret how price changes affect quantity demanded and supplied; **identify the equilibrium price and quantity**; analyse how changes in market conditions create surplus or shortage; explain price ceilings and how they cause shortages or black markets; understand market failures and identify their main types; and understand public goods.

This is the most **graph-heavy** chapter of the Economics portion. You will be asked to draw or read a demand–supply diagram. Practise labelling the axes (price on the vertical, quantity on the horizontal) — marks are lost there every year.



9.1 The Law of Demand

- **Demand** is the quantity of a good that consumers are **willing and able to buy** at a given price in a given period. A wish without purchasing power is not demand.
- **The Law of Demand:** other things remaining equal (*ceteris paribus*), as the price of a good **falls**, the quantity demanded **rises**, and as the price rises, the quantity demanded falls. The demand curve therefore slopes **downward** from left to right.
- **Why it slopes downward:** the **income effect** — a lower price leaves the buyer with more real income; the **substitution effect** — a cheaper good is substituted for its dearer rivals; and **diminishing marginal utility** — each extra unit gives less satisfaction, so people will buy more only at a lower price. New buyers also enter the market at lower prices.
- **Other determinants of demand** (which *shift* the whole curve rather than move along it): income; the price of substitutes (tea and coffee) and complements (car and petrol); tastes and fashion; population; expectations of future prices; and the season.

The distinction that carries marks: a change in the **price of the good itself** causes a **movement along** the demand curve (extension or contraction). A change in **any other factor** causes a **shift** of the whole curve (increase or decrease in demand). Use the right word.



9.2 The Law of Supply

- **Supply** is the quantity of a good that producers are **willing and able to sell** at a given price in a given period.
- **The Law of Supply:** other things remaining equal, as the price of a good **rises**, the quantity supplied **rises**, and as the price falls, the quantity supplied falls. The supply curve slopes **upward** from left to right.
- **Why it slopes upward:** a higher price means a higher profit margin, so existing producers produce more and new producers are drawn into the industry.
- **Other determinants of supply:** the cost of inputs; technology; taxes and subsidies; the number of sellers; weather (crucial for agriculture); and expectations of future prices.



9.3 Equilibrium, surplus and shortage

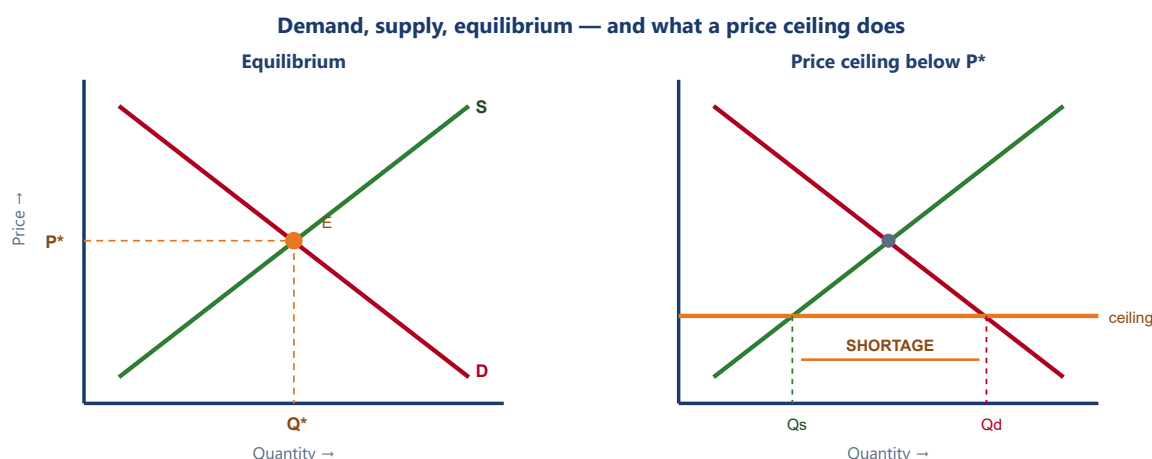


Fig. 9.1 — Left: market equilibrium at E. Right: a price ceiling below the equilibrium creates a shortage.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.

- **Equilibrium** is the point where the demand curve and the supply curve intersect. At that price, **quantity demanded equals quantity supplied**, the market clears, and there is no tendency to change. The corresponding values are the **equilibrium price (P^*)** and **equilibrium quantity (Q^*)**.
- **Above the equilibrium price:** quantity supplied exceeds quantity demanded → a **surplus** (excess supply). Unsold stock piles up, sellers cut the price, and the market slides back to equilibrium.
- **Below the equilibrium price:** quantity demanded exceeds quantity supplied → a **shortage** (excess demand). Buyers compete, the price is bid up, and the market climbs back to equilibrium.
- **When conditions change:** an increase in demand (curve shifts right) raises *both* price and quantity; an increase in supply (curve shifts right) *lowers* price and raises quantity; a fall in supply — a failed monsoon, say — raises price and lowers quantity, which is exactly what happens to onion and tomato prices every few years.

Worked example — market for notebooks	Price (₹)	Quantity demanded	Quantity supplied	Result
	10	900	300	Shortage of 600 → price rises
	20	700	500	Shortage of 200 → price rises
	30	600	600	EQUILIBRIUM — market clears
	40	500	800	Surplus of 300 → price falls
	50	400	1000	Surplus of 600 → price falls

9.4 Real-world deviations from the textbook laws

Case	What happens	Why
Necessities (salt, life-saving medicine)	Demand barely changes when the price changes — demand is inelastic	People must buy them whatever the price, and there is no substitute
Luxury and status goods (designer bags)	A higher price can raise demand — the Veblen effect	The high price is itself the attraction; it signals status
Giffen goods (a very cheap staple among the very poor)	A price rise can <i>increase</i> the quantity bought	The rise eats up so much income that the buyer gives up costlier foods and eats even more of the cheap staple
Perishable goods (tomatoes, fish, flowers)	Supply cannot be held back; prices crash or spike violently	The seller must sell today at whatever price, and output cannot be adjusted quickly
Expectations	Demand rises when the price is rising, and falls when it is falling	If people expect further rises they stock up now — the opposite of the Law of Demand; panic buying and hoarding work this way
Habit-forming goods	Demand changes very little with price	Dependence overrides price sensitivity

Why this section exists in the new syllabus. The old textbooks taught the laws as if they always held. The new course explicitly asks you to recognise **where they break down** — which is a competency-based skill. Expect a case-study question built on exactly one of these exceptions.

9.5 Price ceilings, price floors and market failure

- A **price ceiling** is a legal **maximum** price, fixed *below* the equilibrium to protect consumers — rent control, a cap on the price of a medicine, a control price for food grain. Its effect: quantity demanded exceeds quantity supplied, so there is a persistent **shortage**, leading to queues, rationing, deterioration in quality and a **black market** where the good is sold illegally above the ceiling.
- A **price floor** is a legal **minimum** price, fixed *above* the equilibrium to protect producers — the Minimum Support Price for wheat and rice, or a minimum wage. Its effect: quantity supplied exceeds quantity demanded, so there is a **surplus**, which the government must buy and store.
- **Market failure** is a situation in which the free market, left to itself, fails to allocate resources efficiently or fairly.

Type of market failure	What it means	Example	What the government can do
Externalities	A cost or benefit that falls on a third party who is neither buyer nor seller, and so is not in the price	Negative: a factory pollutes a river. Positive: a vaccination protects others too	Tax or regulate the polluter ('polluter pays'); subsidise the positive externality
Public goods	Goods that are non-excludable (no one can be kept from using them) and non-rival (one person's use does not reduce another's)	Street lighting, national defence, a lighthouse, a public park	The State must provide them out of taxes, because no private firm can charge for them
Information asymmetry	One side of the transaction knows much more than the other	A used-car seller knows the car's faults; a patient cannot judge the doctor's advice; a borrower knows his own risk better than the bank	Consumer protection law, compulsory labelling and disclosure, licensing, warranties, regulators
Monopoly	A single seller restricts output and charges more than the competitive price	A sole supplier in a town	Competition law; the Competition Commission of India
Inequality	The market distributes by purchasing power, so basic needs of the poor go unmet	Hunger amid full godowns	Taxation, subsidies and social safety nets

The free-rider problem explains public goods in one line: if a lighthouse is built, every ship benefits whether or not it paid, so every ship prefers to let someone else pay — and the lighthouse never gets built privately. This is precisely why the State must supply it.

PART A+ — NCERT TEXTBOOK TOPICS (SIMPLE NOTES)

Why this section? These topics are in your printed NCERT textbook but were missing above. Read them here — no need to open another book.

More NCERT facts on demand and supply

- **Individual demand** = one buyer's demand; **market demand** = sum of all buyers' demand at each price (the market curve is flatter).
- **Normal goods**: demand rises with income. **Inferior goods**: demand falls with income.
- **Substitutes** (tea-coffee): price of one ↑ → demand for the other ↑. **Complements** (tea-sugar): price of one ↑ → demand for the other ↓.
- **Diminishing marginal utility**: each extra mango gives less satisfaction, so we pay less for more units.
- Supply falls when input costs rise, resources run out, or weather/disasters strike; better technology raises supply.
- Government role: **price ceiling** (maximum price) → shortage; **price floor** (MSP, minimum wage) → surplus; stop hoarding, black marketing and monopolies; provide public goods.

PART B1 — NCERT TEXTBOOK EXERCISE ('QUESTIONS AND ACTIVITIES') — SOLVED

These are the **actual end-of-chapter questions** of your NCERT textbook, answered point-wise. Activity/project questions have a short 'how to do it' guide.

NCERT Q1

Textbook

"An increase in income always leads to a rise in demand." Defend or refute.

- **Refute.** For **normal goods** (branded clothes, electronics) demand rises with income.
- For **inferior goods** (coarse grain, cheap substitutes) demand **falls** as people switch to better goods.
- So income rise does not raise demand for all goods.

NCERT Q2

Textbook

If petrol prices double, what happens to demand for (a) diesel cars (b) electric cars (c) car accessories (d) public transport?

- (a) Diesel cars — demand **rises** (substitute fuel).
- (b) Electric cars — demand **rises** (substitute).
- (c) Car accessories — demand **may fall** (complement; fewer petrol cars bought/used).
- (d) Public transport — demand **rises** (cheaper substitute).

NCERT Q3

Textbook

A farmer switches to drip irrigation (water use –40%, yield +30%). Effect on (a) cost (b) willingness to supply (c) market supply?

- (a) Cost per unit **falls**.
- (b) He is willing to supply **more at every price**.
- (c) If many farmers adopt it, **market supply increases** (supply curve shifts right) and price tends to fall.

NCERT Q4

Textbook

Why do sellers sell at low prices in online festival sales? What happens to equilibrium? Who benefits?

- Sellers expect **high demand**, want to clear old stock and gain customers.
- Lower price → quantity demanded rises (law of demand); much larger quantity is sold.
- **Both benefit**: consumers pay less; sellers earn from higher volume.

NCERT Q5

Textbook

Government sets a maximum price for a vaccine below the market price. What happens?

(b) Shortage. A price ceiling below equilibrium raises quantity demanded but lowers quantity supplied, so demand exceeds supply (see Fig. 9.1, right panel).

NCERT Q6

Textbook

Higher taxes on tobacco and alcohol promote health. Find other goods with price controls and the reasons.

Good/service	Control	Reason
Essential medicines	Price ceiling (NPPA)	Affordable healthcare
Wheat, rice	Minimum Support Price (price floor)	Protect farmers' income
Labour	Minimum wages (floor)	Prevent exploitation
Electricity, bus/metro fares, LPG	Regulated tariffs/subsidy	Affordability of basic needs

NCERT Q7

Textbook

Can excessive government regulation hurt markets? Give examples.

- **Yes.** Keeping prices too low for long discourages producers → **shortages** and black markets.
- Too many rules and licences discourage investment and new technology (India's 'licence raj' before 1991).

NCERT Q8

Textbook

Guava prices: record how much you and three friends would buy at each price; draw individual and total demand curves.

ACTIVITY — HOW TO DO IT

Make a table: Price | You | Friend 1 | Friend 2 | Friend 3 | Total. Add across each row to get **market demand**. Draw each curve (price on Y-axis, quantity on X-axis); all slope **downward**. The total (market) curve lies to the right and is flatter.

NCERT Q9

Textbook

Vegetable market visit: (a) who decides prices? (b) why are prices sometimes very high or low? (c) why are tomatoes cheaper in the evening?

- (a) Prices come from the interaction of **demand and supply** (wholesale mandi rates + retail sellers).
- (b) Supply changes with season, weather, transport and harvest; demand changes with festivals.
- (c) Vegetables are perishable; sellers **cut prices to clear stock** before it spoils.

NCERT Q10

Textbook

Classify as substitute or complementary: (a) movie ticket–popcorn (b) eraser–pencil (c) laptop–computer (d) AC–cooler (e) notebook–pen (f) apple–banana (g) mobile–earphones.

Complementary	Substitute
(a) movie ticket & popcorn	(c) laptop & desktop computer
(b) eraser & pencil	(d) AC & cooler
(e) notebook & pen	(f) apple & banana
(g) mobile & earphones	

NCERT Q11

Textbook

Using the DD' and SS' figure: (a) point E (b) equilibrium price and quantity (c) points A and B on the upper line (d) points F and C on the lower line (e) what happens if price stays at the lower line?

- (a) E = **market equilibrium** (demand = supply).
- (b) Read from the figure in your textbook (it shows ₹250 and 30 kg).
- (c) At the higher price, A (demand) is less than B (supply) → the gap AB is **excess supply (surplus)**.
- (d) At the lower price, F (demand) is more than C (supply) → the gap CF is **excess demand (shortage)**.
- (e) Buyers compete, so the price **rises** back towards E.

NCERT Q12

Textbook

From the given schedule: (a) plot demand and supply (b) find equilibrium (c) what happens at ₹20 and ₹40?

- (a) Demand curve slopes **downward**; supply curve slopes **upward**.
- (b) Equilibrium is where both quantities are equal (from the textbook table: **₹30, 15 kg**).
- (c) At ₹20 (below equilibrium): demand > supply → **shortage**; price rises. At ₹40 (above equilibrium): supply > demand → **surplus**; price falls.
- *Warning: some guide books reverse this. Rule: **below equilibrium = shortage, above = surplus**.*

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Q1**5 Marks**

Explain the Law of Demand and the Law of Supply with the help of real-life examples.

THE LAW OF DEMAND

- **Statement:** other things remaining equal, as the price of a good falls the quantity demanded rises, and as the price rises the quantity demanded falls. The demand curve therefore slopes downward.
- **Why:** a lower price leaves the buyer with more real income (income effect), makes the good cheaper than its rivals (substitution effect), and each extra unit is worth less to the buyer (diminishing marginal utility).
- **Example:** when woollen clothes go on sale at the end of winter, the same shop that sold fifty sweaters a week at ₹1,200 sells three hundred at ₹600.

THE LAW OF SUPPLY

- **Statement:** other things remaining equal, as the price of a good rises the quantity supplied rises, and as the price falls the quantity supplied falls. The supply curve therefore slopes upward.
- **Why:** a higher price widens the profit margin, so existing producers produce more and new producers enter the industry.
- **Example:** when the price of tomatoes rose sharply in one season, farmers in the neighbouring districts who had been growing other vegetables switched to tomatoes the next season, and the quantity coming to the mandi rose.

Q2**4 Marks**

Interpret how changes in price affect the quantity demanded and the quantity supplied. Distinguish a movement along the curve from a shift of the curve.

EFFECT OF A PRICE CHANGE

- A **fall in price** causes an **extension of demand** (more is bought) and a **contraction of supply** (less is offered).
- A **rise in price** causes a **contraction of demand** and an **extension of supply**.

MOVEMENT ALONG THE CURVE

- Caused **only** by a change in the price of the good itself. The curve stays where it is; the point moves up or down along it. This is extension or contraction.

SHIFT OF THE CURVE

- Caused by a change in **any factor other than the good's own price** — income, the price of substitutes or complements, tastes, population, expectations, technology, input costs, weather.
- A rightward shift of the demand curve is an **increase in demand**; a leftward shift is a **decrease in demand**. Example: a rise in incomes shifts the demand curve for cars to the right at every price.

Identify the equilibrium price and quantity from the schedule below, and analyse what happens at ₹20 and at ₹50.

Price (₹)	Quantity demanded	Quantity supplied
10	900	300
20	700	500
30	600	600
40	500	800
50	400	1000

EQUILIBRIUM

- Equilibrium occurs where quantity demanded equals quantity supplied. From the schedule this happens at a price of **₹30**, where both are **600 units**. So the equilibrium price $P^* = ₹30$ and the equilibrium quantity $Q^* = 600$ units. Graphically this is the point where the demand and supply curves intersect.

AT ₹20 — BELOW EQUILIBRIUM

- Quantity demanded (700) exceeds quantity supplied (500), so there is a **shortage of 200 units**.
- Buyers compete for the limited stock and bid the price up; as the price rises, demand contracts and supply extends until both reach 600 at ₹30.

AT ₹50 — ABOVE EQUILIBRIUM

- Quantity supplied (1,000) exceeds quantity demanded (400), so there is a **surplus of 600 units**.
- Unsold stock accumulates, so sellers cut the price; as the price falls, supply contracts and demand extends until both reach 600 at ₹30.

CONCLUSION

- The market has an automatic self-correcting mechanism: any price other than ₹30 sets up forces that push it back towards ₹30.

Q4**4 Marks**

Analyse how changes in market conditions — an increase in demand, and a fall in supply — affect equilibrium.

AN INCREASE IN DEMAND (SUPPLY UNCHANGED)

- The demand curve shifts to the **right**: more is demanded at every price. At the old price there is now a shortage, so the price is bid up.
- The new equilibrium has a **higher price and a higher quantity**. Example: demand for umbrellas rises as the monsoon begins, and both price and quantity sold go up.

A FALL IN SUPPLY (DEMAND UNCHANGED)

- The supply curve shifts to the **left**: less is offered at every price. At the old price there is a shortage, so the price rises.
- The new equilibrium has a **higher price but a lower quantity**. Example: unseasonal rain destroys part of the onion crop; less reaches the mandi and the price doubles.

THE RULE WORTH MEMORISING

- A demand shift moves price and quantity in the **same** direction; a supply shift moves them in **opposite** directions.

Q5**4 Marks**

Explain the concept of a price ceiling and how it can lead to shortages or black markets.

MEANING

- A **price ceiling** is a legally fixed **maximum** price at which a good may be sold. To have any effect it must be set **below** the equilibrium price, and its purpose is to protect consumers from high prices — rent control, a cap on the price of an essential medicine, a control price for grain.

HOW A SHORTAGE FOLLOWS

- At the lower legal price, **quantity demanded rises** because the good is cheap, while **quantity supplied falls** because producers find it less profitable. The gap between the two is a persistent shortage, which the market cannot remove because the price is not allowed to rise (see Fig. 9.1, right panel).

CONSEQUENCES

- **Rationing and queues**, since the good must be shared out by some means other than price; and often a fall in quality, as sellers economise.
- **A black market**: because buyers are willing to pay more than the ceiling and sellers are willing to sell for more, illegal sales above the legal price appear, and hoarding becomes profitable.

THE POLICY LESSON

- A price ceiling helps those who actually obtain the good at the low price, but it does nothing to increase the supply. Lasting relief needs measures that **raise supply** — imports, buffer stocks, better storage — rather than price control alone.

Q6

5 Marks

Understand market failure, identify its main types, and explain public goods.

MEANING

- **Market failure** is a situation in which the free market, left to itself, fails to allocate resources efficiently or fairly, so that intervention by the government can improve the outcome.

MAIN TYPES

- **Externalities** — costs or benefits falling on third parties who are neither buyer nor seller, and therefore not reflected in the price. A factory polluting a river imposes a negative externality; a vaccinated person confers a positive one. Remedy: tax or regulate the polluter, subsidise the benefit.
- **Public goods** — explained below.
- **Information asymmetry** — one side knows far more than the other, as when a used-car seller knows the car's faults or a patient cannot judge a doctor's advice. Remedy: consumer-protection law, compulsory disclosure, licensing, regulators.
- **Monopoly and inequality** — a single seller restricting output and charging more; and a distribution based on purchasing power that leaves basic needs unmet. Remedies: competition law; taxation and social safety nets.

PUBLIC GOODS EXPLAINED

- A **public good** has two properties: it is **non-excludable** (once provided, nobody can be prevented from using it) and **non-rival** (one person's use does not reduce what is available to another). Street lighting, national defence, a lighthouse and a public park are the standard examples.
- **Why the market fails here — the free-rider problem:** since nobody can be excluded, everyone prefers to let someone else pay and enjoy the benefit free. No private firm can therefore collect enough revenue, and the good is simply not produced — which is why the State must supply it out of tax revenue.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

In which direction does a demand curve slope?

Downward, from left to right.

E2

1 Mark

What is equilibrium price?

The price at which quantity demanded equals quantity supplied, so the market clears.

E3

1 Mark

Give one example of a negative externality.

A factory discharging untreated effluent into a river.

E4

1 Mark

What does the Latin phrase *ceteris paribus* mean?

Other things remaining equal.

E5

2 Marks

Distinguish between a price ceiling and a price floor, with one Indian example of each.

