

MATH LOVE INSTITUTE

Annual Examination 2025-26

Class: VII | Subject: Computer Science (SET - 4)

Time: 3 Hours | Maximum Marks: 80

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Student Name:	_____
Roll Number:	_____
Date:	_____

General Instructions:

1. All questions are compulsory.
2. The question paper is divided into 5 sections: A, B, C, D, and E.
3. Section A: Multiple Choice Questions (1 mark each) - 15 marks
4. Section B: Fill in the Blanks / True-False (1 mark each) - 15 marks
5. Section C: Short Answer Questions (2 marks each) - 20 marks
6. Section D: Long Answer Questions (3 marks each) - 15 marks
7. Section E: Practical/Programming Questions (5 marks each) - 15 marks
8. Write neatly and legibly.
9. For programming questions, write complete code with proper syntax.

SECTION A - Multiple Choice Questions (15 Marks)

Q1. In Python, which keyword is used to check an additional condition after an 'if' [1]
condition fails?

- (a) else
- (b) elif
- (c) elseif
- (d) switch

Q2. Which HTML tag is used to define a cell in a table header row? [1]

- (a) <td>
- (b) <tr>
- (c) <th>
- (d) <tc>

Q3. What does the 'colspan' attribute do in an HTML table? [1]

- (a) Merges cells vertically
- (b) Merges cells horizontally
- (c) Sets column width
- (d) Adds column borders

Q4. Which Python logical operator returns True only when at least one condition [1]
is True?

- (a) and
- (b) not
- (c) or
- (d) xor

Q5. Which of the following is an example of synchronous communication? [1]

- (a) Email
- (b) Blog
- (c) Video call
- (d) Forum post

- Q6.** What does the <caption> tag do in an HTML table? **[1]**
- (a) Adds a title to the table
 - (b) Creates a new column
 - (c) Sets border color
 - (d) Merges all cells
- Q7.** In Python, what will be the output of: `print(10 > 5 and 3 < 7)`? **[1]**
- (a) 10
 - (b) False
 - (c) True
 - (d) Error
- Q8.** Which HTML attribute is used to specify the number of rows a cell should span? **[1]**
- (a) colspan
 - (b) rowspan
 - (c) cellspan
 - (d) span
- Q9.** Which of the following is NOT an input device used in video conferencing? **[1]**
- (a) Webcam
 - (b) Microphone
 - (c) Printer
 - (d) Headphones
- Q10.** What is a Chatbot in Artificial Intelligence? **[1]**
- (a) A robot that cleans houses
 - (b) A program that converses with humans automatically
 - (c) A type of web browser
 - (d) A social media platform

- Q11.** In Python, which operator is used to find the remainder after division? **[1]**
- (a) //
 - (b) %
 - (c) **
 - (d) /
- Q12.** Which HTML tag is used to create a horizontal line on a webpage? **[1]**
- (a) <line>
 - (b)

 - (c) <hr>
 - (d) <rule>
- Q13.** Which of the following is a real-life application of Computer Vision in AI? **[1]**
- (a) Spell checking
 - (b) Auto-tagging photos on social media
 - (c) Sending emails
 - (d) Creating documents
- Q14.** In Python, what is the correct way to write a single-line comment? **[1]**
- (a) // This is a comment
 - (b) /* This is a comment */
 - (c) # This is a comment
 - (d) <!-- This is a comment -->
- Q15.** Which of the following internet services allows people to share short text posts publicly? **[1]**
- (a) FTP
 - (b) Social Media
 - (c) DNS
 - (d) DHCP

SECTION B - Fill in the Blanks / True-False (15 Marks)

Q16. Fill in the Blank: The _____ attribute in the <table> tag is used to add space between the cell border and its content. [1]

Q17. Fill in the Blank: In Python, the _____ operator returns True when both conditions are True. [1]

Q18. True or False: The <caption> tag must be placed immediately after the <table> tag. _____ [1]

Q19. Fill in the Blank: _____ is an AI application that allows machines to understand and generate human language. [1]

Q20. True or False: Video conferencing can only be done between two people. _____ [1]

Q21. Fill in the Blank: The _____ tag in HTML is used to create a line break (move text to the next line). [1]

Q22. True or False: In Python, 'not' operator reverses the result of a condition. _____ [1]

Q23. Fill in the Blank: _____ is a technology where computers learn from data automatically without being explicitly programmed. [1]

Q24. True or False: The <hr> tag creates a vertical line on the webpage. _____ [1]