ANSWER

- A **price ceiling** is a legal maximum price set below equilibrium to protect consumers, and it creates a shortage. Example: the government capping the price of an essential medicine.
- A **price floor** is a legal minimum price set above equilibrium to protect producers, and it creates a surplus. Example: the **Minimum Support Price** for wheat and rice, which obliges the government to procure and store the surplus.

E6

2 Marks

Why does the demand for salt hardly change even when its price doubles?

ANSWER

- Salt is a **necessity with no close substitute**, and it is consumed in very small quantities, so households cannot meaningfully reduce their use of it.
- It also forms a **tiny share of the household budget**, so even a doubling of its price makes almost no difference to what the family can afford — its demand is highly **inelastic**.

E7**3 Marks**

The price of petrol rises sharply. Explain the effect on (i) the demand for petrol, (ii) the demand for cars, (iii) the demand for bicycles.

ANSWER

- **(i) Petrol:** the quantity demanded **contracts** — a movement along the demand curve. The fall is small in the short run because people still have to travel, but larger over time as they cut discretionary trips.
- **(ii) Cars:** petrol is a **complement** to cars, so dearer petrol makes owning a car costlier overall. The demand curve for cars **shifts left** — a decrease in demand, especially for fuel-hungry models.
- **(iii) Bicycles:** bicycles are a **substitute** for petrol-driven transport, so their demand curve **shifts right** — an increase in demand at every price.

E8**3 Marks**

Why do tomato prices crash at harvest and spike a few months later? Use demand and supply.

ANSWER

- **At harvest, supply rises sharply** as the whole crop reaches the mandi at once, while demand is roughly unchanged. The supply curve shifts far to the right and the equilibrium price crashes — sometimes below the cost of cultivation.
- **Tomatoes are perishable**, so farmers cannot hold stock back waiting for a better price, and cold-storage capacity is limited; the entire quantity must be sold within days whatever the price.
- **A few months later supply is very low** — the crop is over and stocks have rotted — while demand continues through the year. The supply curve shifts left and the price spikes. The wide swing is caused by supply being seasonal and inflexible while demand stays steady.

E9**4 Marks**

Explain, with examples, any four situations in which the Law of Demand does not hold.

ANSWER

- **Status or luxury goods (the Veblen effect).** For designer handbags or exclusive watches, a higher price can *increase* demand, because the high price itself is the attraction and signals status.
- **Giffen goods.** Among very poor households, a rise in the price of a cheap staple can increase the quantity bought: the price rise absorbs so much of the budget that the family gives up costlier foods and eats even more of the staple.
- **Expectations of further price rises.** When people believe prices will keep climbing, they buy *more* as the price rises — panic buying and hoarding of onions or fuel work exactly this way.
- **Necessities and habit-forming goods.** Life-saving medicine, salt and addictive goods show almost no fall in demand when the price rises, because there is no real alternative to buying them.

E10

4 Marks

What are public goods? Explain the free-rider problem and why the government must supply such goods.

PUBLIC GOODS

- A **public good** is **non-excludable** — once it exists, nobody can be prevented from enjoying it — and **non-rival**, so one person's use does not reduce what is left for others. Street lighting, national defence, a lighthouse and a public park are the standard examples.

THE FREE-RIDER PROBLEM

- Because nobody can be excluded, each person reasons that the good will be provided anyway and that he can enjoy it without paying. If everyone reasons so, nobody pays.
- A private firm therefore cannot collect enough revenue to cover its costs, and simply will not produce the good — even though everyone wants it and society would clearly be better off with it.

WHY THE STATE MUST SUPPLY IT

- The government can **compel** payment through taxation and then provide the good to all. This converts a good nobody would pay for voluntarily into one everybody pays a share of — which is why defence, street lighting and public parks are financed from the budget rather than sold in a market.

E11

4 Marks

Case study. A city caps auto-rickshaw fares at ₹10 per km when the market rate would be ₹18. Within weeks, autos are hard to find at peak hours, drivers refuse short trips, and some charge ₹25 'off the meter'. (i) Name the policy. (ii) Why did autos become scarce? (iii) Explain the ₹25 fares. (iv) Suggest a better policy.

ANSWER

- (i) A **price ceiling** — a legal maximum price fixed below the equilibrium price.
- (ii) At ₹10 the fare is below what drivers consider worth their time and fuel, so **quantity supplied falls** — some drivers stop working at peak hours or leave the trade — while the cheap fare raises **quantity demanded**. The gap between the two is a shortage, and because the price cannot legally rise, the shortage persists.
- (iii) The ₹25 fares are a **black market**. Passengers who value the ride at more than ₹10 are willing to pay more, and drivers are willing to sell for more, so illegal transactions above the ceiling appear. Refusing short trips is the same behaviour in another form — drivers ration their scarce service towards the most profitable rides.
- (iv) Better policy: allow fares to move with a transparent formula linked to fuel cost and distance, with **surge limits** to prevent exploitation; and increase supply directly by issuing more permits and improving public transport, with a targeted subsidy or concession pass for low-income commuters instead of a blanket price cap.

What is market failure? Explain any four types with examples and state one remedy for each.

MEANING

- **Market failure** is a situation in which the free market, left to itself, fails to allocate resources efficiently or fairly, so that government intervention can improve the outcome.

FOUR TYPES, WITH REMEDIES

- **Negative externalities.** A dyeing unit discharges effluent into a river; the cost is borne by farmers and fishermen downstream, not by the firm, so the market price of the cloth understates its true cost. *Remedy:* a pollution tax or emission standards on the 'polluter pays' principle.
- **Public goods.** Street lighting benefits everyone and nobody can be excluded, so no private firm can charge for it and it is not produced privately at all. *Remedy:* government provision financed from taxes.
- **Information asymmetry.** A used-car dealer knows the car's faults and the buyer does not, so bad cars drive good ones out of the market and buyers lose confidence. *Remedy:* compulsory disclosure, warranties and consumer-protection law with a grievance redressal mechanism.
- **Monopoly.** A single supplier of a service in a town restricts output and charges far above the competitive price. *Remedy:* competition law enforced by the Competition Commission of India, and regulation of natural monopolies.

THE GENERAL POINT

- Market failure does not mean markets are useless; it means that for these particular goods and situations, the price mechanism alone produces the wrong answer — which is the economic justification for having a government at all.

Quick Revision — last-minute points

1. Law of demand: price $\uparrow$ $\rightarrow$ quantity demanded $\downarrow$.
2. Law of supply: price $\uparrow$ $\rightarrow$ quantity supplied $\uparrow$.
3. Equilibrium = demand equals supply.
4. Price ceiling below equilibrium $\rightarrow$ shortage.
5. Market failure: market alone gives an unfair or harmful result.

Memory trick: Demand goes **D**own, Supply goes **S**kyward (as price rises)

CHAPTER 10

Oceans and Life

7 instructional hours · Geography · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: explain the movement of ocean waters — waves, tides and currents; analyse the link between ocean currents and climate; understand the importance of marine resources for livelihoods and ecosystems; examine the relationship between oceans, climate, livelihoods and disasters; highlight the rules and conventions governing ocean navigation and the use of marine resources; explain the need for international cooperation; and **construct models or sketches of ocean relief**.

Completely new to Class 9. The two most likely diagram questions are the **ocean relief profile** and the **spring-tide / neap-tide positions** of the Sun, Moon and Earth.



10.1 Ocean relief

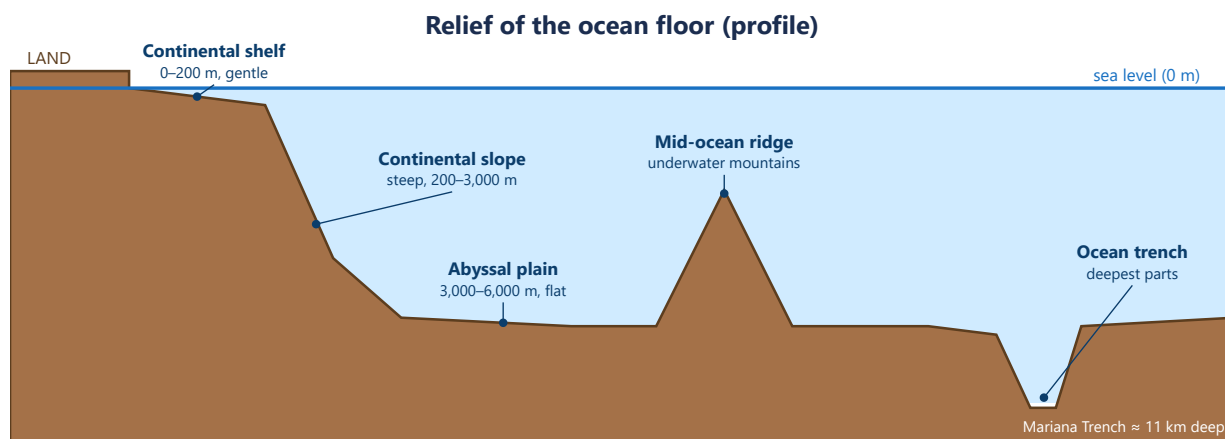


Fig. 10.A — The four major divisions of the ocean floor, plus the mid-ocean ridge and trench. Vertical scale greatly exaggerated.

Note: MLI-drawn schematic for study. Labels and depths follow standard NCERT values; shapes are simplified.

Division	Depth	Description	Importance
Continental shelf	0–200 m	The gently sloping, submerged edge of the continent; the narrowest part of the ocean floor	Sunlight reaches the bottom, so plankton and fish are abundant — the world's great fishing grounds; also the source of offshore oil and natural gas (Bombay High)
Continental slope	200–3,000 m	A steep drop marking the true boundary between continent and ocean basin	Submarine canyons; little light or life
Abyssal plain (deep-sea plain)	3,000–6,000 m	Vast, almost level plains covered in fine ooze; the largest part of the ocean floor	Polymetallic nodules of manganese, nickel and cobalt
Ocean deeps / trenches	Over 6,000 m	Narrow, very deep depressions, usually beside island arcs at convergent plate margins	The Mariana Trench is the deepest point on Earth; the site of most undersea earthquakes and therefore of tsunamis
Mid-ocean ridge and seamounts	Varies	Submerged mountain chains at divergent margins; isolated volcanic peaks	Where new crust is created; hydrothermal vents support unique life

10.2 Movement of ocean water

- **Waves** are the horizontal oscillation of the surface caused by **wind** blowing over the water. The energy travels forward, but the water particles largely move in circles and stay in place. Waves erode coasts into cliffs, caves, arches and stacks, and build beaches, spits and bars.
- **A tsunami is not a tidal wave.** It is caused by a sudden displacement of the sea floor — an undersea earthquake, landslide or volcanic eruption. In the open ocean it is barely a metre high but travels at up to 800 km/h; it rises into a wall of water only as it reaches shallow water near the coast.
- **Tides** are the regular rise and fall of sea level, caused by the **gravitational pull of the Moon and the Sun** together with the Earth's rotation. Most coasts have two high and two low tides in roughly 24 hours 50 minutes.
- **Spring tide:** at new moon and full moon the Sun, Moon and Earth are in a straight line, so their pulls add up → the highest high tides and lowest low tides. **Neap tide:** at the first and third quarters the Sun and Moon are at right angles to the Earth, so their pulls partly cancel → the smallest range.
- **Uses of tides:** they help ships enter harbours, flush silt and waste from river mouths, aid fishing, permit salt making, and can generate **tidal electricity** (the Gulf of Kutch and the Gulf of Khambhat have the largest Indian potential).
- **Currents** are steady, continuous streams of water flowing in a definite direction across the oceans, driven by prevailing winds, differences in temperature and salinity, and the Earth's rotation. **Warm currents** flow from the equator towards the poles (Gulf Stream, North Equatorial, Kuroshio); **cold currents** flow from the poles towards the equator (Labrador, Peru or Humboldt, Benguela).

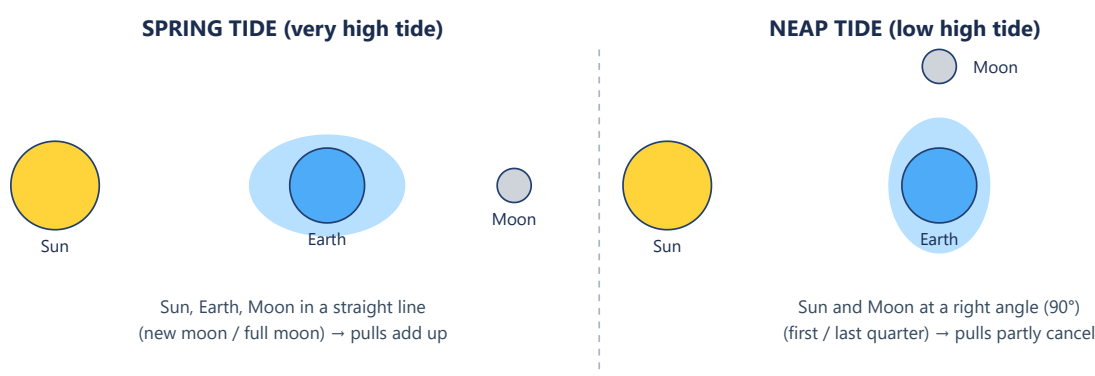


Fig. 10.B — Positions of the Sun, Earth and Moon during spring and neap tides. The blue bulge is the tidal bulge of water.

Note: Not to scale — the Sun is far larger and farther away. Only the positions matter for the exam.

Currents and climate — the examiner's favourite link. Warm currents raise the temperature of the coasts they wash: the **Gulf Stream and North Atlantic Drift** keep the ports of Britain and Norway ice-free in winter although they lie as far north as frozen Labrador. Cold currents cool and dry the coasts they touch: the **Peru current** helps make the Atacama one of the driest deserts on Earth. Where a warm and a cold current meet, as off Newfoundland (Gulf Stream and Labrador), nutrients are churned upward and **the world's richest fishing grounds** form — but so does dense fog, dangerous for shipping.



10.3 Marine resources and livelihoods

Resource	What it gives	Concern
Fisheries	Food and protein; livelihood for millions of coastal families; export earnings	Overfishing, trawling that destroys the sea bed, declining catch per boat
Minerals and energy	Offshore petroleum and natural gas (Bombay High); polymetallic nodules; salt; sand	Oil spills; damage to the sea bed from deep-sea mining
Transport	About 90% of world trade by volume moves by sea; India's major ports handle the bulk of its trade	Congestion, shipping emissions, accidental spills
Tourism and recreation	Beaches, coral reefs, diving, cruise tourism	Coastal construction, plastic waste, reef damage
Ecosystem services	Oceans absorb about a quarter of human CO ₂ and produce over half the oxygen; mangroves and reefs buffer storms	Warming, acidification, coral bleaching, mangrove clearance

- **Threats to the ocean:** overfishing and destructive trawling; plastic and chemical pollution; oil spills; untreated sewage and fertiliser run-off creating dead zones; warming and acidification; and the destruction of mangroves and coral reefs.
- **Livelihood concerns of fishing communities:** falling catch and rising fuel costs; competition from large mechanised trawlers; loss of beach and shore space to ports, hotels and industry; cyclone risk; and, for traditional fishers, crossing maritime boundaries by accident and being detained.

10.4 Cyclones, tsunamis and early warning

	Tropical cyclone	Tsunami
Cause	Warm ocean water above about 27°C, moist air and low pressure	Sudden displacement of the sea floor by an undersea earthquake, landslide or eruption
Warning time	Days — it can be tracked by satellite as it forms and moves	Minutes to a few hours — detected by seismometers and deep-ocean pressure sensors
Signs	Falling pressure, rising wind and sea, heavy cloud	An earthquake felt on the coast; the sea withdrawing suddenly from the shore
Damage	Wind, torrential rain, and above all the storm surge that floods low coasts	A series of enormous waves flooding far inland
Indian agency	India Meteorological Department (IMD), which names and tracks cyclones	Indian Tsunami Early Warning Centre, INCOIS, Hyderabad, set up after 2004

- **Why India's east coast suffers more:** the Bay of Bengal is shallower and warmer, its coast is low and densely populated, and cyclone tracks converge on Odisha, Andhra Pradesh, Tamil Nadu and West Bengal.
- **The 2004 Indian Ocean tsunami,** caused by a great earthquake off Sumatra, killed people in a dozen countries and led directly to the creation of the Indian Ocean Tsunami Warning System.
- **Mitigation:** satellite tracking and early warning through SMS, sirens and community radio; cyclone shelters on raised platforms; evacuation drills; mangrove and shelter-belt plantation, which absorbs wave energy; and building regulation in the Coastal Regulation Zone. Odisha's reduction of cyclone deaths from thousands in 1999 to a handful in recent storms is the standard Indian success story.



10.5 International maritime rules

- **UNCLOS** — the United Nations Convention on the Law of the Sea (1982) — is the basic law of the oceans, often called the constitution for the seas.
- **Territorial waters:** up to **12 nautical miles** from the baseline; the coastal State has full sovereignty, subject to the right of innocent passage.
- **Contiguous zone:** up to 24 nautical miles; limited powers of customs, immigration and sanitary control.
- **Exclusive Economic Zone (EEZ):** up to **200 nautical miles**; the coastal State has exclusive rights over all living and non-living resources, but other States keep freedom of navigation and overflight.
- **The high seas** lie beyond, open to all States; the deep sea bed is declared the **common heritage of mankind**, administered by the International Seabed Authority.
- **Other bodies and agreements:** the International Maritime Organization (IMO) for shipping safety and pollution; the MARPOL convention against pollution from ships; the International Whaling Commission; and regional fisheries agreements.

Why cooperation is unavoidable. Fish migrate, currents move, oil spills drift and plastic circulates — none of them respects a boundary. A single State can protect its own EEZ but cannot protect the high seas or a shared stock, so the ocean is the clearest example in the whole syllabus of a problem that can only be solved collectively.

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Q1**5 Marks**

Explain the movement of ocean waters, including waves, tides and currents.

WAVES

- Waves are the up-and-down oscillation of the sea surface caused by **wind** blowing across it. Their energy travels forward while the water itself largely moves in circles and stays in place.
- Their size depends on the speed of the wind, how long it blows and the distance of open water it crosses. They erode coasts into cliffs, caves, arches and stacks and build beaches and bars.

TIDES

- Tides are the **regular rise and fall of sea level**, caused chiefly by the gravitational pull of the Moon, helped by the Sun, and by the Earth's rotation; most coasts get two highs and two lows a day.
- At new and full moon the Sun, Moon and Earth are in line and the pulls add, giving the very high **spring tides**; at the quarters they are at right angles and partly cancel, giving the small **neap tides**.

CURRENTS

- Currents are **steady streams of water** flowing in a definite direction, driven by prevailing winds, differences in temperature and salinity, and the Earth's rotation.
- **Warm currents** flow from the equator polewards (Gulf Stream, Kuroshio); **cold currents** flow from the poles equatorwards (Labrador, Peru, Benguela).

THE DISTINCTION TO REMEMBER

- Waves move energy but not water; tides move the whole water body vertically; currents move the water itself horizontally over thousands of kilometres.

Q2**4 Marks**

Analyse the connections between ocean currents and global and regional climate patterns.

SOLUTION

- **Warm currents warm the coasts they wash.** The Gulf Stream and the North Atlantic Drift carry equatorial water north-east, keeping the ports of Britain and Norway ice-free in winter although they lie in the same latitudes as frozen Labrador.
- **Cold currents cool and dry the coasts they touch.** The cold Peru current chills the air above it so that it cannot rise and rain, which is why the Atacama, right beside the ocean, is one of the driest deserts on Earth; the Benguela does the same for the Namib.
- **Currents redistribute heat globally.** Together with the winds they move heat from the equator towards the poles, which moderates temperature differences across the planet; a slowing of this circulation would change climate worldwide.
- **Where warm and cold currents meet**, as off Newfoundland, nutrient-rich water is churned upward, producing the world's richest fishing grounds — and dense fog that is dangerous for shipping. **El Niño**, an abnormal warming of the eastern Pacific, is a current-related change that weakens the Indian monsoon.

Q3**4 Marks**

Understand the importance of marine resources for human livelihoods and ecosystems.

FOR LIVELIHOODS

- **Fisheries** feed millions and give direct employment to coastal fishing communities, boat builders, processors and exporters — fish is a major Indian export earner.
- **Minerals and energy:** offshore petroleum and gas (Bombay High), salt from sea water, sand, and polymetallic nodules on the deep sea bed.
- **Transport and tourism:** about 90% of world trade by volume travels by sea, supporting ports, shipping and allied industry, while beaches and coral reefs support a large tourism economy.

FOR ECOSYSTEMS

- Oceans absorb roughly a quarter of the carbon dioxide humans release and phytoplankton produce more than half the world's oxygen, so the ocean regulates the climate and the air we breathe.
- **Mangroves and coral reefs** are nurseries for fish and natural barriers that absorb the energy of storm surges and tsunamis — which is why the Sundarbans mangroves are protected as infrastructure, not just as scenery.

Q4**5 Marks**

Examine the relationship between oceans, climate, livelihoods and natural disasters.

OCEANS AND CLIMATE

- The ocean stores and moves most of the planet's heat; currents carry it from the equator to the poles, and the differential heating of land and sea is what produces the Indian monsoon itself.

OCEANS AND LIVELIHOODS

- Fishing, shipping, ports, offshore energy, salt making and tourism all depend on the sea; for a fishing family the state of the ocean is the household budget.

OCEANS AND DISASTERS

- Warm ocean water above about 27°C is the fuel of **tropical cyclones**; the resulting storm surge is what kills on low coasts.
- Undersea earthquakes at trenches generate **tsunamis**, as in 2004.

HOW CLIMATE CHANGE TIES THEM TOGETHER

- A warmer ocean makes cyclones more intense and rainfall heavier; a rising sea level raises storm surges and pushes salt water into coastal farmland and wells; warming and acidification bleach corals and shift fish stocks away from traditional grounds.
- The result is a chain: **warming ocean → stronger disasters and shifting fish → damaged coastal livelihoods → migration and poverty** — which is why coastal communities are among the most vulnerable people on Earth.

Q5

4 Marks

Highlight the key rules and conventions governing ocean navigation and the use of marine resources, and explain why international cooperation is needed.

THE RULES

- **UNCLOS, 1982** is the basic framework. It fixes **territorial waters** at 12 nautical miles, where the coastal State is sovereign subject to innocent passage; a **contiguous zone** to 24 nautical miles for customs and immigration control; and an **Exclusive Economic Zone** to 200 nautical miles, where the coastal State has exclusive rights over all resources but others keep freedom of navigation.
- Beyond lie the **high seas**, open to all, and the deep sea bed, declared the **common heritage of mankind** under the International Seabed Authority.
- The **International Maritime Organization** sets safety and anti-pollution standards, notably the **MARPOL** convention on pollution from ships.

WHY COOPERATION IS ESSENTIAL

- Fish stocks migrate, currents flow and oil spills and plastic drift across every boundary, so no single State can protect them alone; and the high seas belong to nobody, so without agreed rules they would be exploited until exhausted — the tragedy of the commons on a planetary scale.

Q6

4 Marks

Construct a labelled sketch of ocean relief and describe each division.

Diagram: draw Fig. 10.A (Part A, section 10.1) and label all five parts.

DESCRIPTION

- **Continental shelf** (0–200 m): the shallow, gently sloping submerged margin of the continent; sunlit and rich in plankton, so it carries the great fishing grounds and the offshore oil fields.
- **Continental slope** (200–3,000 m): a steep descent marking the real edge of the continent, cut by submarine canyons.
- **Abyssal plain** (3,000–6,000 m): vast, almost level deep-sea plains covered with fine ooze; the largest part of the ocean floor.
- **Trenches** (over 6,000 m): narrow, extremely deep furrows at convergent plate margins — the Mariana Trench is the deepest place on Earth and such trenches are the source of most tsunamis. Rising above the plains are the **mid-ocean ridges**, where new crust forms, and isolated volcanic **seamounts**.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

What is the width of India's territorial waters?

12 nautical miles from the baseline.

E2

1 Mark

Name the deepest trench in the world.

The Mariana Trench, in the Pacific Ocean.

E3

1 Mark

Which body issues tsunami warnings for India?

The Indian Tsunami Early Warning Centre at INCOIS, Hyderabad.

E4

1 Mark

How far does an Exclusive Economic Zone extend?

Up to 200 nautical miles from the baseline.

E5

2 Marks

Distinguish between a spring tide and a neap tide.

ANSWER

- A **spring tide** occurs at new moon and full moon, when the Sun, Moon and Earth are in a straight line so their gravitational pulls add together — giving the highest high tides and the lowest low tides.
- A **neap tide** occurs at the first and third quarters, when the Sun and Moon are at right angles to the Earth so their pulls partly cancel — giving the smallest tidal range.

E6**2 Marks**

Why is the continental shelf the most valuable part of the ocean floor?

ANSWER

- It is shallow enough for sunlight to reach the bottom, so plankton grow abundantly and it supports the world's richest **fishing grounds**.
- It also holds most of the world's accessible offshore **petroleum and natural gas**, as at Bombay High, and is shallow enough for ports, cables and wind farms.

E7**3 Marks**

Why is a tsunami not a tidal wave? Explain three differences.

ANSWER

- **Cause:** tides are caused by the gravitational pull of the Moon and Sun; a tsunami is caused by the sudden displacement of the sea floor in an undersea earthquake, landslide or volcanic eruption. Gravity has nothing to do with it.
- **Regularity:** tides are perfectly predictable and occur twice daily; a tsunami is a sudden, rare event.
- **Behaviour:** a tide is a slow rise of the whole water body; a tsunami is a series of waves travelling at up to 800 km/h, barely noticeable in the open ocean but rising into a wall of water as it enters shallow coastal water.

E8**3 Marks**

Explain how ocean currents affect fishing.

ANSWER

- **Where a warm and a cold current meet**, as the Gulf Stream and the Labrador current do off Newfoundland, the water is churned and nutrients from the depths are brought to the sunlit surface, feeding plankton and therefore fish.
- **Upwelling** caused by cold currents along the coasts of Peru and Namibia does the same, which is why these coasts have enormous fisheries despite being deserts on land.
- **Currents also decide where fish are found and when.** A change in current, as during El Niño, drives fish away from their usual grounds and can destroy a season's catch and the livelihoods that depend on it.

E9

4 Marks

Why does India's east coast suffer more cyclones than the west coast? Suggest two mitigation measures.

REASONS

- The **Bay of Bengal is shallower and warmer** than the Arabian Sea, and warm water above about 27°C is the fuel a cyclone needs to form and intensify.
- Cyclone tracks in this region **converge on the east coast**, and the coastline of Odisha, Andhra Pradesh and West Bengal is **low, flat and deltaic**, so the storm surge floods far inland; it is also very densely populated.

TWO MITIGATION MEASURES

- **Early warning and evacuation:** satellite tracking by the IMD with warnings by SMS, siren and community radio, combined with pucca cyclone shelters on raised platforms and rehearsed evacuation drills — the approach that cut Odisha's cyclone deaths from thousands in 1999 to a handful today.
- **Mangrove and shelter-belt plantation** along the coast, which absorbs the energy of the surge, together with strict enforcement of Coastal Regulation Zone rules against building on the vulnerable shore.

E10

4 Marks

What are the main threats to the ocean today? Suggest one remedy for each of any four.

ANSWER

- **Overfishing and destructive trawling** empty stocks faster than they can breed. *Remedy:* enforce closed seasons, minimum net-mesh sizes and catch quotas, and ban bottom trawling in nursery areas.
- **Plastic pollution** chokes marine life and enters the food chain as microplastic. *Remedy:* ban single-use plastics, improve waste collection inland (most ocean plastic arrives by river), and run beach clean-ups.
- **Oil spills and chemical discharge** poison large areas at once. *Remedy:* double-hulled tankers, strict MARPOL enforcement, and heavy liability on the polluter.
- **Warming and acidification** bleach corals and shift fish stocks. *Remedy:* cut greenhouse gas emissions, and protect and restore mangroves and reefs through marine protected areas.

Explain the divisions of maritime zones under UNCLOS and why the deep sea bed is called the common heritage of mankind.

THE ZONES

- **Baseline:** the low-water line along the coast, from which every zone is measured.
- **Territorial sea — 12 nautical miles:** the coastal State is fully sovereign here, over the water, the sea bed and the air above, subject only to the right of **innocent passage** for foreign ships.
- **Contiguous zone — 24 nautical miles:** the State may enforce its customs, immigration, sanitary and fiscal laws, but has no general sovereignty.
- **Exclusive Economic Zone — 200 nautical miles:** the State has exclusive rights to explore and exploit all living and non-living resources, and duties to conserve them; other States keep freedom of navigation, overflight and cable-laying.
- **High seas:** everything beyond, open to all States for navigation, fishing and research, and belonging to none.

THE COMMON HERITAGE OF MANKIND

- The deep sea bed beyond national jurisdiction — called **the Area** — and its polymetallic nodules are declared the common heritage of mankind. No State may claim sovereignty over it; exploitation is licensed by the **International Seabed Authority**, and the benefits are to be shared with all countries, including landlocked ones.
- The principle exists so that the richest and most technologically advanced nations cannot simply seize the last unclaimed resource frontier on the planet.

⚡ Quick Revision — last-minute points

1. 5 oceans: Pacific (largest), Atlantic, Indian, Southern, Arctic.
2. Ocean floor: shelf → slope → abyssal plain → trench; plus mid-ocean ridges.
3. Warm currents flow from equator; cold currents from poles.
4. Spring tide: Sun, Moon, Earth in line; neap tide: at right angle.
5. Maritime zones: territorial sea 12 nm, EEZ 200 nm (UNCLOS).

Memory trick: Spring = Straight line

CHAPTER 11

Life on Earth

7 instructional hours · Geography · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: identify the major biomes of the world and describe their climate, flora and fauna; **locate biosphere reserves on the map of India**; appreciate local traditional practices of biodiversity conservation; explain the concept and importance of biosphere reserves; analyse ecotourism and its role in sustainable conservation; and investigate the causes of forest fires locally and prepare a mitigation plan.

A **map question locating biosphere reserves** is almost certain. Learn at least six with their States.



11.1 The biosphere and the major biomes

- The **biosphere** is the narrow zone where the lithosphere, atmosphere and hydrosphere meet and life exists.
- An **ecosystem** is a community of living organisms together with the non-living environment they interact with. A **biome** is a very large ecosystem with a characteristic climate, vegetation and animal life — the biome is decided mainly by **temperature and rainfall**, which is why biomes run in belts across latitudes.

Biome	Climate	Vegetation	Animals	Where
Tropical evergreen (rainforest)	Hot all year; rain over 200 cm, well distributed	Dense, multi-storeyed, broad-leaved evergreen; mahogany, rosewood, ebony; lianas and epiphytes	Monkeys, sloths, jaguars, elephants, countless birds and insects	Amazon, Congo, Southeast Asia, Western Ghats, Andamans
Tropical deciduous (monsoon)	Hot; 70–200 cm of seasonal rain	Trees shed leaves in the dry season; teak, sal, sandalwood, bamboo	Tiger, elephant, deer, langur	Most of India, Myanmar, parts of Africa
Grassland	Moderate, seasonal rain 25–75 cm	Tall tropical savanna grasses; short temperate prairie and steppe grasses	Zebra, giraffe, lion (savanna); bison, wolf (prairie)	African savanna, prairies of North America, steppes of Eurasia, pampas
Desert	Very hot or very cold; under 25 cm of rain	Thorny, waxy, deep-rooted xerophytes; cactus, acacia, date palm	Camel, desert fox, reptiles, scorpions	Sahara, Thar, Arabian, Atacama, Gobi (cold)
Temperate forest	Warm summers, cold winters, moderate rain	Deciduous oak, maple, beech; mixed with conifers	Deer, bear, fox, squirrel	Eastern USA, western Europe, eastern China
Taiga (coniferous)	Very cold, long winters, low precipitation	Evergreen conifers — pine, fir, spruce, with needle leaves and conical shape	Reindeer, lynx, wolf, bear	Siberia, Canada, Scandinavia
Tundra	Extremely cold; permafrost; very low precipitation	Mosses, lichens, sedges; no trees	Polar bear, Arctic fox, reindeer, seal	Arctic coasts, high Himalaya (alpine tundra)

How to answer a biome question: always give the four elements in order — **climate** → **vegetation** → **adaptation** → **animal life**, with one named location. The adaptation is what earns the extra mark: cactus stems store water and spines reduce transpiration; conifers are conical so snow slides off and needle leaves resist freezing; deciduous trees shed leaves to survive a dry season.

11.2 Biosphere reserves in India

- A **biosphere reserve** is a large protected area meant to conserve an entire ecosystem together with its biodiversity, its traditional human communities and their way of life, while permitting research and education.
- **Its three zones:** the **core zone**, legally protected and left undisturbed with no human activity permitted; the **buffer zone**, surrounding it, where research, education and limited controlled activity are allowed; and the **transition zone**, the outermost, where settlements, farming and sustainable use continue.
- India has 18 biosphere reserves, of which twelve are on the UNESCO World Network.

Biosphere reserve	State(s)	Known for
Nilgiri (India's first, 1986)	Tamil Nadu, Kerala, Karnataka	Nilgiri tahr, lion-tailed macaque, elephant; shola forests
Nanda Devi	Uttarakhand	Snow leopard, Himalayan musk deer; alpine meadows
Sundarban	West Bengal	The largest mangrove forest in the world; the Royal Bengal tiger
Gulf of Mannar	Tamil Nadu	Coral reefs, sea grass, dugong
Great Nicobar	Andaman & Nicobar Islands	Saltwater crocodile, megapode; Shompen and Nicobarese communities
Pachmarhi	Madhya Pradesh	Satpura range, sal and teak forest, Indian giant squirrel
Simlipal	Odisha	Sal forest, tiger, elephant, melanistic tigers
Achanakmar–Amarkantak	Chhattisgarh, Madhya Pradesh	Source of the Narmada; sal forest and tribal communities
Panna	Madhya Pradesh	Teak and Ken river gorge; successful tiger reintroduction

Related conservation categories to keep separate: a **national park** is strictly protected with no human activity permitted at all; a **wildlife sanctuary** protects particular species and allows limited human activity; a **biosphere reserve** is much larger and deliberately includes people; and a **tiger reserve** is designated under Project Tiger with a core and buffer structure of its own.

11.3 Forests, forest dwellers and ecotourism

- **Why forests matter:** they hold soil and prevent erosion; they recharge groundwater and regulate river flow; they absorb carbon dioxide and release oxygen; they shelter most terrestrial biodiversity; they give timber, fuelwood, bamboo, medicinal plants, honey, lac, gum and tendu leaves; and they support the livelihood and culture of forest-dwelling communities.
- **Forest dwellers** — tribal and other traditional communities — have lived in and managed forests for generations, collecting minor forest produce, practising shifting cultivation in places, and conserving through custom.
- **Their challenges:** displacement by dams, mines, roads and even by protected areas; loss of access to minor forest produce; conflict with wildlife; and poverty and poor access to schools and health care.
- **Government efforts:** the **Forest Rights Act, 2006**, which recognises individual and community rights of Scheduled Tribes and other traditional forest dwellers over land they have cultivated and over minor forest produce; **Joint Forest Management**, under which village committees share responsibility and benefits with the Forest Department; minimum support price for minor forest produce and tribal cooperatives such as TRIFED; and eco-development committees in protected areas.
- **Ecotourism** is responsible travel to natural areas that conserves the environment, sustains the well-being of local people and involves interpretation and education. Its principles: keep numbers within carrying capacity, use local guides, homestays and local food so income stays in the community, generate no waste and no plastic, and respect wildlife and local culture.
- **Its benefits:** it gives local people a direct economic stake in keeping the forest intact, funds conservation, and builds awareness. **Its dangers:** if numbers are not controlled it becomes ordinary mass tourism — noise, waste, vehicle pressure on wildlife, construction, and profits flowing to outside operators rather than to villagers.

Traditional Indian conservation practices — a favourite value question. **Sacred groves** (*devrai* in Maharashtra, *kavu* in Kerala, *sarna* in Jharkhand) are patches of forest protected by religious sanction and often the last undisturbed vegetation in a district. The **Bishnoi** of Rajasthan protect the khejri tree and the blackbuck by community rule — the sacrifice at Khejarli in 1730 is the origin of the tradition. The **Chipko movement** of Uttarakhand in the 1970s and the **Appiko** movement in Karnataka used non-violent tree-hugging to stop commercial felling.

11.4 Forest fires

Causes	Effects	Prevention and mitigation
Natural: lightning; extreme heat and drought; friction between dry bamboo stems	Loss of trees, wildlife and habitat; destruction of the seed bank and soil nutrients	Fire lines — cleared strips that stop the fire spreading
Human (the great majority): burning of crop stubble that spreads; careless cottage fires, beedis and campfires; deliberate burning to encourage fresh grass or to clear land; collection of tendu leaves and honey	Air pollution and smoke; release of stored carbon, worsening climate change; soil left bare, so erosion and landslides follow the next monsoon; loss of livelihood for forest dwellers	Early detection by watch towers and satellite alerts (the Forest Survey of India sends SMS alerts); controlled burning of leaf litter before the dry season; community fire squads and awareness drives; water points and quick-response teams

The investigation the syllabus asks you to do: for your own district, find out (i) in which months fires are reported, (ii) which forest types burn — in central India it is usually dry deciduous sal and teak forest with heavy leaf litter in March–May, (iii) the likely cause, and (iv) a simple mitigation plan: fire lines before February, a village fire-watch roster, SMS alerts, and an agreement with tendu collectors not to burn.

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Q1

5 Marks

Identify the major biomes of the world and describe their key climatic conditions, characteristic flora and fauna.

SOLUTION

- **Tropical rainforest:** hot all year with over 200 cm of well-distributed rain; dense multi-storeyed broad-leaved evergreen trees such as mahogany and rosewood, with lianas and epiphytes; monkeys, jaguars, elephants and a vast variety of birds and insects. Found in the Amazon, Congo and the Western Ghats.
- **Tropical deciduous (monsoon) forest:** hot, with 70–200 cm of seasonal rain; trees shed their leaves in the dry season to save water — teak, sal, sandalwood, bamboo; tiger, elephant, deer. This is the characteristic forest of India.
- **Grassland:** moderate seasonal rain of 25–75 cm; tall savanna grasses in the tropics and short prairie and steppe grasses in temperate lands; zebra, giraffe and lion in the savanna, bison and wolf in the prairie.
- **Desert:** under 25 cm of rain, very hot by day or bitterly cold; thorny, waxy, deep-rooted xerophytes such as cactus and acacia; camel, desert fox, reptiles. The Sahara and the Thar.
- **Taiga and tundra:** the taiga has long, very cold winters and evergreen conifers — pine, fir, spruce — with reindeer, lynx and bear; the tundra is colder still, with permafrost, no trees, only mosses and lichens, and polar bear, Arctic fox and seal.

THE CONTROLLING FACTOR

- Biomes are determined chiefly by **temperature and rainfall**, which is why they occur as broad belts running across latitudes and repeat on every continent with similar climate.

Explain the concept and importance of biosphere reserves in conserving ecosystems and biodiversity, and name any four in India with their States.

CONCEPT

- A **biosphere reserve** is a large protected area designed to conserve an entire ecosystem — its plants, animals and micro-organisms — together with the traditional human communities living in it, while permitting research and education.
- It has three zones: an undisturbed **core** where no human activity is allowed; a **buffer** for research and limited controlled use; and a **transition zone** where settlements and sustainable farming continue.

IMPORTANCE

- It conserves **whole ecosystems and genetic diversity**, not single species, which is the only way to keep an ecosystem functioning.
- It treats local people as partners rather than intruders, so conservation does not depend on evicting them; and it provides a living laboratory for long-term research, monitoring and environmental education.

FOUR INDIAN EXAMPLES

- **Nilgiri** — Tamil Nadu, Kerala and Karnataka (India's first, 1986). **Nanda Devi** — Uttarakhand. **Sundarban** — West Bengal. **Gulf of Mannar** — Tamil Nadu. (Also: Pachmarhi and Panna in Madhya Pradesh, Simlipal in Odisha, Great Nicobar.)

Appreciate local traditional practices related to biodiversity conservation and analyse their effects.

THE PRACTICES

- **Sacred groves** — patches of forest dedicated to a deity and protected by religious prohibition, known as *devrai* in Maharashtra, *kavu* in Kerala and *sarna* in Jharkhand.
- **The Bishnoi tradition** of western Rajasthan, whose tenets forbid the felling of green trees and the killing of animals, protecting the khejri tree and the blackbuck; at Khejarli in 1730 more than three hundred Bishnois gave their lives resisting the felling of khejri trees.
- **Sacred species and water bodies** — the peepal and banyan, temple tanks, and rivers treated as sacred.
- **Community movements** in the same spirit: **Chipko** in Uttarakhand and **Appiko** in Karnataka, where villagers embraced trees to stop commercial felling.

THEIR EFFECTS

- **Positive:** sacred groves often preserve the last undisturbed vegetation and rare species of an entire district, and act as a genetic reservoir. Protection rests on belief and social sanction, so it costs nothing to enforce and is remarkably durable.
- **Limitations:** groves are small and fragmented; as belief weakens and land prices rise, many are encroached upon; and they lack legal protection unless formally notified. The lesson for modern policy is that conservation works best when it carries the community with it rather than against it.

Analyse the concept of ecotourism and discuss its role in promoting a sustainable forest ecosystem and conservation.

WHAT ECOTOURISM IS

- **Ecotourism** is responsible travel to natural areas that conserves the environment, sustains the well-being of local people, and includes interpretation and education. It is not simply tourism that happens to take place in a forest.

ITS PRINCIPLES

- Keep visitor numbers within the area's **carrying capacity**; use local guides, homestays and local food so that income stays in the community; generate no plastic or waste; and respect wildlife and local culture.

ITS ROLE IN CONSERVATION

- It gives villagers a **direct economic stake** in keeping the forest and its wildlife intact — a living tiger earns more, year after year, than a poached one.
- Entry fees and permits **fund the protected area** itself, and it provides an alternative livelihood to logging, hunting or shifting cultivation, while building public awareness of conservation.

ITS DANGERS, HONESTLY STATED

- If numbers are not limited it becomes ordinary mass tourism: vehicle pressure on wildlife, noise, garbage, hotels built on forest edges, and profits captured by outside operators while villagers get only menial work. Ecotourism conserves only when regulation and local ownership are real.

Q5

4 Marks

Investigate the causes of forest fires in a local area and prepare a plan for their mitigation and prevention.