Q25. Fill in the Blank: In a nested if statement, the inner 'if' is checked only when the outer 'if' condition is _____. [1]

Q26. True or False: Google Meet and Zoom are examples of video conferencing platforms. _____ [1]

Q27. Fill in the Blank: The _____ attribute in HTML table is used to add space between cells. [1]

Q28. True or False: Artificial Intelligence can be used only in large computers. [1]

Q29. Fill in the Blank: In Python, the _____ operator is used to check if two values are NOT equal. [1]

Q30. True or False: Chatbots are programs that can automatically answer questions without human help. _____ [1]

SECTION C - Short Answer Questions (20 Marks)
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Q31. Explain the use of the 'or' operator in Python. Write a simple example. [2]

Q32. What is the difference between <th> and <td> tags in an HTML table? [2]

Q33. What is a Chatbot? Name two examples of chatbots used in real life. [2]

Q34. Write HTML code to create a table with a caption "Fruit List" and two columns: Fruit Name and Color (with at least 2 rows of data). [2]

Q35. What is the difference between synchronous and asynchronous communication? Give one example of each. [2]

Q36. Explain what 'nested if' means in Python. Why is it useful? [2]

Q37. What is the purpose of the 'cellpadding' and 'cellspacing' attributes in an HTML table? [2]

Q38. Name two advantages and one disadvantage of e-commerce. [2]

Q39. What is Computer Vision? How is it used in smartphones? [2]

Q40. Write a Python code to check if a number is divisible by 7 using the modulus operator. Display appropriate messages. [2]

SECTION D - Long Answer Questions (15 Marks)

Q41. Write a Python program using nested if-else to check whether a person can [3]
get a driving licence based on the following rules:

- Age must be 18 or above
- The person must have completed driving training (Yes/No)
- The person must have passed the written test (Yes/No)

Display an appropriate message for each case.

Q42. Write complete HTML code to create a table showing a "Weekly Timetable" [3]
for Monday and Tuesday. The table must include:

- A caption: "Weekly Timetable"
- Use colspan to merge the top header across all columns
- Columns: Day, Period 1, Period 2, Period 3
- At least 2 rows of data (Monday and Tuesday)

Q43. Explain the following three types of AI applications with real-life examples: [3]

- Chatbots
- Image Recognition
- Recommendation Systems

Q44. What is video conferencing? Explain any three advantages of video [3]
conferencing. Also name the software requirements needed for video conferencing.

Q45. Explain the difference between the following Python operators with [3]
examples:

- and operator
- or operator
- not operator

SECTION E - Practical/Programming Questions (15 Marks)

Q46. Write a Python program to check whether a triangle is valid or not. A **[5]**
triangle is valid if the sum of any two sides is greater than the third side. The program should:

- Take three sides of a triangle as input from the user
- Check if the triangle is valid using nested if with 'and' operator
- If valid, determine the type of triangle: Equilateral (all sides equal), Isosceles (two sides equal), or Scalene (no sides equal)
- Display appropriate output messages

Q47. Write a Python program that works as a simple Temperature Converter. **[5]**
The program should:

- Display a menu: 1. Celsius to Fahrenheit, 2. Fahrenheit to Celsius
- Take user's choice
- Take temperature value as input
- Convert using formulas: $F = (C \times 9/5) + 32$ and $C = (F - 32) \times 5/9$
- Display the converted temperature with proper labels
- Show an error message for invalid choice

Q48. Create a complete HTML webpage for "Student Report Card" that includes: **[5]**

- Page title: "Student Report Card"
- A main heading centered on the page
- A student information table with colspan used to merge the header row across all columns, showing: Student Name, Class, Roll Number
- A marks table with columns: Subject, Marks Obtained, Maximum Marks — with at least 4 subjects and a total row at the bottom
- A horizontal line separating the two tables
- A footer with the school name and a hyperlink to the school website

ANSWER KEY AND MARKING SCHEME

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Section A - Multiple Choice Questions Answers

Q1. Answer: (b) elif

Explanation: The 'elif' keyword (short for "else if") is used in Python to check an additional condition when the previous 'if' condition is False. It allows checking multiple conditions one by one without nesting.

Marking: 1 mark for correct answer

Q2. Answer: (c) <th>

Explanation: The <th> tag defines a cell in the header row of an HTML table. Text inside <th> is displayed in bold and centered by default, making it visually distinct from regular data cells (<td>).