CAUSES FOUND ON INVESTIGATION

- **Natural:** lightning strikes, prolonged drought and extreme heat, and occasionally friction between dry bamboo stems.
- **Human, which account for the great majority:** crop-stubble burning that spreads to the forest edge; careless campfires, cooking fires and discarded beedis; deliberate burning to promote fresh grass for cattle or to clear land; and burning during the collection of tendu leaves and honey.
- **Season:** in central India fires peak in **March to May**, when dry deciduous sal and teak forest is carpeted with fallen leaf litter.

A MITIGATION PLAN

- **Before the season:** cut and maintain **fire lines** — cleared strips that break the fire's path — and carry out controlled burning of leaf litter in February under supervision.
- **Detection:** use Forest Survey of India satellite fire alerts sent by SMS, together with watch towers and a village fire-watch roster during the peak months.
- **Response:** trained village fire squads with beaters, water points and a quick-response team; a clear reporting number known to every household.
- **Prevention through people:** awareness campaigns in schools and villages, an agreement with tendu and honey collectors not to use fire, penalties for stubble burning near forest boundaries, and involvement of Joint Forest Management committees so villagers see the forest as their own asset.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

What is a biome?

A very large ecosystem with a characteristic climate, vegetation and animal life.

E2

1 Mark

Which was India's first biosphere reserve?

The Nilgiri Biosphere Reserve, established in 1986.

E3

1 Mark

In which State is the Sundarban Biosphere Reserve?

West Bengal.

E4

1 Mark

In which year was the Forest Rights Act passed?

2006.

E5

2 Marks

Name the three zones of a biosphere reserve and state what is allowed in each.

ANSWER

- **Core zone** — legally protected and undisturbed; no human activity is permitted, so the ecosystem can function naturally.
- **Buffer zone** — surrounds the core; research, education, monitoring and limited controlled activity are allowed. **Transition zone** — the outermost; settlements, farming, forestry and sustainable use continue.

E6

2 Marks

Why do conifers have needle-shaped leaves and a conical shape?

ANSWER

- **Needle leaves** have a very small surface area and a thick waxy coat, which reduces water loss — important because water is frozen and unavailable for much of the year.
- The **conical shape with downward-sloping branches** allows heavy snow to slide off instead of accumulating and breaking the branches.

E7**3 Marks**

Distinguish between a national park, a wildlife sanctuary and a biosphere reserve.

ANSWER

- A **national park** is a strictly protected area meant to conserve a whole natural habitat; no human activity, grazing or cultivation is permitted, and its boundaries are fixed by law.
- A **wildlife sanctuary** is aimed at protecting particular species; limited human activity such as grazing or the collection of minor forest produce may be permitted, and its boundaries can be altered more easily.
- A **biosphere reserve** is much larger than either and may contain national parks and sanctuaries within it. It conserves the whole ecosystem **together with its human communities**, and is organised in core, buffer and transition zones.

E8**3 Marks**

What are sacred groves? Why are they important for conservation?

ANSWER

- **Sacred groves** are patches of forest protected by a community on religious grounds, dedicated to a local deity, where felling trees and hunting are forbidden by custom — *devrai* in Maharashtra, *kavu* in Kerala, *sarna* in Jharkhand.
- They are often the **last undisturbed vegetation** of an entire district and preserve rare and endemic species that have vanished from the surrounding cultivated land, acting as a genetic reservoir and a refuge for wildlife.
- They show that **conservation backed by community belief costs nothing to enforce** and has lasted for centuries — a model for modern participatory conservation.

Describe the challenges faced by forest dwellers and the government's efforts to support them.

CHALLENGES

- **Displacement** by dams, mines, highways and industrial projects, and sometimes by the creation of protected areas themselves, which uproots communities from land they have lived on for generations.
- **Loss of access** to the forest and to minor forest produce — tendu, mahua, honey, bamboo — on which their cash income depends, and exploitation by middlemen who buy that produce cheap.
- **Conflict with wildlife**, crop damage and the risk to life; and poverty with poor access to schools, health care and documents.

GOVERNMENT EFFORTS

- The **Forest Rights Act, 2006** recognises the individual and community rights of Scheduled Tribes and other traditional forest dwellers over land they cultivate and over minor forest produce, correcting what the Act itself calls a historical injustice.
- **Joint Forest Management** makes village committees partners with the Forest Department in protecting forest and sharing its benefits; **minimum support prices for minor forest produce** and tribal cooperatives such as TRIFED protect them from middlemen; and eco-development committees channel ecotourism income into the villages.

Case study. A hill district promotes tourism in a tiger reserve. Visitor numbers rise from 5,000 to 60,000 a year. Hotels come up on the forest edge, jeep safaris run all day, and villagers get only low-paid jobs. (i) Is this ecotourism? (ii) Give two harms. (iii) Suggest two corrections.

ANSWER

- **(i)** No. This is **mass tourism in a natural area**, not ecotourism. Ecotourism requires that numbers stay within carrying capacity, that the environment be conserved, and that local people benefit substantially — none of which is happening here.
- **(ii) Harm 1:** constant jeep traffic and noise disturb tigers and other wildlife, altering their movement, breeding and hunting, while hotels on the forest edge block animal corridors and generate sewage and plastic waste.
- **Harm 2:** the economic benefit is captured by outside hotel and tour operators; villagers, who bear the cost of crop damage and the loss of forest access, get only menial work — so they gain no stake in conservation and may turn against the reserve.
- **(iii) Corrections:** cap daily visitor and vehicle numbers by a permit system based on scientifically assessed carrying capacity, with fixed safari timings and zones that leave part of the reserve undisturbed; and mandate local ownership — village homestays, local guides and local food supply, with a share of entry fees going directly to an eco-development committee — so the community earns more from a living forest than from any alternative.

Describe the tropical deciduous forest biome of India under climate, vegetation, adaptation, wildlife and human use.

ANSWER

- **Climate:** hot throughout the year with a mean temperature above 24°C, and **70–200 cm of highly seasonal rainfall** concentrated in the four monsoon months, followed by a long dry season. This is the monsoon climate that covers most of India.
- **Vegetation:** broad-leaved trees that form a less dense canopy than the rainforest — **teak, sal, sandalwood, shisham, khair and bamboo**. Moist deciduous forest with sal dominates the wetter east and the Himalayan foothills; dry deciduous forest with teak dominates central India, including Madhya Pradesh.
- **Adaptation:** the trees **shed their leaves for six to eight weeks in the dry season** to cut transpiration when soil water is scarce — which is exactly what gives the biome its name — and many have thick bark and deep roots.
- **Wildlife:** tiger, leopard, elephant, sloth bear, chital and sambar deer, langur, wild boar, peafowl and a great variety of birds. India's major tiger reserves — Kanha, Bandhavgarh, Pench, Satpura — all lie in this biome.
- **Human use and pressure:** it is commercially the most valuable Indian forest, supplying teak and sal timber, bamboo, tendu leaves, mahua and medicinal plants, and it supports large tribal populations. Precisely because it is accessible and valuable, it has suffered the heaviest **deforestation, grazing pressure and dry-season forest fires**, which is why much of it is now under Joint Forest Management and protected-area status.

⚡ Quick Revision — last-minute points

1. Biosphere = zone of life on Earth.
2. Biome = large region with similar climate, plants and animals.
3. Ecosystem: producers → consumers → decomposers.
4. Biosphere reserves protect ecosystems (e.g. Nilgiri, Sundarbans, Nanda Devi).
5. Conservation keeps biodiversity for the future.

Memory trick: P-C-D = Plants Cook, animals Consume, Decomposers clean

CHAPTER 12

Resistance and Resilience (1000 CE – 1700 CE)

9 instructional hours · History · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: explain the cultural, political and military contributions of regional kingdoms in India; appreciate how diverse communities and regions shaped India's history from 1000 to 1700 CE; explore how regional kingdoms adapted to changing political, economic and cultural contexts; and analyse the continuity of India's civilisational history as a nation up to the eighteenth century.

Note the framing of this theme: the emphasis is on **resistance, resilience and regional achievement** — sovereignty safeguarded, art and language developed, the Bhakti tradition, forts, and economic expansion. Answers should be organised around those five headings.



12.1 Safeguarding sovereignty — resistance, alliances and confederacies

Power	Period and region	How it resisted or asserted itself
Rajput kingdoms	8th–16th c., Rajasthan and central India	Sustained resistance by numerous clans — Chauhans, Sisodias, Rathores — relying on hill forts and a code of honour; Rana Sanga and Maharana Pratap , who fought at Haldighati (1576) and kept Mewar's independence alive from the hills
Vijayanagara Empire	1336–1646, Deccan and the south	Founded by Harihara and Bukka; under Krishnadeva Raya it became the great southern power. Hampi, its capital, was described by Persian and Portuguese visitors as one of the most magnificent cities in the world; it protected temples, irrigation and trade and was a UNESCO World Heritage Site today
Ahom kingdom	1228–1826, Assam	Resisted repeated Mughal invasions for centuries; Lachit Borphukan's victory at the naval battle of Saraighat (1671) on the Brahmaputra is the classic example of using terrain and river warfare against a larger army
The Marathas	17th c. onwards, western India	Shivaji built a state on hill forts, a strong navy and guerrilla warfare (ganimi kava) , with an organised administration — the <i>Ashtapradhan</i> council of eight ministers — and a revenue system; he was crowned Chhatrapati in 1674
Sikh resistance	16th–18th c., Punjab	From the Gurus to the later confederacies (<i>misls</i>); Guru Gobind Singh founded the Khalsa in 1699, and Banda Singh Bahadur carried the struggle forward
Kakatiyas, Cholas, Hoysalas, Gajapatis, Cheras	South and east	Regional powers that built temples, irrigation tanks and maritime trade, and resisted invasions from the north

- **Alliances and confederacies** were a recurring device: Rajput clans combined against a common threat; the Deccan sultanates allied at Talikota; the Maratha confederacy under the Peshwas bound together the Scindias, Holkars, Gaekwads and Bhonsles; and the Sikh misls formed a confederacy in Punjab.
- **The pattern to recognise:** political unity was rarely achieved, but **resistance was continuous and regionally rooted**, and each region preserved its own language, art and institutions while adapting militarily and administratively to new pressures — which is exactly what the word *resilience* in the chapter title means.

12.2 Art, architecture, language and literature

Field	Developments	Examples
Temple architecture	Regional styles mature	Khajuraho (Chandela), Konark Sun Temple (Odisha), Brihadeshwara (Chola), Hoysaleswara at Halebidu, Dilwara Jain temples at Mount Abu, Vitthala temple at Hampi with its musical pillars
Indo-Islamic architecture	The arch, dome and minaret combined with Indian craftsmanship and decoration	Qutb Minar, Alai Darwaza, Gol Gumbaz at Bijapur, Fatehpur Sikri, the Taj Mahal, Charminar
Painting	Miniature schools flourish	Mughal miniature, Rajput and Pahari schools, Deccan painting, Basohli and Kangra
Regional languages	Literature moves from Sanskrit into the spoken languages, reaching ordinary people	Hindi (Tulsidas's <i>Ramcharitmanas</i> , Surdas, Kabir), Marathi (Dnyaneshwar, Tukaram), Bengali (Chandidas), Tamil, Telugu (Krishnadeva Raya's <i>Amuktamalyada</i>), Kannada (the Vachanas), Assamese (Sankardeva), Punjabi (Guru Granth Sahib), Urdu
Music and dance	Hindustani and Carnatic traditions take shape; new instruments and forms	Amir Khusrau; Tansen at Akbar's court; Purandaradasa in Carnatic music; Kathak, Odissi, Kathakali, Manipuri

12.3 The Bhakti tradition

- **Bhakti** means loving personal devotion to God. The movement began with the Alvars and Nayanars of Tamil Nadu (6th–9th centuries) and spread across India between the 12th and 17th centuries.
- **Its central teachings:** a direct personal relationship with God needing no priest or elaborate ritual; the equality of all before God, regardless of caste, gender or wealth; devotion expressed in **the language of the people** rather than Sanskrit; and an emphasis on love, sincerity and conduct over birth and ceremony.
- **Saguna Bhakti** worships God with form and attributes — Tulsidas, Surdas, Mirabai, Chaitanya. **Nirguna Bhakti** worships the formless absolute — Kabir, Guru Nanak, Ravidas.

Saint	Region and period	Contribution
Kabir	North India, 15th c.	Nirguna; his <i>dohas</i> attacked ritualism and caste in both Hinduism and Islam and preached one formless God
Guru Nanak	Punjab, 1469–1539	One God, equality, honest work, sharing; founded Sikhism and the institutions of <i>sangat</i> and <i>langar</i>
Mirabai	Rajasthan, 16th c.	Rajput princess whose devotional songs to Krishna defied the conventions binding women
Tulsidas	North India, 16th c.	<i>Ramcharitmanas</i> in Awadhi brought the Ram story to ordinary people
Chaitanya Mahaprabhu	Bengal, 16th c.	Ecstatic devotion to Krishna through <i>kirtan</i> ; drew followers across castes
Tukaram and Dnyaneshwar	Maharashtra	The Varkari tradition; <i>abhangas</i> in Marathi; the Pandharpur pilgrimage
Basavanna	Karnataka, 12th c.	The Lingayat / Virashaiva movement; Vachanas in Kannada; strongly anti-caste
Sankardeva	Assam, 15th–16th c.	Ekasarana dharma; the <i>satra</i> and <i>namghar</i> institutions; Assamese drama and music
Ravidas	North India	Nirguna saint from a cobbler family whose verses are in the Guru Granth Sahib

The Sufi parallel. Sufism, the mystical strand within Islam — Moinuddin Chishti at Ajmer, Nizamuddin Auliya at Delhi, Baba Farid — taught love of God, service to humanity and tolerance, and its *khanqahs* and *dargahs* were open to all. Bhakti and Sufi saints together created a shared devotional culture and a common vocabulary that cut across religious lines.



12.4 Forts and fortifications

Type of fort	Definition	Examples
Giri-durga (hill fort)	Built on a hill, the hardest to capture	Rajgad, Raigad, Sinhagad, Kumbhalgarh, Chittorgarh
Jala-durga (water fort)	Surrounded by water — sea or lake	Sindhudurg, Murud-Janjira, Bekal
Vana-durga (forest fort)	Hidden in dense forest	Forts of the Deccan interior
Dhanva-durga (desert fort)	Protected by the surrounding desert	Jaisalmer
Mahi-durga (mud/plain fort)	On level ground with massive earthen or stone walls and a moat	Agra Fort, Red Fort, Golconda

- **Features of fortification:** massive stone ramparts with bastions at intervals; a moat; a winding approach with several gates set at right angles so that elephants could not charge them; iron spikes on gates; machicolations and loopholes for archers and guns; secret escape passages; granaries and large water tanks or step-wells to survive a long siege; and a citadel within.
- **Why forts mattered:** they were not merely military. A fort was the seat of local administration, the treasury, the granary and the refuge of the surrounding countryside — which is why **Shivaji's strategy of holding hundreds of hill forts** made the Maratha state almost impossible to destroy: an enemy could win a battle but could not hold the land.

12.5 Expansion of the Indian economy and state

- **Agriculture:** new crops arrived — maize, potato, chilli, tobacco, tomato and groundnut from the Americas through the Portuguese; irrigation spread through tanks, canals and Persian wheels; and the state's revenue systems became more systematic, notably Sher Shah Suri's survey-based assessment developed by Akbar and Todar Mal into the **zabti** system.
- **Crafts and industry:** India was the world's greatest producer of **cotton textiles** — Bengal muslin, Gujarat calico, Masulipatnam chintz — along with silk, indigo, saltpetre, spices, steel and shipbuilding.
- **Trade:** a dense internal network of markets, *mandis* and *sarais* served by the **Banjara** carriers; and flourishing overseas trade through Surat, Masulipatnam, Hooghly and Calicut with West Asia, Southeast Asia and, increasingly, Europe.
- **Money and credit:** a silver rupee currency standardised by Sher Shah; the **hundi**, a bill of exchange that allowed money to be transferred across the subcontinent without carrying coin; and powerful banking families such as the Jagat Seths of Bengal.
- **The scale:** historians estimate that India accounted for roughly a quarter of world manufacturing output around 1700 — a share that collapsed during the colonial period.
- **The arrival of European companies** — Portuguese, Dutch, English and French — began as trade for these goods, but their fortified factories and control of sea routes prepared the ground for the political changes of the eighteenth century.

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Q1**5 Marks**

Explain the cultural, political and military contributions of regional kingdoms in India between 1000 and 1700 CE.

POLITICAL

- Regional kingdoms — Rajput, Vijayanagara, Ahom, Maratha, Kakatiya, Gajapati — kept effective government alive across the subcontinent, with organised revenue systems, councils of ministers such as Shivaji's *Ashtapradhan*, and developed village and temple administration.

MILITARY

- They developed distinctive methods suited to their own terrain: the Rajputs' hill forts and cavalry; the Ahoms' river warfare, which destroyed a Mughal fleet at **Saraighat in 1671** under Lachit Borphukan; and Shivaji's **guerrilla warfare (ganimi kava)**, hill-fort network and a navy to guard the Konkan coast.

CULTURAL

- They were the patrons of the great regional temple styles — Khajuraho, Konark, Halebidu, Hampi — and of miniature painting in the Rajput, Pahari and Deccan schools.
- Above all they patronised **literature in the spoken languages**, so Hindi, Marathi, Bengali, Assamese, Telugu, Kannada and Tamil developed rich literatures of their own, and classical music and dance forms took shape.

THE OVERALL SIGNIFICANCE

- Political unity was rare, but the regions preserved and enriched Indian civilisation from below. Their resistance kept independent Indian polities alive into the eighteenth century, and their languages and art remain the cultural foundation of modern India's states.

Q2**4 Marks**

Appreciate how diverse communities and regions shaped India's history from 1000 CE to 1700 CE.

SOLUTION

- **Regions as makers of history.** Assam under the Ahoms, Rajasthan under the Rajputs, Maharashtra under the Marathas, Punjab under the Sikh Gurus and the south under Vijayanagara each pursued its own course, so Indian history in this period is not the story of one capital but of many centres.
- **Communities beyond rulers.** Merchant and banking families such as the Jagat Seths financed trade and states; the **Banjars** carried grain and goods across the subcontinent; artisan and weaver communities produced the textiles that made India the workshop of the world; and pastoral and forest communities held the uplands.
- **Saints and poets.** Kabir, Nanak, Mirabai, Tukaram, Basavanna, Sankardeva and the Sufi masters shaped ideas about equality and devotion far more deeply than most kings did, and did so in the people's own languages.
- **The result:** a civilisation of many languages, faiths and regional traditions that shared a common cultural vocabulary — unity without uniformity, which is precisely the 'unity in diversity' the syllabus asks you to explain.

Explore how regional kingdoms adapted to changing political, economic and cultural contexts over time.

MILITARY ADAPTATION

- When faced with larger imperial armies, regional powers changed their methods rather than meeting them head-on: Shivaji turned to **guerrilla warfare and hill forts**; the Ahoms fought on the Brahmaputra where Mughal cavalry was useless; Maharana Pratap kept resistance alive from the Aravalli hills after Haldighati. Gunpowder and artillery were adopted by all of them within a generation of their arrival.

ADMINISTRATIVE AND ECONOMIC ADAPTATION

- Revenue systems were reformed to raise money reliably — survey-based assessment under Sher Shah and Todar Mal, Shivaji's *chauth* and *sardeshmukhi*; the **hundi** and banking families made large-scale finance possible; and new American crops such as maize, potato and chilli were absorbed into Indian agriculture within decades.
- Coastal powers built **navies and fortified ports** as European sea power grew, and traded with the new companies while trying to restrict their political ambitions.

CULTURAL ADAPTATION

- Architecture fused Indian craftsmanship with the arch and dome; miniature painting blended Persian technique with Indian subjects; and literature shifted decisively from Sanskrit into the regional languages so that ideas could reach ordinary people.

Q4

5 Marks

Analyse the continuity of the civilisational history of India as a nation up to the eighteenth century.

WHAT CONTINUED

- **A shared cultural and religious landscape.** Pilgrimage routes ran from Badrinath to Rameswaram and from Dwarka to Puri, the epics were retold in every language, and the same festivals and deities were honoured across the subcontinent.
- **Knowledge traditions.** Sanskrit learning, Ayurveda, mathematics, astronomy, grammar, music and dance were carried forward and enriched in the regions, not abandoned.
- **Institutions.** The village community and its assembly, the guild, the joint family and the temple as a centre of economy and education persisted through every change of ruler above them.
- **Economic integration.** Internal trade routes, the Banjara carriers, the hundi system of credit and a common currency standard bound distant regions into a single working economy.
- **The idea of a single land.** The concept of *Bharatavarsha*, of a land bounded by the Himalaya and the seas, appears in texts and in the practice of pilgrimage long before any modern nationalism.

WHAT CHANGED

- Dynasties, borders, languages of administration and architectural styles changed constantly. But these changes happened **on top of** a continuing civilisational base, so the syllabus describes the period as one of **resistance and resilience**: political forms were repeatedly broken and remade, while the underlying civilisation absorbed, adapted and continued.

Q5

4 Marks

Explain the main features of the Bhakti tradition and its social impact.