Marking: 1 mark for correct answer

Q3. Answer: (b) Merges cells horizontally

Explanation: The 'colspan' attribute in HTML tables merges cells horizontally (across columns). For example, colspan="3" makes one cell span across 3 columns from left to right.

Marking: 1 mark for correct answer

Q4. Answer: (c) or

Explanation: The 'or' logical operator in Python returns True if at least one of the conditions is True. It returns False only when both conditions are False.

Example: `print(True or False)` → True

Marking: 1 mark for correct answer

Q5. Answer: (c) Video call

Explanation: Synchronous communication means both parties communicate at the same time in real-time. Video calls (like Zoom, Google Meet) are synchronous because both persons talk and listen simultaneously. Email and blogs are asynchronous.

Marking: 1 mark for correct answer

Q6. Answer: (a) Adds a title to the table

Explanation: The <caption> tag is placed immediately after the <table> tag and adds a title or description to the table. The caption is displayed above or below the table depending on the browser.

Marking: 1 mark for correct answer

Q7. Answer: (c) True

Explanation: Both conditions are True: $(10 > 5)$ is True AND $(3 < 7)$ is True. Since the 'and' operator returns True only when both conditions are True, the overall result is True.

Marking: 1 mark for correct answer

Q8. Answer: (b) rowspan

Explanation: The 'rowspan' attribute specifies how many rows a cell should span vertically (from top to bottom). For example, `rowspan="2"` makes one cell cover 2 rows. This is opposite to `colspan` which works horizontally.

Marking: 1 mark for correct answer

Q9. Answer: (c) Printer

Explanation: A Printer is an output device used for printing documents — it is NOT used in video conferencing. Webcam (video input), Microphone (audio input), and Headphones (audio output) are all essential devices for video conferencing.

Marking: 1 mark for correct answer

Q10. Answer: (b) A program that converses with humans automatically

Explanation: A Chatbot is an AI-powered program that can automatically understand and respond to questions in a conversation, simulating human-like dialogue. Examples include customer service bots on websites and Siri/Alexa.

Marking: 1 mark for correct answer

Q11. Answer: (b) %

Explanation: The modulus operator (%) in Python returns the remainder after division. For example: $10 \% 3 = 1$ (because $10 \div 3 = 3$ with remainder 1). This is commonly used to check divisibility.

Marking: 1 mark for correct answer

Q12. Answer: (c) <hr>

Explanation: The <hr> tag (Horizontal Rule) creates a horizontal line across the webpage. It is commonly used to separate different sections of content. Note:
 creates a line break (new line), not a horizontal line.

Marking: 1 mark for correct answer

Q13. Answer: (b) Auto-tagging photos on social media

Explanation: Computer Vision is the AI technology that allows machines to recognize and process images. Auto-tagging photos on Facebook or Google Photos uses Computer Vision to automatically identify faces and objects in pictures.

Marking: 1 mark for correct answer

Q14. Answer: (c) # This is a comment

Explanation: In Python, single-line comments start with the hash (#) symbol. Everything after # on that line is ignored by the computer. Note: // is used in C++/Java, /* */ is for multi-line comments in C/Java, and <!-- --> is for HTML comments.

Marking: 1 mark for correct answer

Q15. Answer: (b) Social Media

Explanation: Social Media platforms like Facebook, Twitter (X), and Instagram allow people to share short text posts, images, and videos publicly. FTP is for file transfer, DNS converts domain names to IP addresses, and DHCP assigns IP addresses automatically.

Marking: 1 mark for correct answer

Section B - Fill in the Blanks / True-False Answers

Q16. Answer: cellpadding

Explanation: The 'cellpadding' attribute adds space (in pixels) between the cell's content (text) and the cell's border. For example: `<table cellpadding="10">` adds 10 pixels of space inside each cell.

Marking: 1 mark for correct answer

Q17. Answer: and

Explanation: The 'and' logical operator in Python returns True only when BOTH conditions on either side are True. If even one condition is False, the result is False. Example: `print(5 > 3 and 2 > 1) → True`

Marking: 1 mark for correct answer

Q18. Answer: True

Explanation: The `<caption>` tag must be placed as the first child element immediately after the opening `<table>` tag. If placed elsewhere, the browser may

not display it correctly or it may not work as intended.

Marking: 1 mark for correct answer

Q19. Answer: Natural Language Processing (NLP)

Explanation: NLP (Natural Language Processing) is the branch of AI that enables machines to understand, interpret, and generate human language. It is used in chatbots, voice assistants like Siri and Alexa, and translation tools like Google Translate.

Marking: 1 mark for correct answer

Q20. Answer: False

Explanation: Video conferencing can be done between two or more people at the same time. Group video calls on Zoom, Google Meet, or Microsoft Teams can include dozens or even hundreds of participants simultaneously.

Marking: 1 mark for correct answer

Q21. Answer:

Explanation: The
 tag (Break) creates a line break in HTML, moving the following text to a new line without creating a new paragraph. It is a self-closing tag:
 or
. Note: It is different from <hr> which creates a horizontal line.

Marking: 1 mark for correct answer

Q22. Answer: True

Explanation: The 'not' operator in Python reverses (negates) the boolean value of a condition. If the condition is True, 'not' makes it False, and vice versa.

Example: `print(not True) → False`; `print(not False) → True`

Marking: 1 mark for correct answer

Q23. Answer: Machine Learning

Explanation: Machine Learning is a branch of AI where computers learn patterns from large amounts of data and improve their performance over time — without being explicitly programmed for each task. It is used in recommendations, spam detection, and predictions.

Marking: 1 mark for correct answer

Q24. Answer: False

Explanation: The `<hr>` tag creates a HORIZONTAL line (from left to right) on the webpage, not a vertical line. There is no standard HTML tag for creating a vertical line; CSS or images are used for that purpose.

Marking: 1 mark for correct answer

Q25. Answer: True

Explanation: In a nested if statement, the inner 'if' block is placed inside the outer 'if' block. The inner condition is checked ONLY when the outer 'if' condition evaluates to True. If the outer condition is False, the inner block is completely skipped.

Marking: 1 mark for correct answer

Q26. Answer: True

Explanation: Google Meet (by Google) and Zoom (by Zoom Video Communications) are both popular video conferencing platforms widely used for online meetings, classes, and webinars around the world. Other examples include Microsoft Teams and Skype.

Marking: 1 mark for correct answer

Q27. Answer: cellpadding

Explanation: The 'cellpadding' attribute adds space (in pixels) between the cells of a table (the gap between cell borders). This is different from 'cellspacing' which adds space inside a cell between its border and content. Example: `<table cellpadding="5">`

Marking: 1 mark for correct answer

Q28. Answer: False

Explanation: Artificial Intelligence is used in many devices — not only large computers. AI is found in smartphones (Siri, Google Assistant), smart speakers (Amazon Alexa), smart TVs, robots, self-driving cars, and many other everyday devices.

Marking: 1 mark for correct answer

Q29. Answer: !=

Explanation: The != (not equal to) operator in Python checks if two values are different from each other. It returns True if the values are NOT equal, and False if they ARE equal. Example: `print(5 != 3) → True; print(5 != 5) → False`

Marking: 1 mark for correct answer

Q30. Answer: True

Explanation: Chatbots are AI-powered programs designed to simulate conversations with humans. They can automatically understand questions and provide answers without human intervention. Examples include customer service chatbots on e-commerce websites and virtual assistants.

Marking: 1 mark for correct answer

Section C - Short Answer Questions Answers

Q31. Answer: Use of 'or' operator in Python

Explanation: The 'or' operator is a logical operator in Python used to combine two or more conditions. It returns True if at least one of the conditions is True. It returns False only when ALL conditions are False.

Truth Table:

Condition A	Condition B	A or B
True	True	True
True	False	True
False	True	True
False	False	False

Example:

```

age = 15
has_permission = True

if age >= 18 or has_permission:
    print("Allowed to enter")
else:
    print("Not allowed")

# Output: Allowed to enter
# (age is not 18, but has_permission is True, so 'or'
gives True)

```

Marking: 1 mark for explanation, 1 mark for correct example

Q32. Answer: Difference between <th> and <td> tags

Feature	<th> Tag	<td> Tag
Full Form	Table Header	Table Data
Purpose	Defines header cells in a table	Defines regular data cells in a table
Text Style	Bold and centered by default	Normal (left-aligned) by default
Position	Usually in the first row (header row)	Used in data rows below the header
Example	<th>Name</th>	<td>Rahul</td>

Marking: 1 mark for each tag's correct explanation (2 marks total)

Q33. Answer: Chatbot and its examples

Definition: A Chatbot is an AI-powered computer program that is designed to simulate and conduct conversations with humans automatically. It can understand questions typed or spoken by users and provide relevant answers without any human operator. Chatbots use Natural Language Processing (NLP) to understand human language.