FEATURES

- **Direct personal devotion** to a chosen deity, requiring neither priest nor elaborate ritual.
- **Equality before God**, irrespective of caste, gender or wealth — saints came from every background, including Ravidas the cobbler and Kabir the weaver.
- **The people's own languages** instead of Sanskrit, which is why Bhakti literature created Hindi, Marathi, Bengali and Kannada literary traditions.
- Two streams: **saguna**, worship of God with form (Tulsidas, Mirabai, Chaitanya), and **nirguna**, worship of the formless absolute (Kabir, Nanak, Ravidas).

SOCIAL IMPACT

- It **challenged caste hierarchy and ritualism** and gave dignity and a voice to the lower castes and to women — Mirabai and Akka Mahadevi defied the conventions that bound women of their time.
- Together with the parallel **Sufi** tradition it built a shared devotional culture across Hindu and Muslim communities, encouraging tolerance; and it enormously enriched regional languages, music and folk literature. Sikhism itself grew out of this stream.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

Who led the Ahom forces to victory at the battle of Saraighat?

Lachit Borphukan, in 1671.

E2

1 Mark

Name Shivaji's council of eight ministers.

The Ashtapradhan.

E3

1 Mark

Who composed the Ramcharitmanas and in which language?

Tulsidas, in Awadhi.

E4

1 Mark

What was the capital of the Vijayanagara Empire?

Hampi.

E5

1 Mark

What is a hundi?

A bill of exchange used to transfer money across the subcontinent without carrying coin.

E6

2 Marks

Distinguish between saguna and nirguna Bhakti, with one saint as an example of each.

ANSWER

- **Saguna Bhakti** worships God as having form, attributes and a name — Ram, Krishna, Shiva — and is expressed through image worship, temples and devotional song. Example: Tulsidas (also Mirabai, Surdas, Chaitanya).
- **Nirguna Bhakti** worships a single formless, attributeless absolute, rejecting idols, temples and ritual altogether. Example: Kabir (also Guru Nanak, Ravidas).

E7

2 Marks

Name any two types of fort with one example each.

ANSWER

- **Giri-durga (hill fort)** — built on a hill and hardest to capture; example: Raigad or Kumbhalgarh.
- **Jala-durga (water fort)** — surrounded by sea or lake; example: Sindhudurg or Murud-Janjira.

E8

3 Marks

Why was Shivaji's use of forts so effective against much larger armies?

ANSWER

- **Forts made the terrain the weapon.** Hill forts in the Sahyadris could be approached only along narrow, winding paths where a huge army lost the advantage of numbers, cavalry and artillery.
- **They could not all be taken.** Shivaji held hundreds of them, each with its own granary and water tank, so an enemy might capture one at great cost while the rest remained; the Maratha state had no single capital whose fall would end it.
- **They were bases, not just refuges.** Each fort was a centre of revenue and administration and a launching point for swift *ganimi kava* raids on enemy supply lines — so the Mughals could win battles but could not hold the countryside.

E9

3 Marks

How did the Bhakti saints contribute to the growth of regional languages?

ANSWER

- They deliberately **rejected Sanskrit**, the language of scholars and priests, and composed in the language people actually spoke, so that their message would reach everyone regardless of learning or caste.
- The result was a body of literature of the highest quality in the spoken languages — Tulsidas's *Ramcharitmanas* in Awadhi, Kabir's dohas, Tukaram's abhangas in Marathi, Basavanna's Vachanas in Kannada, Sankardeva's works in Assamese.
- Because these works were **sung and memorised by ordinary people**, they standardised and enriched the vocabulary and idiom of these languages and gave each of them a prestigious literary tradition of its own — the foundation of modern Indian literature.

E10**4 Marks**

Describe any four features of fortification used in medieval Indian forts and the purpose of each.

ANSWER

- **Massive ramparts with bastions** projecting at intervals, so that defenders could fire along the face of the wall at anyone attacking it, leaving no blind spot.
- **A winding approach through several gates set at right angles**, often studded with iron spikes — this prevented an elephant from gathering speed to batter the gate down, and exposed the attackers to fire from above at every turn.
- **A moat and steep scarps**, which stopped tunnelling and kept siege engines and scaling ladders at a distance.
- **Granaries, step-wells and large water tanks inside**, which were what actually decided a siege: a fort with food and water could hold out for months, so many forts fell to thirst or treachery rather than to assault.

E11**5 Marks**

"India's economy between 1000 and 1700 CE was one of the largest in the world." Explain with five points.

ANSWER

- **Textiles above all.** India was the world's greatest producer of cotton cloth — Bengal muslin so fine it was famous across Asia, Gujarat calico, Masulipatnam chintz — along with silk and fine dyeing with indigo. These were in demand from Southeast Asia to West Africa and Europe.
- **A productive agriculture.** Irrigation by tanks, canals and Persian wheels, systematic survey-based revenue assessment under Sher Shah and Todar Mal, and the rapid adoption of new American crops — maize, potato, chilli, tobacco, groundnut — raised and diversified output.
- **A dense internal market.** Mandis, *sarais* along the highways and the **Banjara** carriers moved grain, salt and cloth across the subcontinent, so distant regions traded with one another as a single economy.
- **Sophisticated money and credit.** A standardised silver rupee, the **hundi** bill of exchange that allowed money to move without coin travelling, and great banking houses such as the Jagat Seths financed trade and even governments.
- **Flourishing overseas trade.** Surat, Masulipatnam, Hooghly and Calicut traded with West Asia, Southeast Asia and Europe; India exported finished goods and imported bullion, so silver flowed in. Historians estimate India produced about a quarter of world manufacturing output around 1700 — a share that collapsed under colonial rule in the following century and a half.

 **Quick Revision — last-minute points**

1. 1000–1700 CE: Indian kingdoms resisted invasions through battles, alliances and confederacies.
2. Art, architecture, languages and literature kept growing.
3. Bhakti tradition spread devotion and equality.
4. Forts were centres of defence and power.
5. The economy and state expanded in this period.

Memory trick: R-A-B-F-E: Resistance, Art, Bhakti, Forts, Economy

CHAPTER 13

India and the World – I (1900 BCE – 1200 CE)

8 instructional hours · History · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: explore India's relations with the early civilisations of the world; identify the major articles of trade and the major trading ports; appreciate India's significant contributions in diverse spheres in an integrated manner; and appreciate the influence of Indian religion and culture, particularly in Southeast Asia.

This theme is a map question waiting to happen: be able to mark **Bharuch, Muziris, Arikamedu, Tamralipti, Lothal** on an outline map of India, and to trace the Silk Route and the maritime routes.



13.1 Trade and commerce with the world

Partner	Period	What was exchanged	Evidence
Mesopotamia	c. 2600–1900 BCE	India sent carnelian beads, ivory, shell, timber, cotton; received silver, wool, bitumen	Harappan seals and beads found in Mesopotamian cities; Mesopotamian texts call the land Meluhha
Greece	From the 4th c. BCE	Spices, textiles, gems; exchange of ideas in philosophy, astronomy and sculpture	Megasthenes' <i>Indica</i> ; Indo-Greek coins; the Gandhara style
Roman Empire	1st c. BCE – 3rd c. CE	India exported black pepper ('black gold'), muslin, gems, pearls, ivory, indigo; imported gold, silver, wine, glassware	The <i>Periplus of the Erythraean Sea</i> ; hoards of Roman coins in south India; the Roman trading settlement at Arikamedu
China	From the 2nd c. BCE	Silk, porcelain and paper came in; Indian spices, cotton and above all Buddhism went out	The Silk Route; the accounts of Faxian, Xuanzang and Yijing
Southeast Asia	From the early centuries CE	Indian textiles, beads and metal goods for spices, aromatic wood, gold and camphor	Sanskrit inscriptions, Indian scripts and temple architecture across the region

- **Major ports:** **Lothal** (Harappan dockyard, Gujarat); **Bharuch / Barygaza** on the Narmada; **Sopara** near modern Mumbai; **Muziris** on the Kerala coast, the great pepper port; **Arikamedu** near Puducherry, with Roman pottery and glass; **Tamralipti** in Bengal, the gateway to Southeast Asia; **Kaveripattinam (Puhar)** in the Tamil country.
- **Major exports:** spices, above all black pepper; cotton textiles and muslin; silk; precious stones and pearls; ivory; indigo; sandalwood; steel (*wootz*, famous as the material of Damascus blades). **Major imports:** gold and silver bullion, horses, wine, glassware, and later silk and porcelain from China.
- **The monsoon and the sea route:** Greek and Roman sailors learned to use the seasonal reversal of the monsoon winds to sail directly across the Arabian Sea to India and back, which cut the voyage from years to months and vastly expanded the trade — a striking link between the Geography and History portions of this course.



13.2 Cultural connections

- **Greece and Rome:** Indo-Greek kingdoms followed Alexander's campaign; **Menander (Milinda)** became a Buddhist, and the *Milindapanha* records his dialogue with the monk Nagasena. The **Gandhara school** of sculpture fused Greek technique with Buddhist subjects and produced some of the earliest images of the Buddha in human form. Indian numerals, astronomy and animal fables travelled west; the *Panchatantra* was translated into Persian, Arabic and eventually most European languages.
- **Central Asia:** the Kushanas linked India to the Silk Route; Buddhist monasteries, stupas and the great rock-cut Buddhas of Bamiyan mark the route.
- **China:** Buddhism reached China by the 1st century CE. Indian monks such as **Kumarajiva** and Bodhidharma travelled east; Chinese pilgrims **Faxian, Xuanzang and Yijing** came to India for texts and study, and their travel accounts are among our most valuable sources for Indian history. Indian mathematics, astronomy and medicine were translated into Chinese.
- **Southeast Asia — the deepest influence of all:** spread not by conquest but by traders, monks and scholars. Sanskrit became a language of learning and inscription; Indian scripts are the ancestors of Thai, Khmer, Javanese and Burmese writing; the *Ramayana* and *Mahabharata* became living traditions, as in the Thai *Ramakien* and Javanese and Balinese dance-drama; and Hindu and Buddhist temple architecture produced **Angkor Wat** in Cambodia, the largest religious monument in the world, **Borobudur** and **Prambanan** in Java, and **My Son** in Vietnam. Place names and personal names across the region remain Sanskrit to this day — Indonesia's national motto *Bhinneka Tunggal Ika* and its national airline Garuda are examples.

The point the syllabus wants made: this influence was **cultural, not colonial**. India did not conquer Southeast Asia. Ideas travelled with merchants and monks, were **adopted voluntarily**, and were then adapted into something local — the *Ramakien* is a Thai work, not an Indian one. That is why the relationship endured.



13.3 Indian Knowledge Systems

Field	Contribution	How it travelled
Mathematics	The decimal place-value system; zero as a number ; Aryabhata's π and trigonometry; Brahmagupta's rules for negative numbers; Bhaskara's algebra	Translated into Arabic at Baghdad in the 8th–9th c.; reached Europe through al-Khwarizmi and Fibonacci as 'Hindu-Arabic' numerals
Astronomy	Aryabhata stated that the Earth rotates on its axis and explained eclipses by shadow, not myth; Varahamihira's <i>Brihat Samhita</i> ; the <i>Surya Siddhanta</i>	Translated into Arabic as the <i>Zij al-Sindhind</i> ; also carried to China
Medicine	Ayurveda: the <i>Charaka Samhita</i> on diagnosis and internal medicine and the <i>Sushruta Samhita</i> , which describes over a hundred surgical instruments, cataract operations and rhinoplasty	Translated into Arabic, Persian, Tibetan and Chinese; the Indian nose-reconstruction technique reached Europe in the 18th c.
Metallurgy	Wootz crucible steel; zinc distillation at Zawar; the rust-resistant Iron Pillar of Delhi	Wootz was exported west and became the raw material of Damascus steel
Linguistics	Panini's <i>Ashtadhyayi</i> , a complete formal grammar of Sanskrit in about 4,000 rules	Studied by modern linguists and computer scientists as an early formal system
Religion and philosophy	Buddhism, Jainism, yoga, the six darshanas, ahimsa	Buddhism to Sri Lanka, Central Asia, China, Korea, Japan and Southeast Asia; yoga worldwide in modern times

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Explore India's relations with the early civilisations of the world.

MESOPOTAMIA

- Harappan India traded with Mesopotamia from about 2600 BCE, sending carnelian beads, ivory, shell and cotton and receiving silver and wool. Harappan seals found in Mesopotamian cities, and Mesopotamian texts naming a land called **Meluhha**, confirm it — this is the earliest recorded international trade of the subcontinent.

GREECE AND ROME

- After Alexander's campaign, Indo-Greek kingdoms arose in the north-west; Megasthenes wrote the *Indica* at the Mauryan court, and the Greek king **Menander** became a Buddhist.
- With Rome the trade was enormous: India exported black pepper, muslin, gems and ivory and imported gold and wine. Hoards of Roman coins in south India and the Roman settlement at **Arikamedu** prove the scale, and Roman writers complained of the drain of gold to India.

CHINA

- Contact along the Silk Route brought silk, paper and porcelain to India and carried Indian spices, cotton and, most importantly, **Buddhism** to China. Indian monks such as Kumarajiva went east, and the Chinese pilgrims Faxian, Xuanzang and Yijing came to India to study and collect texts.

SOUTHEAST ASIA

- Indian merchants and monks carried textiles, beads, Sanskrit, scripts, the epics and temple architecture to the region and brought back spices, aromatic wood, gold and camphor — a relationship of exchange, never of conquest.

Identify the major articles of trade and the major trading ports of ancient India.

MAJOR EXPORTS

- **Spices**, above all black pepper, which the Romans called black gold; **cotton textiles and muslin**; silk; precious stones and pearls; ivory; indigo; sandalwood; and **wootz steel**, the material later famous as Damascus steel.

MAJOR IMPORTS

- Gold and silver bullion, horses from Central Asia and Arabia, wine, glassware and coral; and from China, silk, paper and porcelain.

MAJOR PORTS

- **West coast:** Lothal (the Harappan dockyard in Gujarat), Bharuch or Barygaza on the Narmada, Sopara, and **Muziris** in Kerala, the great pepper port.
- **East coast:** **Arikamedu** near Puducherry, where Roman pottery and glass have been excavated; Kaveripattinam (Puhar) in the Tamil country; and **Tamralipti** in Bengal, the gateway to Southeast Asia.

WHAT MADE IT POSSIBLE

- Greek and Roman sailors learned to use the **seasonal reversal of the monsoon winds** to cross the Arabian Sea directly, cutting the voyage from years to months and multiplying the volume of trade.

Appreciate the significant contributions of India in diverse spheres in an integrated manner.

MATHEMATICS AND ASTRONOMY

- The **decimal place-value system and zero as a number** — arguably India's greatest gift to the world, since modern science and commerce would be impossible without it. Aryabhata calculated π accurately, developed trigonometry, and stated that the **Earth rotates on its axis**, explaining eclipses by shadow rather than myth; Brahmagupta laid down the rules for negative numbers.

MEDICINE

- Ayurveda, systematised in the *Charaka Samhita* and the *Sushruta Samhita*; the latter describes over a hundred surgical instruments, cataract surgery and reconstructive surgery of the nose — a technique that reached Europe as late as the eighteenth century.

LANGUAGE, METALLURGY AND PHILOSOPHY

- **Panini's Ashtadhyayi**, a formal grammar of Sanskrit in about 4,000 rules, studied today by linguists and computer scientists as an early formal system.
- **Wootz crucible steel**, zinc distillation at Zawar, and the Iron Pillar of Delhi, uncorroded for 1,600 years.
- **Buddhism, Jainism, yoga and the concept of ahimsa**, which spread across Asia and, in modern times, worldwide.

WHY 'INTEGRATED' MATTERS

- These were not separate achievements. The same scholars worked across fields — Varahamihira wrote on astronomy, geography and natural science together — and all of it travelled outwards along the **same trade routes** that carried pepper and cloth. Commerce, religion and knowledge moved as one process, which is exactly why this theme is called 'India and the World' rather than 'Indian trade'.

Appreciate the influence of Indian religion and culture, particularly in Southeast Asia.

HOW IT SPREAD

- Not by conquest but through **traders, monks and scholars**. Indian merchants settled in ports, local rulers adopted Indian ideas of kingship and ritual to strengthen their own authority, and Buddhist and Hindu teachers were invited to the courts.

LANGUAGE AND LITERATURE

- **Sanskrit** became the language of inscription and learning across the region, and Indian scripts are the ancestors of the Thai, Khmer, Javanese and Burmese scripts used today.
- The **Ramayana and Mahabharata** became living local traditions — the Thai *Ramakien*, Javanese and Balinese dance-drama, and Cambodian shadow puppetry.

RELIGION AND ARCHITECTURE

- Hinduism and Buddhism spread widely, and with them Indian temple architecture: **Angkor Wat** in Cambodia, the largest religious monument in the world, originally a Vishnu temple; **Borobudur**, the vast Buddhist stupa in Java; **Prambanan**, its Hindu counterpart; and **My Son** in Vietnam.

SURVIVING TRACES

- Names such as Singapura (Singapore) and Ayutthaya (from Ayodhya); Indonesia's national airline Garuda and its motto *Bhinneka Tunggal Ika*, 'unity in diversity'; and the use of Sanskrit-derived personal names across the region.

THE ESSENTIAL POINT

- The influence was **adopted voluntarily and then adapted**. The Ramakien is a Thai work; Borobudur is Javanese architecture. India supplied ideas, not rulers — which is why the relationship lasted and why it is remembered warmly.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

By what name did the Mesopotamians refer to the Indus region?

Meluhha.

E2

1 Mark

Name the Roman trading settlement excavated near Puducherry.

Arikamedu.

E3

1 Mark

Which Indian commodity did the Romans call 'black gold'?

Black pepper.

E4

1 Mark

Name the largest religious monument in the world, built in Cambodia.

Angkor Wat.

E5

1 Mark

Which Greek ambassador wrote the Indica?

Megasthenes.

E6

2 Marks

How did knowledge of the monsoon winds change Indo-Roman trade?

ANSWER

- Sailors learned that the south-west monsoon would carry a ship directly across the open Arabian Sea to India in summer, and the north-east monsoon would bring it back in winter — so they no longer had to creep slowly along the coast.
- This cut the round voyage from years to a single season, made cargoes far cheaper and safer, and caused the volume of Indo-Roman trade to multiply enormously.

E7

2 Marks

Name two Chinese pilgrims who visited India and state why their accounts are valuable.

ANSWER

- **Faxian** (Gupta period) and **Xuanzang** (7th century, in Harsha's reign); Yijing is also acceptable.
- Their travel accounts are valuable because they are **detailed eyewitness descriptions by outsiders** of Indian cities, roads, monasteries, universities such as Nalanda, and everyday social life — information that Indian sources of the period, being mostly religious or courtly, do not record.

E8

3 Marks

How did Indian numerals reach Europe? Why was this so important?

ANSWER

- Indian mathematical texts were carried west along the trade routes and **translated into Arabic at Baghdad** in the eighth and ninth centuries; the mathematician al-Khwarizmi wrote on the Indian method of calculation.
- From the Arab world they reached Europe, where Fibonacci popularised them in the thirteenth century — which is why they are called **Hindu-Arabic numerals**.
- It mattered because the decimal place-value system with zero made arithmetic vastly simpler than Roman numerals allowed. Commerce, accounting, algebra, and ultimately modern science and computing all depend on it — it is arguably India's single greatest contribution to the world.

E9

3 Marks

What is the Gandhara school of art? Why is it a good example of cultural exchange?

ANSWER

- The **Gandhara school** flourished in the north-west of the subcontinent from about the first century CE, especially under the Kushanas, and produced some of the **earliest images of the Buddha in human form**.
- It combined **Greek and Roman sculptural technique** — realistic anatomy, flowing drapery with deep folds, wavy hair, and a classical facial type — with **Indian Buddhist subject matter** and iconography such as the *ushnisha*, the halo and the symbolic hand gestures.
- It is therefore the perfect illustration of exchange: neither purely Greek nor purely Indian, but a genuinely new art created where the two met along the trade routes — and it then travelled onward to Central Asia and China with Buddhism itself.

E10

4 Marks

"Indian influence in Southeast Asia was cultural, not colonial." Justify with four points.

ANSWER

- **There was no conquest and no Indian empire in the region.** No Indian ruler governed Cambodia, Java or Thailand; there were no armies, no tribute and no colonial administration.
- **The carriers were merchants, monks and scholars,** not soldiers. Ideas travelled with the spice and textile trade and were invited in by local courts, which adopted Indian ideas of kingship and ritual to strengthen their own authority.
- **Local rulers and people adopted what suited them and rejected the rest.** Caste, for example, was never transplanted in the Indian form; Sanskrit was used for learning while local languages continued in daily life.
- **What was adopted was transformed into something local.** The Thai *Ramakien* is a Thai literary work with Thai characters and settings; Borobudur is Javanese architecture on a Buddhist theme; Balinese dance is its own tradition. This is why the relationship was durable and is remembered with affection rather than resentment.

E11

5 Marks

Describe India's trade with the Roman Empire under: articles of trade, ports, evidence, the role of the monsoon, and its consequences.