Two Real-Life Examples:

1. **Customer Service Chatbots:** Many online shopping websites like Amazon and Flipkart use chatbots to answer customer queries about orders, delivery, and returns automatically without human agents.
2. **Virtual Assistants:** Siri (Apple), Google Assistant, and Amazon Alexa are advanced chatbots that can understand voice commands and perform tasks like setting alarms, playing music, and answering questions.

Marking: 1 mark for definition, 0.5 marks for each example (2 marks total)

Q34. Answer: HTML code for Fruit List table with caption

```
<table border="1">
  <caption><b>Fruit List</b></caption>
  <tr>
    <th>Fruit Name</th>
    <th>Color</th>
  </tr>
  <tr>
    <td>Apple</td>
    <td>Red</td>
  </tr>
  <tr>
    <td>Banana</td>
```

```
<td>Yellow</td>
</tr>
</table>
```

Key Points: <caption> is placed right after <table> tag to display the table title. <th> creates bold headers, <td> holds the actual data, and border="1" makes the borders visible.

Marking: 1 mark for correct caption and structure, 1 mark for proper data rows

Q35. Answer: Synchronous vs Asynchronous Communication

Feature	Synchronous Communication	Asynchronous Communication
Definition	Communication happens in real-time; both parties are present at the same time	Communication does not require both parties to be present at the same time
Timing	Instant — send and receive at the same time	Delayed — messages are sent and received at different times
Example	Video Call (Zoom/Google Meet)	Email

Marking: 1 mark for correct definitions, 1 mark for correct examples

Q36. Answer: Nested If in Python

Definition: A nested if statement is when one 'if' statement is placed inside another 'if' statement. The inner if is called a nested if. It is used when we need to check a second condition only after the first condition is found to be True.

Why it is useful: Nested if helps in making complex decisions step-by-step. It breaks down complicated conditions into smaller, easier-to-understand parts.

For example, first check if a student passed, then check if they got honours.

Simple Example:

```
score = 85
if score >= 40:
    print("Passed")
    if score >= 80:
        print("Honours awarded!")
else:
    print("Failed")
```

Marking: 1 mark for definition and usefulness, 1 mark for example

Q37. Answer: cellpadding and cellspacing attributes

Attribute	Purpose	Example
cellpadding	Adds space INSIDE each cell — between the cell's text/content and the cell's border (inner spacing)	<code><table cellpadding="10"></code> — adds 10px space inside each cell
cellspacing	Adds space BETWEEN cells — the gap between the borders of adjacent cells (outer spacing)	<code><table cellspacing="5"></code> — adds 5px gap between cells

Think of it this way: cellpadding = space inside the cell (like padding in a box); cellspacing = space between cells (like the gap between boxes).

Marking: 1 mark for each attribute explanation (2 marks total)

Q38. Answer: Advantages and Disadvantage of E-commerce

Two Advantages:

1. **Convenience and Time-Saving:** Customers can shop for products from anywhere at any time using their smartphone or computer without visiting a physical store. This saves time and travel effort.
2. **Wider Selection:** Online stores offer a much larger variety of products compared to local shops. Customers can compare prices and features of products easily before purchasing.

One Disadvantage:

1. **Security Risk:** E-commerce involves sharing personal and financial information (like credit card details) online, which can be at risk of hacking and fraud if the website is not secure.

Marking: 0.5 marks each for advantages, 1 mark for disadvantage (2 marks total)

Q39. Answer: Computer Vision and its use in smartphones

Definition: Computer Vision is a branch of Artificial Intelligence that enables machines (computers) to see, understand, and interpret images and videos — similar to how human eyes and brain work together. It allows computers to recognize objects, faces, text, and scenes in visual data.

Use in Smartphones:

1. **Face Unlock:** Smartphones use Computer Vision to recognize the user's face and unlock the device automatically — this is done by analyzing facial features using AI.
2. **AR (Augmented Reality) Filters:** Instagram and Snapchat filters use Computer Vision to detect the user's face and add fun effects like dog ears or masks in real-time.

Marking: 1 mark for definition, 1 mark for smartphone applications

Q40. Answer: Python code to check divisibility by 7

```
# Program to check if a number is divisible by 7

number = int(input("Enter a number: "))

if number % 7 == 0:
    print(number, "is DIVISIBLE by 7")
else:
    print(number, "is NOT divisible by 7")
```

Sample Output:

```
Enter a number: 21
21 is DIVISIBLE by 7

Enter a number: 10
10 is NOT divisible by 7
```

Explanation: The modulus operator (%) divides the number by 7 and returns the remainder. If the remainder is 0, it means the number is perfectly divisible by 7.