ANSWER

- **Articles of trade.** India exported **black pepper** and other spices, fine cotton muslin, silk, pearls, precious stones, ivory, indigo and wild animals; it imported gold and silver coin, wine, olive oil, glassware, coral and occasionally slaves and singing girls. The balance was overwhelmingly in India's favour.
- **Ports.** On the west coast, **Bharuch (Barygaza)**, Sopara and **Muziris** in Kerala; on the east coast, **Arikamedu** near Puducherry and Kaveripattinam. Muziris was the great pepper port and is named in Roman sources.
- **Evidence.** The *Periplus of the Erythraean Sea*, a Greek merchant's handbook, lists the ports and cargoes; Pliny the Elder complained that India was draining Rome of its gold; and large **hoards of Roman gold and silver coins** have been excavated in south India, along with Roman pottery, amphorae and glass at Arikamedu.
- **The monsoon.** Once Greek and Roman sailors learned to use the seasonal reversal of the monsoon winds, ships could sail straight across the Arabian Sea in summer and return in winter, cutting the voyage from years to a single season and multiplying the volume of trade.
- **Consequences.** A great inflow of Roman gold enriched Indian ports and the kingdoms behind them — the Cheras, Cholas and Pandyas — and financed temple building and urban growth; Indian craft production expanded to meet foreign demand; and along the same routes travelled ideas, art styles and religions in both directions.

 Quick Revision — last-minute points

1. 1900 BCE–1200 CE: India traded by land and sea with the world.
2. Cultural links spread to South-East Asia, Central Asia and beyond.
3. Indian Knowledge Systems: mathematics, astronomy, medicine, metallurgy.
4. Trade + ideas travelled together.

Memory trick: T-C-K = Trade, Culture, Knowledge

CHAPTER 14

Authority

10 instructional hours · Political Science · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: explain the roots of authority in Indian political thought; interpret the relationship between **danda** (discipline or force) and **nyaya** (justice) as the twin foundations of authority, development and security; trace the evolution of authority structures in India; understand the post-independence concept of justice and security; illustrate types of authority — functional, sensitive and welfare-oriented; develop an understanding of citizen discipline, justice and strength; and illustrate the role of citizens in authority.

This is the most unfamiliar chapter in the whole syllabus, because it draws directly on **Kautilya's Arthashastra and the Shukraniti**. Learn the three Sanskrit terms — *danda*, *nyaya*, *bala* — and be able to connect each to a modern institution.



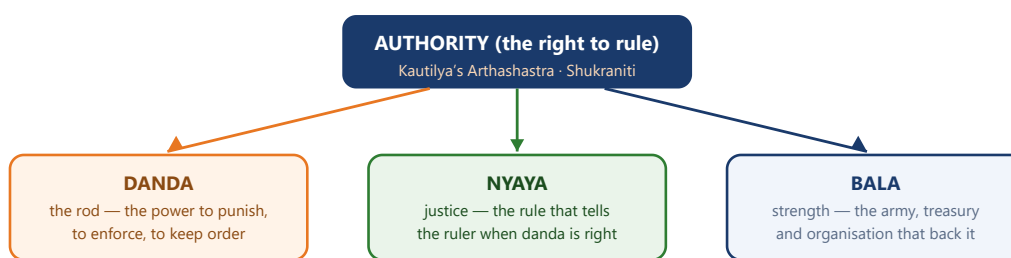
14.1 What authority is

- **Power** is the ability to make others do what you want, by whatever means. **Authority** is **power that is recognised as rightful** — people obey because they accept the right to command, not merely because they are afraid. **Legitimacy** is what converts power into authority.
- A robber with a gun has power over you; a police officer has authority. Both can make you stop, but only one has the right, and only the officer's order is binding when the gun is put away.
- **Why authority is necessary:** without a recognised authority to make and enforce rules, disputes would be settled by strength alone — what Indian texts call *matsya-nyaya*, the law of the fishes, in which the big fish eats the small. Authority exists to prevent this.
- **Sources of legitimacy:** tradition and custom; law and the Constitution; consent expressed through election; and the personal qualities of the leader.



14.2 The roots of authority — danda, nyaya and bala

The Indian idea of authority — Danda, Nyaya and Bala



Danda without nyaya becomes tyranny · nyaya without bala cannot be enforced · all three together make legitimate authority.
The modern parallel: the State's coercive power (police, courts) is legitimate only because the Constitution authorises and limits it.

Fig. 14.1 — The three foundations of authority in Indian political thought.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.

Concept	Literal meaning	What it stands for	Its modern equivalent
Danda	The rod or staff	The coercive power of the ruler — the right to punish, enforce and restrain; the science of governing by it is <i>dandaniti</i>	Police, criminal law, penalties, the enforcement machinery of the State
Nyaya	Justice, fairness, right reasoning	The standard that tells the ruler when and how much danda is right; punishment must be proportionate, impartial and after due enquiry	The judiciary, due process, Fundamental Rights, the rule of law
Bala	Strength or force	The actual capacity to enforce — the army, the treasury, the administration	Armed forces, revenue and public administration, institutional capacity

- **Kautilya's Arthashastra** (c. 4th century BCE) is the classic Indian treatise on statecraft. It holds that **danda rightly applied is the basis of order and prosperity**, but that it must be governed by nyaya: *danda* used too harshly makes the people hate the king, and used too weakly leaves them at the mercy of the strong. The famous maxim in it is that **the happiness of the subjects is the happiness of the king** — the ruler's welfare lies in theirs, not in his own pleasure.
- Kautilya also sets out the **saptanga** or seven limbs of the State: *swami* (the ruler), *amatya* (ministers), *janapada* (territory and people), *durga* (fort), *kosha* (treasury), *danda* or *bala* (army), and *mitra* (allies).
- **The Shukraniti** develops the same theme: the king is a servant of the people and of dharma, not their owner; authority is a trust; ministers must be chosen for merit and character; and the ruler is himself bound by law.
- **The central Indian insight:** authority is not the same as force. **Danda without nyaya is tyranny; nyaya without bala cannot be enforced.** All three are needed together — and all three are subordinate to **dharma**, the moral law that binds the ruler as much as the subject.

How to use this in a modern answer. The Constitution does exactly what nyaya did: it gives the State enormous coercive power (police, army, criminal law) and then **limits** it by Fundamental Rights, due process

and judicial review. Article 21 — no person shall be deprived of life or personal liberty except according to procedure established by law — is danda restrained by nyaya, written in modern language.

14.3 The evolution of authority structures in India

Period	Who held authority	What limited it
Vedic	The tribal chief (<i>rajan</i>), a war leader	The sabha and samiti , and tribal custom
Ganas and sanghas	An assembly of many members, not a king	Collective decision; the Vajji confederacy is the classic example
Mauryan	A centralised king with ministers, provinces and an elaborate bureaucracy	<i>Dharma</i> and the advice of the <i>mantri parishad</i> ; Ashoka's own Dhamma treated welfare as the king's duty
Gupta and regional kingdoms	King with vassals; considerable local autonomy	Village assemblies, guilds and custom
Chola	King, with remarkably strong village self-government below	The Uthiramerur rules — election by lot, fixed terms, audit of accounts, disqualification for corruption
Medieval sultanates and Mughals	Sultan or Emperor with a centralised revenue and military system	<i>Sharia</i> and custom; nobles; regional powers; the practical limits of distance
Colonial	An alien government responsible to Parliament in London, not to Indians	Almost nothing at first; later, the nationalist movement and limited legislative councils
Republic of India, 1950	The people , through a Constitution they gave themselves	Fundamental Rights, separation of powers, judicial review, federalism, free elections, a free press

The single most important shift, and the likely 5-mark question. Before 1950 authority flowed **downward** — from king, emperor or colonial power to subjects. Since 1950 it flows **upward**: the Preamble begins *We, the People of India*, and every office from the village sarpanch to the President derives its authority from the people and is answerable to them. The subject became the citizen.

14.4 Justice and security since independence

- **Justice in the Constitution:** the Preamble promises **social, economic and political justice**. *Social justice* means the removal of discrimination based on caste, religion, race, sex or place of birth (Articles 15 and 17); *economic justice* means reducing inequalities of income and opportunity (the Directive Principles); *political justice* means equal political rights for all, through universal adult franchise.
- **The institutions of justice:** an independent judiciary with the Supreme Court at its apex, empowered by **judicial review** to strike down any law violating Fundamental Rights; the right to constitutional remedies under **Article 32**, which Dr Ambedkar called the heart and soul of the Constitution; **Public Interest Litigation**, which allows anyone to move the court on behalf of those who cannot; legal aid under Article 39A; Lok Adalats for quick settlement; and the National Human Rights Commission.
- **Security** has two faces. **External security** is the task of the armed forces, guarding the borders and the seas. **Internal security** is the task of the police, the central armed police forces and the intelligence agencies. Both are under **civilian control** — the armed forces answer to an elected government, which is a deliberate constitutional choice and the reason India has never had a military coup.
- **Human security**, a newer idea, includes food security (the National Food Security Act), health security, livelihood security (MGNREGA), disaster management and cyber security — the recognition that a citizen can be made insecure by hunger or illness as surely as by an invader.

14.5 Types of authority and the role of the citizen

Type	What it means	Example
Functional	Authority exercised to perform a specific task efficiently, within a defined jurisdiction	A traffic police officer directing vehicles; a District Collector conducting an election; a municipal officer issuing a licence
Sensitive	Authority exercised with awareness of people's circumstances, dignity and feelings — firm but humane, and responsive to grievances	A police officer handling a case involving a child or a woman with care; an official who listens before acting
Welfare-oriented	Authority used positively to improve people's lives, not merely to control them	A panchayat building a water supply; officials running mid-day meals, pensions and health schemes

- **The citizen's role in authority.** In a democracy authority belongs to the citizens, so they have both rights and duties towards it: **vote** in every election; obey the law and pay taxes honestly; use the **Right to Information** to question decisions; participate in the **gram sabha** and ward committees; approach the courts when rights are violated; serve on juries, committees and as election volunteers; and protest peacefully and lawfully when the State goes wrong.
- **Citizen discipline (danda turned inward).** The texts apply danda not only to the ruler but to the self: *atma-danda*, self-restraint. A citizen who obeys traffic rules unwatched, pays taxes honestly and does not litter is exercising the same principle. A society of self-disciplined citizens needs far less coercion from the State — which is precisely why the Constitution lists **Fundamental Duties** in Article 51A beside Fundamental Rights.
- **Justice and strength for the citizen:** *nyaya* is the citizen's claim on the State — the right to fair treatment; *bala* is the citizen's own capacity — education, awareness, organisation and collective action, which is what makes rights real rather than merely written.

A five-mark structure that works every time here: define authority → distinguish it from power → explain danda, nyaya and bala → give the modern institutional parallel → state the citizen's role. Finish with the line that in a democracy the citizen is the source of authority, not its subject.

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Explain the roots of authority in Indian political thought.

THE TEXTS

- The classic sources are **Kautilya's Arthashastra** (c. 4th century BCE), a systematic treatise on statecraft, economy and law, and the later **Shukraniti**, a manual on the duties of rulers.

THE CORE IDEAS

- **Danda** — the rod — is the ruler's coercive power, the right to punish and enforce; the science of using it is *dandaniti*. Without it, society collapses into **matsya-nyaya**, the law of the fishes, in which the strong devour the weak.
- **Nyaya** — justice — is the standard that governs danda: punishment must be proportionate, impartial and imposed only after proper enquiry. Kautilya warns that a ruler who punishes too severely is hated and one who punishes too lightly is despised.
- **Bala** — strength — is the actual capacity to enforce: army, treasury and administration.
- All three are subordinate to **dharma**, the moral law, which binds the king as much as the subject. The Arthashastra states that **the happiness of the subjects is the happiness of the king** — authority is a trust, not a possession, and the Shukraniti likewise calls the king a servant of the people.

WHY THIS MATTERS TODAY

- It shows that the idea of **limited, accountable, welfare-oriented authority** is deeply rooted in Indian thought; the modern Constitution gives the State great coercive power and then restrains it by rights and courts, which is the same principle in modern form.

Interpret the relationship between danda and nyaya as the twin foundations of authority, development and security.

THE RELATIONSHIP

- **Danda is the capacity to compel; nyaya is the rule that decides when compulsion is right.** They are not alternatives but two halves of one thing.
- **Danda without nyaya becomes tyranny:** the ruler punishes arbitrarily, people obey out of fear alone, and the moment fear weakens the State collapses.
- **Nyaya without danda is empty:** a just rule that cannot be enforced protects nobody, and the strong simply ignore it.

THEIR LINK TO DEVELOPMENT

- Investment, trade and cultivation all require the confidence that contracts will be honoured, property protected and disputes settled fairly. Kautilya makes this explicit — a well-governed, justly punished kingdom is a prosperous one, because people work and trade when they are secure in the fruits of their labour.

THEIR LINK TO SECURITY

- Internal security depends on danda applied through nyaya. If the police act lawfully and the courts act fairly, people cooperate with the State and crime is contained; if the police act arbitrarily, people lose trust, withhold cooperation, and insecurity grows.

THE MODERN PARALLEL

- The Constitution arms the State with police, criminal law and armed forces (danda and bala), and then limits that power by Fundamental Rights, due process under **Article 21** and judicial review (nyaya). Indian constitutional practice is therefore the classical formula in modern dress.

Trace the evolution of authority structures in India.

ANCIENT

- In the **Early Vedic** period authority rested with a tribal chief restrained by the **sabha and samiti**; in the **ganas and sanghas** such as the Vajji confederacy it rested with an assembly rather than a king.
- With the growth of territorial kingdoms, authority became **hereditary and centralised**, reaching its most organised form under the **Mauryas**, with ministers, provinces, districts and a bureaucracy — though Ashoka's Dhamma treated the welfare of subjects as the ruler's duty.

EARLY MEDIEVAL AND MEDIEVAL

- Under the **Guptas and the regional kingdoms** power was more decentralised, with vassals and strong local institutions; the **Cholas** combined a powerful monarchy with genuine village self-government, recorded at Uthiramerur.
- The **sultanates and the Mughals** built centralised revenue and military systems, limited in practice by distance, nobles and regional powers.

COLONIAL

- Authority passed to an **alien government answerable to Parliament in London, not to Indians**. Indians were subjects without political rights; limited legislative councils were conceded only slowly under nationalist pressure.

THE REPUBLIC

- With the Constitution of 1950 authority came to rest on **the people themselves**. The Preamble opens with *We, the People of India*; every office derives its power from the Constitution and is answerable to the electorate, and that power is limited by Fundamental Rights, separation of powers, federalism and judicial review.

THE ESSENTIAL CHANGE

- Authority that once flowed **downward from ruler to subject** now flows **upward from citizen to government**.

Understand the post-independence concept of justice and security.

JUSTICE

- The Preamble promises **social, economic and political justice**: the abolition of discrimination and untouchability (Articles 15 and 17); the reduction of inequalities of income and opportunity through the Directive Principles; and equal political rights through universal adult franchise.
- It is enforced by an **independent judiciary** with the power of judicial review, by the right to constitutional remedies under **Article 32**, and made accessible through Public Interest Litigation, free legal aid under Article 39A, Lok Adalats and the National Human Rights Commission.

SECURITY

- **External security** — the armed forces guarding borders, seas and airspace; **internal security** — the police, central armed police forces and intelligence agencies. Both are firmly under **civilian, elected control**, which is why India has never experienced a military takeover.
- **Human security** is the newer and wider idea: food security under the National Food Security Act, livelihood security under MGNREGA, health security, disaster management and cyber security — recognising that hunger or disease can make a citizen as insecure as an enemy can.

HOW THE TWO CONNECT

- Security without justice becomes a police state; justice without security cannot be delivered. The Constitution deliberately keeps them together, subordinating both to the rights of the citizen.

Q5

4 Marks

Illustrate the types of authority — functional, sensitive and welfare-oriented — and the role of citizens in authority.

THE THREE TYPES

- **Functional authority** is exercised to carry out a specific task efficiently within a defined jurisdiction — a traffic police officer directing vehicles at a junction, or a District Collector conducting an election.
- **Sensitive authority** is exercised with awareness of people's circumstances and dignity — firm but humane. An officer who handles a case involving a child or a woman with care, listens before acting and explains a decision rather than merely imposing it, is exercising sensitive authority.
- **Welfare-oriented authority** uses power positively to improve lives rather than merely to control — a panchayat that builds a water supply, or officials running mid-day meals, pensions and health schemes.

THE ROLE OF CITIZENS

- In a democracy **citizens are the source of authority**, so they both confer it and must sustain it: by voting in every election, obeying the law and paying taxes honestly, using the **Right to Information** to question decisions, participating in the gram sabha and ward committees, approaching the courts when rights are violated, and protesting peacefully when the State goes wrong.
- **Citizen discipline** — *atma-danda*, or self-restraint — is the other half. A society whose members obey rules unwatched needs far less coercion from the State, which is precisely why **Fundamental Duties (Article 51A)** stand beside Fundamental Rights in the Constitution.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

Who wrote the Arthashastra?

Kautilya (also known as Chanakya or Vishnugupta).

E2

1 Mark

What does the term danda literally mean?

The rod or staff — standing for the ruler's power to punish and enforce.

E3

1 Mark

Which Article of the Constitution guarantees the right to constitutional remedies?

Article 32.

E4

1 Mark

In which Article are the Fundamental Duties listed?

Article 51A.

E5

1 Mark

What is matsya-nyaya?

The law of the fishes — the condition in which the strong devour the weak because no authority exists.

E6

2 Marks

Distinguish between power and authority with an example.

ANSWER

- **Power** is simply the ability to make others do what you want, by any means, including force or fear; it need not be rightful. **Authority** is power that is **recognised as rightful**, so people obey because they accept the right to command.
- **Example:** an armed robber and a police officer can both make you stop. The robber has power; the officer has authority, because his order is backed by law and remains binding even when no weapon is present.

E7

2 Marks

State the seven limbs (saptanga) of the State as given by Kautilya.

ANSWER

- *Swami* (the ruler), *amatya* (ministers and officials), *janapada* (territory and people), *durga* (the fort), *kosha* (the treasury), *danda* or *bala* (the army), and *mitra* (allies).
- Kautilya's point is that a State is not the king alone — if any one limb fails, the whole body weakens.

E8**3 Marks**

Why is civilian control over the armed forces important in a democracy?

ANSWER

- **It keeps authority with the people.** The armed forces hold the State's greatest coercive power; if they were not answerable to an elected government, that power would rest on force rather than on the people's consent, and elections would become meaningless.
- **It prevents military takeover.** Placing the forces under the elected executive, with the President as Supreme Commander acting on the advice of the Council of Ministers, is the reason India has never had a coup while several neighbouring countries have.
- **It keeps the use of force accountable.** Decisions about war, deployment and defence spending are taken by representatives answerable to Parliament and to the courts, so force remains a means of policy rather than an independent political actor.

E9**3 Marks**

"The happiness of the subjects is the happiness of the king." Explain this idea from the Arthashastra and its modern relevance.

ANSWER

- **The idea:** Kautilya holds that the ruler's own good is not separate from that of his people. His wealth comes from their prosperity, his security from their loyalty, and his fame from their contentment — so a king who impoverishes or oppresses his subjects destroys himself.
- **Authority as a trust:** it follows that the king rules for the people and is bound by dharma, not free to please himself. The Shukraniti makes the same point in calling the king a servant of the people.
- **Modern relevance:** this is precisely the logic of a democratic welfare State. A government is judged by whether citizens have food, education, health and security, and if it fails it is removed at the next election — the Directive Principles of State Policy express the same duty in constitutional language.

Case study. A municipal officer is ordered to clear illegal shops on a footpath. He gives the vendors two weeks' notice, arranges alternative space in a nearby market, and then clears the footpath. (i) Which type of authority is he exercising? (ii) Justify with two reasons. (iii) What would purely functional authority have looked like? (iv) Which classical concept does his conduct illustrate?

ANSWER

- (i) He is combining **sensitive** and **welfare-oriented** authority with the functional task itself.
- (ii) **Reason 1 — sensitivity:** by giving notice instead of acting suddenly, he respects the vendors' dignity and gives them time to prepare, recognising that their livelihood is at stake. **Reason 2 — welfare orientation:** by arranging alternative space he solves the underlying problem rather than merely enforcing a rule, so the footpath is cleared *and* the vendors keep their trade.
- (iii) Purely functional authority would have been a bulldozer arriving without warning: the legal task completed efficiently, the footpath cleared, the vendors ruined and hostile — and the shops very likely back within a month, because nothing was actually resolved.
- (iv) It illustrates **danda restrained and guided by nyaya**: the officer had the coercive power to remove the shops at once, but used it proportionately, after due notice and with fairness — which is exactly the relationship the Arthashastra describes between the rod and justice.

"In a democracy the citizen is the source of authority, not its subject." Explain, describing the rights and duties this creates.

THE PRINCIPLE

- The Constitution opens with '**We, the People of India**'. Authority is not conferred on the people by any ruler; it is conferred by the people on the institutions they created. Every office, from the sarpanch to the President, holds power as a trust from the electorate.

THE RIGHTS THIS CREATES

- The right to **choose and remove** the government through free and fair elections under universal adult franchise.
- **Fundamental Rights** that the State itself may not violate, enforceable through the courts under Article 32, with judicial review to strike down any law that infringes them.
- The right to **know and to question** — the Right to Information, a free press, and the right to peaceful assembly and protest.

THE DUTIES IT CREATES

- **Participation:** voting in every election, attending the gram sabha, serving on committees — authority given away carelessly is authority lost.
- **Self-discipline (atma-danda):** obeying the law when unwatched, paying taxes honestly, keeping public spaces clean. A society of self-disciplined citizens needs far less coercion, which is why **Fundamental Duties under Article 51A** stand beside the rights.
- **Vigilance:** questioning decisions, using RTI, approaching courts when rights are violated, and protesting peacefully and lawfully when the State goes wrong.

CONCLUSION

- Rights without duties would make democracy unworkable; duties without rights would make it authoritarian. The citizen who both claims rights and performs duties is the one who actually keeps authority where the Constitution placed it — with the people.

Quick Revision — last-minute points

1. Authority = power that people accept as legitimate.
2. Danda = force/punishment; nyaya = justice; bala = strength.
3. Force without justice becomes tyranny.
4. Since independence the Constitution is the source of authority.
5. Citizens must respect lawful authority and question its misuse.

Memory trick: D-N-B = Don't Neglect Balance

CHAPTER 15

From Ideas to Startups

8 instructional hours · Economics · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: define entrepreneurship and explain its importance for innovation, jobs and growth; understand the key resources a business needs and how they are managed; analyse real examples of successful entrepreneurs; describe India's start-up ecosystem and initiatives such as Make in India, Startup India and Digital India; recognise the role of MSMEs and the unorganised sector; identify the stages of starting a business through a business plan; understand simple profit and loss; and identify the key components of a balance sheet.

Two numerical skills are examinable here: **profit or loss = revenue – cost**, and the **balance-sheet identity, Assets = Liabilities + Capital**. Practise both — a 3 or 4-mark calculation is very likely.



15.1 Entrepreneurship

- An **entrepreneur** is a person who identifies an opportunity, organises the factors of production, bears the risk and uncertainty of the venture, and innovates to create value. **Entrepreneurship** is that whole process.
- **The entrepreneur's functions:** spotting the opportunity; arranging land, labour, capital and technology; taking decisions; **bearing risk**, which is what distinguishes him from a salaried manager; and innovating.
- **Qualities:** initiative, willingness to take calculated risk, creativity, persistence in the face of failure, leadership, decision-making ability and integrity.
- **Why it matters:** it creates **employment** — an entrepreneur is a job giver, not a job seeker; it drives **innovation** and productivity; it mobilises idle savings into productive investment; it promotes balanced regional development when enterprises grow outside the big cities; it raises exports and national income; and it converts population into a productive asset.

Creative destruction — a term you must be able to explain with examples. Joseph Schumpeter's idea is that innovation succeeds by **destroying the industries it replaces**. The smartphone wiped out the markets for separate cameras, torches, calculators, music players, alarm clocks and street maps. Digital photography ended the film-roll industry; email hollowed out the postal letter; streaming ended the video-cassette shop; UPI is displacing cash. The gain to society is real, but so is the loss to those employed in the old industry — which is why retraining and social safety nets matter.

✂ 15.2 The resources a business needs

Resource	What it covers	How it is arranged and managed
Capital	Money for machinery, premises, raw material and working capital	Own savings, family, bank loan, government schemes such as MUDRA, angel investors, venture capital, crowdfunding. Managed by budgeting and by keeping enough working capital to pay bills before revenue arrives — running out of cash is the commonest cause of failure
Human resources	Skilled and unskilled workers, managers, advisers	Hiring for skill and attitude, training, fair wages and a clear division of work
Physical resources	Land, premises, machinery, tools, vehicles, raw material	Buy or lease; hold enough stock to keep working but not so much that money is locked up
Technology and knowledge	Machinery, software, designs, know-how, patents	Buy, license or develop; protect through intellectual property registration
Market access and information	Customers, distribution, suppliers, price data	Market survey, distribution network, online platforms, branding
Legal and regulatory	Registration, licences, GST, safety and environmental clearances	Comply from the start; Udyam registration for MSMEs; Startup India recognition

15.3 India's start-up ecosystem

- A **start-up** is a young enterprise built around an innovative product, service or business model, aiming for rapid growth. Under the Startup India definition it is an entity up to ten years old with turnover below ₹100 crore that is working on innovation or a scalable model.
- India has one of the world's largest start-up ecosystems, with a large number of **unicorns** — start-ups valued at over one billion dollars — concentrated in Bengaluru, Delhi-NCR, Mumbai, Hyderabad, Pune and Chennai, and increasingly in smaller cities too.
- **What has driven it:** a very large young population and market; low-cost mobile internet and smartphones; the digital public infrastructure of Aadhaar, UPI and the India Stack; a deep pool of engineering and management talent; and the availability of venture capital.
- **Sectors:** fintech and digital payments, e-commerce, edtech, health tech, agritech, logistics, software as a service, electric mobility and space technology.

Initiative	Launched	What it does
Startup India	2016	Recognition for start-ups, self-certification for several labour and environment laws, income-tax exemption for three years, the Fund of Funds, easier public procurement and faster patent examination
Make in India	2014	Encourages manufacturing in India, invites investment, improves ease of doing business and aims to raise manufacturing's share of output and employment
Digital India	2015	Digital infrastructure, online delivery of government services and digital literacy; UPI, DigiLocker and Aadhaar-based services are its outcomes and the base on which many start-ups are built
Stand-Up India	2016	Bank loans between ₹10 lakh and ₹1 crore for enterprises started by Scheduled Caste, Scheduled Tribe and women entrepreneurs
PM MUDRA Yojana	2015	Collateral-free loans to micro enterprises in three categories — Shishu, Kishor and Tarun
Atal Innovation Mission	2016	Atal Tinkering Labs in schools and Atal Incubation Centres, to build innovation skills from school onwards
Skill India / PMKVY	2015	Vocational training and certification so that the workforce matches industry need



15.4 MSMEs and the unorganised sector

- **MSME** stands for Micro, Small and Medium Enterprises, classified by investment in plant and machinery together with annual turnover. They are registered through **Udyam** registration.
- **Why MSMEs matter:** they are, after agriculture, the largest source of employment in India; they need far less capital per job created than large industry; they are spread across small towns and rural areas, so they promote **balanced regional development**; they contribute a large share of manufacturing output and of exports; and they supply components and services to big industry.
- **Their problems:** shortage of credit and delayed payments from large buyers; outdated technology; difficulty in marketing and branding; competition from imports and from large firms; and the burden of compliance.
- **Support measures:** Udyam registration, MUDRA loans, the Credit Guarantee Scheme, reservation of certain items for the sector, a mandatory share of public procurement, technology upgradation schemes, and the requirement that large buyers pay MSMEs within a fixed period.
- **The unorganised (informal) sector** covers enterprises and workers outside the framework of regular employment and social security — street vendors, small workshops, construction labour, domestic workers, home-based workers, much of agriculture. It employs the large majority of India's workforce.
- **Its characteristics:** no written contract, irregular and low wages, long hours, no provident fund, pension or paid leave, no job security, and little bargaining power — but it absorbs enormous numbers of workers and requires very little capital to enter.

Balanced judgment for a 5-mark answer. The informal sector is both India's largest employer and its greatest source of insecurity. The policy aim is not to abolish it but to **formalise it gradually** — through e-Shram registration, Ayushman Bharat cover, PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) loans and portable social security — so that workers keep the flexibility and gain the protection.



15.5 From a business idea to a business plan, and basic accounting

From an idea to a running business — the workflow



Balance sheet identity: **Assets = Liabilities + Capital** · Profit = Total Revenue – Total Cost

Creative destruction: the new idea succeeds by wiping out the old one — smartphones ended the market for cameras, torches and music players.

Fig. 15.1 — The workflow from idea to running business, with the two key accounting formulas.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.

- **The stages:** (1) spot a real problem people will pay to have solved; (2) carry out a **market survey** of customers and competitors; (3) write a **business plan**; (4) arrange the resources — capital, people, premises, licences; (5) build a **prototype or minimum viable product** and test it with real users; (6) register and launch; (7) keep accounts; (8) scale up by reinvesting profit, hiring and raising funding.
- **What a business plan contains:** an executive summary; a description of the product or service and the problem it solves; market analysis and the target customer; the marketing and pricing plan; the operations plan; the management team; a **financial plan** with projected costs, revenue and break-even point; and a risk assessment.
- **Why it is written down:** it forces the founder to test assumptions with numbers, it is what a bank or investor actually reads, and it becomes the yardstick against which actual performance is later measured.

Concept	Formula / meaning	Worked example
Revenue (sales)	Price × quantity sold	600 units at ₹50 = ₹30,000
Fixed cost	Cost that does not change with output — rent, salaries, licence fee	₹8,000 a month
Variable cost	Cost that changes with output — raw material, packing, power	₹30 per unit × 600 = ₹18,000
Total cost	Fixed + variable	8,000 + 18,000 = ₹26,000
Profit or loss	Revenue – Total cost	30,000 – 26,000 = profit of ₹4,000
Break-even quantity	Fixed cost ÷ (price – variable cost per unit)	8,000 ÷ (50 – 30) = 400 units
Assets	What the business owns — cash, stock, machinery, receivables	₹5,00,000

Liabilities	What it owes to outsiders — loans, creditors	₹2,00,000
Capital (owner's equity)	The owner's own stake = Assets – Liabilities	₹3,00,000
The balance-sheet identity	Assets = Liabilities + Capital	5,00,000 = 2,00,000 + 3,00,000 ✓

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Q1

4 Marks

Define entrepreneurship and explain its importance in innovation, job creation and economic growth.

DEFINITION

- An **entrepreneur** identifies an opportunity, organises the factors of production, bears the risk and uncertainty of the venture and innovates to create value; **entrepreneurship** is that process. Risk-bearing is what distinguishes the entrepreneur from a salaried manager.

IMPORTANCE

- Innovation:** entrepreneurs bring new products, processes and business models into use — UPI payments, affordable diagnostics, low-cost solar — which raises productivity across the whole economy.
- Job creation:** an entrepreneur is a **job giver rather than a job seeker**, and in a country with a very large young workforce this is decisive; MSMEs founded by entrepreneurs are India's largest non-farm employer.
- Economic growth and regional balance:** entrepreneurship mobilises idle savings into productive investment, raises output, income and exports, and when enterprises grow in smaller towns it spreads development beyond the metros.

Understand the key resources required to start a business and explain how they are managed to produce goods and services.

THE RESOURCES

- **Capital** — money for machinery, premises, raw material and day-to-day working capital, raised from savings, family, bank loans, MUDRA, angel investors or venture capital.
- **Human resources** — skilled and unskilled workers and managers, hired for skill and attitude and then trained.
- **Physical resources** — land or premises, machinery, tools, vehicles and raw material, bought or leased.
- **Technology, market access and legal compliance** — know-how and software; customers, distribution and branding; and registration, licences and GST.

HOW THEY ARE MANAGED

- Resources must be **combined in the right proportion**: idle machinery or excess stock locks up money, while too little raw material stops production.
- **Working capital is watched most closely**, because bills must be paid before customers pay — running out of cash, not lack of demand, is the commonest reason new businesses fail. Records, budgets and regular review are therefore part of management, not an afterthought.

Describe the features of India's start-up ecosystem and the initiatives supporting it.

WHAT A START-UP IS

- A young enterprise built on an innovative product, service or business model and aiming at rapid growth; under the Startup India definition, an entity up to ten years old with turnover below ₹100 crore working on innovation or a scalable model. One valued above a billion dollars is called a **unicorn**.

FEATURES OF THE INDIAN ECOSYSTEM

- One of the largest ecosystems in the world, concentrated in Bengaluru, Delhi-NCR, Mumbai, Hyderabad, Pune and Chennai, and spreading rapidly to smaller cities.
- Driven by a very large young market, cheap mobile internet, the **digital public infrastructure** of Aadhaar and UPI, a deep pool of engineering talent and plentiful venture capital.
- Strongest in fintech, e-commerce, edtech, health tech, agritech, logistics, software as a service and electric mobility.

GOVERNMENT INITIATIVES

- **Startup India (2016)** — recognition, self-certification under several labour and environment laws, three-year income-tax exemption, a Fund of Funds and faster patent examination.
- **Make in India (2014)** — promotes domestic manufacturing and investment and improves ease of doing business.
- **Digital India (2015)** — digital infrastructure and online public services; UPI and DigiLocker are its outputs and the platform on which many start-ups are built.
- **MUDRA, Stand-Up India, the Atal Innovation Mission and Skill India** — collateral-free micro loans, loans targeted at SC, ST and women entrepreneurs, tinkering labs and incubation centres, and vocational training.

Recognise the role of MSMEs and the unorganised sector in promoting employment, innovation and inclusive growth.

MSMES

- They are, after agriculture, the **largest source of employment** in India and create far more jobs per rupee of capital than large industry does.
- They are spread across small towns and rural areas, so they promote **balanced regional development** and check migration to the big cities; and they contribute a large share of manufacturing output and exports while supplying components to large firms.
- Their problems — scarce credit, delayed payments, outdated technology and weak marketing — are addressed through Udyam registration, MUDRA loans, credit guarantees, a reserved share of public procurement and mandatory timely payment by large buyers.

THE UNORGANISED SECTOR

- It covers enterprises and workers outside regular employment and social security — street vendors, small workshops, construction and domestic workers — and employs the **large majority of India's workforce** at very low capital cost, absorbing those the formal sector cannot.
- But it offers no written contract, no provident fund or pension, no paid leave and no job security, so the policy aim is **gradual formalisation** through e-Shram registration, health cover and PM SVANidhi loans — keeping the flexibility while adding protection. That combination is what makes growth inclusive rather than merely fast.

Q5

5 Marks

Identify and explain the stages of starting a business from developing an idea to creating and executing a business plan.

THE STAGES — SEE FIG. 15.1

- **1. Spot a real problem.** A good business idea solves a problem people will actually pay to have solved, not merely one the founder finds interesting.
- **2. Market survey.** Find out who the customers are, how many there are, what they currently use, what they will pay, and who the competitors are.
- **3. Write the business plan.** Product description, target market, marketing and pricing plan, operations plan, management team, financial projections with a break-even point, and risks.
- **4. Arrange resources.** Capital, people, premises, machinery, licences and registration.
- **5. Build and test a prototype** or minimum viable product with real users, take their feedback and improve before spending heavily.
- **6. Register and launch** — Udyam or Startup India registration, GST, and the required licences.
- **7. Keep accounts** from day one: revenue, costs, profit or loss, and a balance sheet.
- **8. Scale up** by reinvesting profit, hiring, widening distribution and raising further funding.

WHY THE PLAN IS WRITTEN DOWN

- It forces the founder to **test assumptions with numbers** rather than optimism; it is the document a bank or investor actually reads; and it later becomes the yardstick against which real performance is measured.

Q6

4 Marks

Understand simple profit and loss, and identify the key components of a balance sheet. A small unit sells 600 units at ₹50. Fixed cost is ₹8,000 and variable cost is ₹30 per unit. Its assets are ₹5,00,000 and its liabilities ₹2,00,000.

PROFIT AND LOSS

- **Revenue** = price × quantity = $50 \times 600 = \text{₹}30,000$.
- **Variable cost** = $30 \times 600 = \text{₹}18,000$. **Total cost** = fixed + variable = $8,000 + 18,000 = \text{₹}26,000$.
- **Profit** = revenue – total cost = $30,000 - 26,000 = \text{₹}4,000$.
- **Break-even** = fixed cost ÷ (price – variable cost per unit) = $8,000 \div (50 - 30) = 400 \text{ units}$ — below 400 units the unit makes a loss.

THE BALANCE SHEET

- **Assets** — what the business owns: cash, stock, machinery, premises and money receivable. Here ₹5,00,000.
- **Liabilities** — what it owes to outsiders: bank loans and creditors. Here ₹2,00,000.
- **Capital (owner's equity)** = Assets – Liabilities = $5,00,000 - 2,00,000 = \text{₹}3,00,000$.
- **The identity:** Assets = Liabilities + Capital, that is $5,00,000 = 2,00,000 + 3,00,000$ — which is why it is called a balance sheet: every rupee of what the business owns has been financed either by outsiders or by the owner.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

What is a unicorn start-up?

A start-up valued at more than one billion US dollars.

E2

1 Mark

What does MSME stand for?

Micro, Small and Medium Enterprises.

E3

1 Mark

Under which registration do MSMEs register in India?

Udyam registration.

E4

1 Mark

State the balance-sheet identity.

Assets = Liabilities + Capital.

E5

1 Mark

In which year was Startup India launched?

2016.

E6

2 Marks

Distinguish between fixed cost and variable cost with one example of each.

ANSWER

- **Fixed cost** does not change with the level of output and must be paid even if nothing is produced — for example, monthly shop rent or the manager's salary.
- **Variable cost** changes directly with output and is zero if nothing is produced — for example, raw material, packing and power used per unit.

E7

2 Marks

What is creative destruction? Give one example.

ANSWER

- **Creative destruction** is the process by which a new innovation succeeds by destroying the industry it replaces, so that progress and disruption happen together.
- **Example:** the smartphone wiped out the separate markets for cameras, torches, calculators, music players and printed maps — a gain to consumers but a loss of livelihood for those in the older industries.

E8

3 Marks

A tiffin service sells 300 meals a month at ₹80. Fixed cost is ₹6,000 and variable cost is ₹55 per meal. Find the profit and the break-even quantity.

STEP 1 — REVENUE

- Revenue = $80 \times 300 = \text{₹}24,000$.

STEP 2 — TOTAL COST

- Variable cost = $55 \times 300 = \text{₹}16,500$. Total cost = $6,000 + 16,500 = \text{₹}22,500$.

STEP 3 — PROFIT

- Profit = $24,000 - 22,500 = \text{₹}1,500$.

STEP 4 — BREAK-EVEN

- Contribution per meal = $80 - 55 = \text{₹}25$. Break-even = $6,000 \div 25 = \text{240 meals}$.
- So the service must sell at least 240 meals a month to avoid a loss; the 300 it actually sells leave a margin of 60.

E9

3 Marks

Why do many small businesses fail in their first two years? Give three reasons.

ANSWER

- **Shortage of working capital.** Rent, wages and raw material must be paid long before customers pay, so a business that is profitable on paper can still run out of cash and close.
- **No proper market research.** The founder assumes there is demand instead of testing it, and discovers too late that customers will not pay the price required, or that a competitor already serves them better.
- **Poor record-keeping and cost control.** Without accounts the owner does not know which product is losing money, prices too low, mixes personal and business money, and only discovers the loss when it is too large to recover.

Describe any four features of the unorganised sector and suggest two measures to improve workers' conditions.

FOUR FEATURES

- **No written contract** — employment is casual and can be ended without notice, so there is no job security.
- **Low and irregular wages**, often below the statutory minimum, with long working hours and no paid leave or overtime.
- **No social security** — no provident fund, pension, gratuity, health insurance or maternity benefit.
- **Very low capital requirement and easy entry**, which is why the sector absorbs the largest part of India's workforce, including migrants; but workers are scattered and unorganised, so they have almost no bargaining power.

TWO MEASURES

- **Universal registration and portable social security** — e-Shram registration linked to health cover under Ayushman Bharat, accident insurance and pension, so that benefits follow the worker from one employer or State to another.
- **Credit and legal protection** — small collateral-free loans such as PM SVANidhi for street vendors, enforcement of minimum wages and safe working conditions, and support for workers' collectives and cooperatives that give them bargaining power.

Case study. Meera, a Class 12 pass-out in Indore, notices that office workers struggle to find affordable healthy lunches. She plans a tiffin service. Outline the steps she should follow, the resources she needs, and two government schemes that could help her.

STEPS SHE SHOULD FOLLOW

- **Validate the problem:** survey 100 office workers in her target area — how many buy lunch outside, what they spend, what they dislike about existing options, and whether they would pay for a healthier tiffin.
- **Write a business plan:** menu and pricing, number of tiffins needed to break even, cost per meal, delivery plan, competitors, and projected revenue for the first year.
- **Start small and test:** begin with twenty subscribers for a month, take feedback on taste, quantity, packaging and delivery timing, and refine before expanding.
- **Register and comply:** Udyam registration as a micro enterprise, an **FSSAI food licence** (compulsory for any food business), and GST if turnover crosses the threshold.
- **Keep accounts from day one** and reinvest the profit to add a second kitchen helper and a delivery partner before expanding the subscriber base.

RESOURCES SHE NEEDS

- **Capital** for a commercial gas connection, utensils, tiffin boxes, one month's raw material and delivery costs.
- **Physical** — a hygienic kitchen space, refrigeration and insulated carriers; **human** — one cook or helper and a delivery person; **market access** — a WhatsApp ordering system, tie-ups with two or three offices, and listing on a delivery platform once volumes justify the commission.

TWO SCHEMES THAT COULD HELP

- **PM MUDRA Yojana (Shishu category)** — a collateral-free loan up to ₹50,000 for a micro enterprise, exactly suited to her start-up cost.
- **Stand-Up India** — bank loans between ₹10 lakh and ₹1 crore specifically for women entrepreneurs, useful when she scales to a commercial kitchen. (Udyam registration also gives her access to credit guarantees and a reserved share of government procurement.)

⚡ Quick Revision — last-minute points

1. Entrepreneur = person who starts a business and takes the risk.
2. Resources: land, labour, capital, ideas.
3. Startup India (2016) supports new ventures; MSMEs create jobs.
4. Business plan: idea, market, costs, profit.
5. Assets = Liabilities + Capital; Profit = Revenue – Cost.

Memory trick: A = L + C — 'Always Love Capital'

CHAPTER 16

Smart Ways to Manage Your Finances

6 instructional hours · Economics · Study Notes · Exercise-Style Solutions · Extra Questions

PART A — STUDY NOTES



What the syllabus asks for

CBSE learning outcomes: explain what personal financial management means and why it is essential; recognise how managing income, spending, saving and investment builds financial stability; **explain the difference between simple and compound interest; prepare a simple personal or family budget;** identify savings and investment instruments; understand the relationship between risk and return; and understand income tax and why citizens pay it.

Two numerical questions are near certain: an **SI-versus-CI calculation**, and a **budget preparation** with income, expenditure and savings. Learn both formulas and practise laying a budget out in a table.



16.1 Personal financial management

- **Personal financial management** is the planned handling of one's income, spending, saving, investment and protection so as to meet present needs and future goals.
- **Its five steps:** know your income; track your spending; set goals (short-term, such as a cycle; medium-term, such as a course fee; long-term, such as a house or retirement); save and invest regularly; and protect yourself with insurance and an emergency fund.
- **Why it matters:** it prevents debt traps; it builds a cushion for emergencies — the usual advice is an emergency fund of three to six months' expenses; it makes goals achievable; it protects the value of money against inflation; and it gives independence and peace of mind.
- **Needs and wants:** a **need** is essential for living — food, shelter, basic clothing, medicine, education; a **want** is desirable but not essential — a branded phone, eating out, the latest game. The first rule of budgeting is to fund needs fully before wants.
- **'Pay yourself first'** — set aside savings as soon as income arrives, rather than hoping something is left at the end of the month.

16.2 Inflation and purchasing power

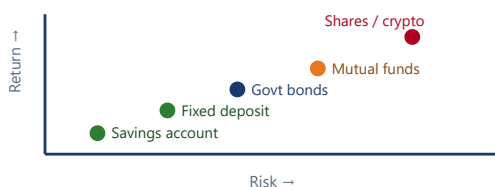
- **Inflation** is a sustained rise in the general price level, which means a fall in the **purchasing power** of money — the same ₹100 buys less than it did a year ago.
- **Causes:** *demand-pull*, when demand grows faster than supply; *cost-push*, when input costs such as fuel or wages rise; excessive money supply; supply shocks such as a failed monsoon; and hoarding.
- **Effects:** it hurts those on fixed incomes — pensioners, salaried workers whose pay lags — and it hurts savers whose deposits earn less than the inflation rate; it benefits borrowers, who repay in cheaper money; and it raises the cost of living for the poor most, because food is a larger share of their budget.
- **The real rate of return** is what matters: **real return = nominal return – inflation rate**. A fixed deposit paying 5% when inflation is 6% gives a **real return of –1%** — the saver is actually poorer. This single idea is why people invest rather than merely save.
- **Who controls it:** the **Reserve Bank of India**, through monetary policy, with a target of 4% consumer price inflation with a band of plus or minus 2%.

16.3 Simple and compound interest

Making a personal budget — and where the savings should go



Where savings can go — risk against return



The two formulas you must know

Simple Interest = $P \times R \times T \div 100$
interest is earned only on the original sum P

Amount (compound) = $P (1 + R/100)^n$
interest is added back, so interest itself earns interest

Prices up 6%, FD pays 5% → you are 1% poorer in real terms.

Fig. 16.1 — The budgeting workflow, the risk-return ladder, and the two interest formulas.

Note: This is an MLI-redrawn schematic — not to scale and not a reproduction of any textbook figure. If any part of this figure is not clear, students are kindly requested to refer to the corresponding figure/map in the NCERT textbook *Understanding Society: India and Beyond*.

	Simple Interest	Compound Interest
Formula	$SI = P \times R \times T \div 100$	$A = P (1 + R/100)^n$; $CI = A - P$
Interest earned on	The original principal only	Principal plus the interest already added
Growth	Linear — the same amount is added each year	Exponential — the amount added grows each year
Where you meet it	Some short-term loans, certain bonds	Bank deposits, recurring deposits, PPF, mutual funds, and unfortunately credit-card dues

- **Worked comparison.** $P = ₹10,000$, $R = 10\%$ a year, $T = 3$ years. **SI** = $10,000 \times 10 \times 3 \div 100 = ₹3,000$, so the amount is ₹13,000. **CI:** $A = 10,000 \times (1.1)^3 = 10,000 \times 1.331 = ₹13,310$, so $CI = ₹3,310$. The difference of ₹310 comes entirely from interest earning interest — and over twenty years the gap becomes enormous.
- **The two lessons:** compounding is the strongest reason to **start saving early** — time matters more than the amount; and the same compounding works **against** you on credit-card dues and unpaid loans, where rates of 36 to 42% a year compound monthly. This is how debt traps form.

16.4 Budgeting, savings and investment

- A **budget** is a written plan of expected income and expenditure over a period, showing what will be saved. **Savings = Income – Expenditure.**
- A **simple rule of thumb** often taught is the 50–30–20 split: about 50% of income for needs, 30% for wants, and at least 20% for savings and repayment of debt — to be adjusted to one's own circumstances.
- A **surplus budget** (income above expenditure) allows saving; a **deficit budget** (expenditure above income) means borrowing and must be corrected by raising income or cutting wants.

Sample monthly family budget	Amount (₹)
Income — salary and other income	40,000
Needs — rent and utilities	12,000
Needs — food and groceries	9,000
Needs — school fees and transport	6,000
Needs — insurance premium	1,500
Wants — eating out, entertainment, subscriptions	4,000
Wants — clothing and miscellaneous	2,500
Total expenditure	35,000
Savings (40,000 – 35,000)	5,000

Instrument	Risk	Typical return	Liquidity	Note
Savings bank account	Very low	Low	Immediate	For day-to-day money and the emergency fund
Fixed deposit / recurring deposit	Low	Moderate	Locked for a term; penalty on early withdrawal	Deposits up to ₹5 lakh per bank are insured by DICGC
Public Provident Fund (PPF), Sukanya Samriddhi, post office schemes	Very low (government backed)	Moderate	Long lock-in (PPF 15 years)	Tax benefits; ideal for long-term goals
Government bonds	Low	Moderate	Tradable	Backed by the government
Mutual funds (SIP)	Moderate to high	Potentially higher	Usually redeemable in days	Professionally managed and diversified; a SIP invests a fixed sum monthly

Shares (equity)	High	Potentially highest	High	Prices fluctuate; suitable only for the long term
Gold	Moderate	Varies	High	A traditional hedge against inflation; sovereign gold bonds avoid storage risk
Real estate	Moderate	Varies	Very low	Large ticket size; hard to sell quickly

The risk–return relationship — the key idea. Higher expected return always comes with higher risk; there is no instrument that is simultaneously safe, high-returning and instantly liquid. Any scheme promising ‘guaranteed high returns with no risk’ is a **fraud**. The sensible response is **diversification** — spreading money across instruments, so that no single failure is ruinous — matched to the time horizon: safe instruments for money needed soon, growth instruments for money not needed for ten years.

16.5 Risk, insurance and income tax

- **Insurance** is a contract in which, in return for a regular **premium**, the insurer agrees to compensate the insured for a specified loss. It works by **pooling risk**: many people pay small premiums, and the pool compensates the few who actually suffer loss.
- **Types**: *life insurance* (term insurance is the cheapest and purest form, paying the family if the earner dies); *health insurance*, which protects savings from a hospital bill; *motor insurance*, of which third-party cover is compulsory by law; *crop insurance* under PM Fasal Bima Yojana; and *property and travel insurance*.
- **Insurance is protection, not investment**. Its purpose is to prevent a single event from destroying a family's finances — which is why an uninsured hospital admission is one of the commonest causes of families falling into poverty in India.
- **Income tax** is a direct tax levied by the central government on the annual income of individuals and organisations.
- **Why citizens pay it**: it funds defence, roads, railways, schools, hospitals, police, courts and welfare schemes — the public and merit goods that no market will supply. It is **progressive**: higher incomes are taxed at higher rates, which reduces inequality. Paying it honestly is listed among the duties of a citizen; evading it is a punishable offence.
- **Key terms**: the **PAN** (Permanent Account Number) identifies a taxpayer; the **financial year** runs from 1 April to 31 March; **TDS** is tax deducted at source by the payer; an **income tax return (ITR)** is the annual statement filed with the department; income below the exemption limit is not taxed, and the slab rates rise with income. **Direct taxes** such as income tax are paid by the person on whom they are levied; **indirect taxes** such as GST are collected by a seller and passed on to the consumer.

Financial safety — worth writing in any answer on personal finance. Never share an OTP, PIN or password; verify any scheme with the regulator (RBI for banks, SEBI for investments, IRDAI for insurance); be suspicious of unusually high assured returns, of chain and pyramid schemes, and of pressure to decide immediately; read documents before signing; and keep credit-card dues cleared in full, because their compounding is what turns a small purchase into a large debt.

PART B — PRACTICE QUESTIONS ON CBSE LEARNING OUTCOMES (MLI)

Q1**4 Marks**

Explain what personal financial management means and why it is essential in everyday life.

MEANING

- **Personal financial management** is the planned handling of one's income, spending, saving, investment and protection so as to meet present needs and achieve future goals. Its steps are: know your income, track your spending, set goals, save and invest regularly, and protect yourself with insurance and an emergency fund.

WHY IT IS ESSENTIAL

- **It prevents debt traps.** Spending without a plan leads to borrowing, and borrowing at compound interest — especially on credit cards — can grow beyond the ability to repay.
- **It creates security.** An emergency fund of three to six months' expenses and adequate insurance mean that illness, job loss or an accident does not destroy the family's finances.
- **It makes goals achievable** — education, a house, retirement — by converting them into monthly amounts saved rather than vague hopes; and it protects money from being eroded by **inflation**, which quietly reduces the purchasing power of idle cash every year.

Q2**4 Marks**

Explain inflation and its impact on purchasing power, and show why it matters to a saver.

MEANING

- **Inflation** is a sustained rise in the general price level. Because prices rise, the same amount of money buys less than before — this fall is the loss of **purchasing power**.

CAUSES

- *Demand-pull*, when demand grows faster than supply; *cost-push*, when fuel, raw material or wage costs rise; excess money supply; and supply shocks such as a failed monsoon, often worsened by hoarding.

IMPACT

- It hurts **people on fixed incomes** — pensioners and salaried workers whose pay lags behind prices — and hits the poor hardest, because food takes up a larger share of their budget.
- It **benefits borrowers**, who repay a loan in money worth less than what they borrowed, and hurts lenders and savers.

WHY IT MATTERS TO A SAVER — THE REAL RETURN

- **Real return = nominal return – inflation.** If a fixed deposit pays 5% while inflation is 6%, the real return is **–1%**: the saver has more rupees but less purchasing power than a year earlier.
- This is precisely why money must be **invested**, not merely kept safe — and why the Reserve Bank of India is given an inflation target of 4% with a band of plus or minus 2%.

Explain the difference between simple interest and compound interest. Calculate both for ₹10,000 at 10% per annum for 3 years.

THE DIFFERENCE

- **Simple interest** is calculated on the **original principal only**, so the same amount is added every year and growth is linear. Formula: $SI = P \times R \times T \div 100$.
- **Compound interest** is calculated on the principal **plus the interest already added**, so interest itself earns interest and growth is exponential. Formula: $A = P (1 + R/100)^n$, and $CI = A - P$.

CALCULATION — SIMPLE INTEREST

- $SI = (10,000 \times 10 \times 3) \div 100 = \text{₹}3,000$. Amount = $10,000 + 3,000 = \text{₹}13,000$.

CALCULATION — COMPOUND INTEREST

- $A = 10,000 \times (1 + 10/100)^3 = 10,000 \times (1.1)^3 = 10,000 \times 1.331 = \text{₹}13,310$.
- $CI = 13,310 - 10,000 = \text{₹}3,310$.

CONCLUSION

- Compound interest earns **₹310 more** over the same three years, and the gap widens sharply with time — which is why one should **start saving early**, and why credit-card dues, which compound monthly at very high rates, become dangerous so quickly.

Prepare a simple family budget from the following: monthly income ₹40,000; rent and utilities ₹12,000; food ₹9,000; school fees and transport ₹6,000; insurance ₹1,500; entertainment ₹4,000; clothing and miscellaneous ₹2,500. State the savings and comment.

Item	Category	Amount (₹)
Salary and other income	Income	40,000
Rent and utilities	Need	12,000
Food and groceries	Need	9,000
School fees and transport	Need	6,000
Insurance premium	Need (protection)	1,500
Entertainment and subscriptions	Want	4,000
Clothing and miscellaneous	Want	2,500
Total expenditure		35,000
Savings = Income – Expenditure		5,000

COMMENT

- The family has a **surplus budget**, saving ₹5,000 a month, that is **12.5% of income**.
- Needs account for ₹28,500 (about 71%) and wants for ₹6,500 (about 16%). Against the 50–30–20 guideline the savings rate is somewhat low, largely because rent is a heavy fixed cost.
- Improvement:** trimming entertainment and miscellaneous spending by about ₹3,000 would raise savings to ₹8,000, or 20% of income, without touching any need. The savings should first build an **emergency fund** of three to six months' expenses, after which the surplus can go into a monthly SIP or a PPF account.

Identify various savings and investment options and explain the relationship between risk and return.

THE OPTIONS, FROM SAFEST TO RISKIEST

- **Savings bank account** — very low risk, low return, money available instantly; suitable for daily needs and the emergency fund.
- **Fixed and recurring deposits** — low risk, moderate return, locked for a term, with deposits up to ₹5 lakh per bank insured.
- **Government-backed schemes** — PPF, Sukanya Samriddhi, post office schemes and government bonds: very low risk, moderate return, long lock-in, usually with tax benefits.
- **Mutual funds, especially through a SIP** — moderate to high risk, potentially higher return, professionally managed and diversified.
- **Shares** — the highest risk and the highest potential return, with prices that fluctuate daily; and **gold** and **real estate**, which are traditional stores of value, the latter with very poor liquidity.

THE RISK-RETURN RELATIONSHIP

- **Higher expected return always carries higher risk.** Investors demand extra return as compensation for accepting the possibility of loss, so no instrument can be simultaneously safe, high-returning and instantly liquid.
- It follows that **any scheme promising guaranteed high returns with no risk is a fraud.**
- The sensible responses are **diversification** — spreading money across instruments so that no single failure is ruinous — and **matching the instrument to the time horizon**: safe, liquid instruments for money needed within a year or two, and growth instruments for money not needed for ten years or more, since time smooths out short-term fluctuation.

Q6

4 Marks

Understand the concept of income tax and explain why citizens are required to pay it.

WHAT IT IS

- **Income tax** is a **direct tax** levied by the central government on the annual income of individuals and organisations. It is direct because it is paid by the very person on whom it is levied and cannot be passed on to another — unlike GST, an indirect tax collected by a seller from the consumer.

HOW IT WORKS

- Income is assessed for a **financial year** running from 1 April to 31 March; every taxpayer has a **PAN**; tax is often deducted at source (**TDS**) by the employer or payer; and an **income tax return** is filed annually.
- It is **progressive**, charged in slabs — income below the exemption limit pays nothing, and higher incomes are taxed at higher rates.

WHY CITIZENS PAY IT

- **It pays for what the market will not supply** — defence, police, courts, roads, railways, public schools and hospitals. These are public and merit goods that no private firm can profitably provide, so they must be financed collectively.
- **It reduces inequality and funds welfare.** Because it is progressive, those who earn more contribute more, and the revenue funds the safety nets — food security, MGNREGA, pensions — that protect the vulnerable.
- **It is a duty of citizenship.** A citizen who uses public roads, schools and security while evading tax is taking the benefit and shifting the cost onto others; evasion is also a punishable offence.

PART C — EXTRA QUESTIONS (SOLVED)

E1

1 Mark

Write the formula for simple interest.

$$SI = P \times R \times T \div 100.$$

E2

1 Mark

What is the full form of PAN?

Permanent Account Number.

E3

1 Mark

Which body sets India's inflation target?

The Reserve Bank of India (target 4%, with a band of $\pm 2\%$).

E4

1 Mark

What is a premium in insurance?

The regular amount paid by the insured to the insurer in return for cover.

E5

1 Mark

Give one example of an indirect tax.

Goods and Services Tax (GST).

E6

2 Marks

Distinguish between a need and a want, with one example of each.

ANSWER

- A **need** is essential for survival and basic living, and doing without it causes real harm — food, shelter, basic clothing, medicine, schooling.
- A **want** is desirable but not essential; life continues comfortably without it — a branded phone, eating out, a holiday. In budgeting, needs must be funded fully before any want.

E7

2 Marks

A fixed deposit gives 6% a year while inflation is 7%. Is the saver better off? Explain.

ANSWER

- No. **Real return = nominal return – inflation = 6% – 7% = –1%.**
- The saver has more rupees at the end of the year, but those rupees buy about 1% less than the original sum would have bought — so in terms of **purchasing power** he is actually poorer.

E8

3 Marks

₹20,000 is invested at 8% per annum for 2 years. Find the simple interest, the compound interest and the difference.

SIMPLE INTEREST

- $SI = (20,000 \times 8 \times 2) \div 100 = \text{₹}3,200$.

COMPOUND INTEREST

- $A = 20,000 \times (1.08)^2 = 20,000 \times 1.1664 = \text{₹}23,328$.
- $CI = 23,328 - 20,000 = \text{₹}3,328$.

DIFFERENCE

- $3,328 - 3,200 = \text{₹}128$. This is exactly the interest earned in the second year on the first year's interest of ₹1,600 — that is, 8% of ₹1,600 = ₹128.

E9

3 Marks

Why is insurance described as protection rather than investment?

ANSWER

- **Its purpose is to prevent loss, not to create wealth.** You pay a premium hoping never to claim; the benefit is the security of knowing a disaster will not ruin you.
- **It works by pooling risk:** a large number of people pay small premiums into a pool, and the pool compensates the few who actually suffer loss — so it transfers risk rather than growing money.
- **Its practical value is enormous:** an uninsured hospital admission is one of the commonest causes of Indian families falling into poverty. Term life insurance and health insurance are cheap precisely because they offer no return if nothing goes wrong — which is exactly what makes them efficient protection.

Rahul earns ₹25,000 a month. He spends ₹8,000 on rent, ₹6,000 on food, ₹3,000 on transport, ₹4,000 on entertainment and ₹2,000 on shopping. (i) Prepare his budget. (ii) Find his savings and savings rate. (iii) Suggest two improvements.

(I) BUDGET

- **Income:** ₹25,000. **Needs:** rent 8,000 + food 6,000 + transport 3,000 = ₹17,000. **Wants:** entertainment 4,000 + shopping 2,000 = ₹6,000. **Total expenditure:** ₹23,000.

(II) SAVINGS

- Savings = 25,000 – 23,000 = **₹2,000** a month. Savings rate = $(2,000 \div 25,000) \times 100 = 8\%$.
- This is a surplus budget, but 8% is well below the 20% commonly recommended, and he has no insurance at all.

(III) TWO IMPROVEMENTS

- **Cut wants and pay himself first.** Reducing entertainment and shopping from ₹6,000 to ₹3,000 would raise savings to ₹5,000, that is 20% of income, without touching a single need — and the savings should be transferred on salary day rather than at month end.
- **Buy protection and build an emergency fund.** A modest health insurance policy costs a small fraction of what one hospital bill would; alongside it he should build an emergency fund of three to six months' expenses (about ₹70,000–₹1,40,000) in a savings account or short fixed deposit, and only then start a monthly SIP for long-term goals.

"Every investment involves a trade-off between risk, return and liquidity." Explain with five examples and state how a young earner should choose.

THE PRINCIPLE

- No instrument is simultaneously safe, high-returning and instantly available. Investors demand a higher return as compensation for accepting higher risk, and instruments that lock money away usually pay more than those that do not.

FIVE EXAMPLES

- **Savings account:** very low risk and instant liquidity, so the return is the lowest of all — suitable only for daily money and the emergency fund.
- **Fixed deposit:** low risk and a moderate return, but the money is locked for a term and early withdrawal carries a penalty — liquidity is sacrificed for a better rate.
- **PPF:** very low risk, moderate return and tax benefits, but a 15-year lock-in — the lowest liquidity of the safe instruments, which is why it pays more than a savings account.
- **Mutual funds through a SIP:** moderate to high risk with potentially higher returns, redeemable within days — good liquidity, but the value can fall in the short term.
- **Shares and real estate:** shares carry the highest risk and the highest potential return with high liquidity; real estate may give good returns but is **very illiquid** — it can take months to sell.

HOW A YOUNG EARNER SHOULD CHOOSE

- **Match the instrument to the time horizon.** Money needed within a year belongs in a savings account or short deposit; money not needed for ten years or more can accept the short-term fluctuation of equity in exchange for growth.
- **Build in order:** first an emergency fund of three to six months' expenses, then adequate health and term insurance, then long-term investment through a regular SIP — and **diversify**, so that no single failure is ruinous. Because compounding rewards time far more than amount, starting early with a small sum beats starting late with a large one.

Quick Revision — last-minute points

1. Budget: Savings = Income – Expenditure.
2. Needs before wants; 'pay yourself first'.
3. $SI = P \times R \times T \div 100$; $CI: A = P(1 + R/100)^n$.
4. Inflation lowers purchasing power; real return = nominal – inflation.
5. Higher return usually means higher risk; insurance protects against loss.

Memory trick: 50-30-20: needs-wants-savings

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