Marking: 1 mark for correct use of modulus operator, 1 mark for proper output messages

Section D - Long Answer Questions Answers

Q41. Answer: Python program – Driving Licence Eligibility Check

```
# Driving Licence Eligibility Checker Program
```

```
print("===== DRIVING LICENCE ELIGIBILITY CHECKER
=====")
print()

# Input age
age = int(input("Enter your age: "))

if age >= 18:
    print("Age criteria: PASSED (Age is 18 or above)")

    # Check driving training
    training = input("Have you completed driving
training? (Yes/No): ")

    if training.lower() == "yes":
        print("Driving training: PASSED")

        # Check written test
        test = input("Have you passed the written test?
(Yes/No): ")

        if test.lower() == "yes":
            print("Written test: PASSED")
            print()
            print("*** Congratulations! You are
ELIGIBLE for a Driving Licence! ***")
        else:
            print("Written test: FAILED")
            print()
            print("Sorry! You need to pass the written
test first.")
    else:
        print("Driving training: NOT COMPLETED")
```

```
        print()
        print("Sorry! You need to complete driving
training first.")
else:
    print("Age criteria: FAILED")
    print()
    years_left = 18 - age
    print("Sorry! You are not eligible. You can apply
after", years_left, "year(s).")
```

Sample Output 1 (All criteria met):

```
===== DRIVING LICENCE ELIGIBILITY CHECKER =====

Enter your age: 20
Age criteria: PASSED (Age is 18 or above)
Have you completed driving training? (Yes/No): Yes
Driving training: PASSED
Have you passed the written test? (Yes/No): Yes
Written test: PASSED

*** Congratulations! You are ELIGIBLE for a Driving
Licence! ***
```

Sample Output 2 (Age too young):

```
Enter your age: 16
Age criteria: FAILED

Sorry! You are not eligible. You can apply after 2
year(s).
```

Explanation: This program uses nested if-else (3 levels deep) to check each criterion one by one. The inner conditions are only checked when all previous outer conditions are True. This step-by-step approach mirrors real-world decision processes.

Marking: 1 mark for correct nested structure, 1 mark for all three conditions, 1 mark for proper output messages (3 marks total)



Q42. Answer: HTML code for Weekly Timetable with colspan

```
<!DOCTYPE html>
<html>
<head>
  <title>Weekly Timetable</title>
</head>
<body>

  <h2 align="center">Weekly Timetable</h2>

  <table border="2" cellpadding="10" cellspacing="0"
width="80%">
    <caption><b>Weekly Timetable</b></caption>

    <!-- Merged header row using colspan -->
    <tr>
      <th colspan="4" style="background-color:
#4caf50; color: white;">
        CLASS 7 - WEEKLY SCHEDULE
      </th>
    </tr>

    <!-- Column headers -->
    <tr>
```

```

        <th>Day</th>
        <th>Period 1</th>
        <th>Period 2</th>
        <th>Period 3</th>
    </tr>

    <!-- Monday row -->
    <tr>
        <td><b>Monday</b></td>
        <td>Mathematics</td>
        <td>English</td>
        <td>Science</td>
    </tr>

    <!-- Tuesday row -->
    <tr>
        <td><b>Tuesday</b></td>
        <td>Hindi</td>
        <td>Computer Science</td>
        <td>Mathematics</td>
    </tr>
</table>

</body>
</html>

```

Explanation of Key Features:

Feature Used	Purpose
<caption>	Displays "Weekly Timetable" as the table title
colspan="4"	Merges the top header cell across all 4 columns horizontally

cellpadding="10"	Adds 10px space inside each cell for better readability
bgcolor / style	Green background on merged header for visual distinction
<th> and <td>	<th> for headers (bold), <td> for data

Marking: 1 mark for caption and basic structure, 1 mark for correct colspan usage, 1 mark for proper data rows (3 marks total)



Q43. Answer: Three AI Applications – Chatbots, Image Recognition, Recommendation Systems

1. Chatbots:

Definition: Chatbots are AI programs that can automatically understand and respond to human messages or questions in a conversation, simulating human-like interaction.

Real-Life Examples:

- **Customer Service Bots:** Websites like Amazon, Flipkart, and banks use chatbots to answer customer questions about orders, accounts, and services 24/7 without human agents.
- **Siri & Google Assistant:** These voice-based chatbots use NLP to understand spoken questions and provide intelligent answers.

2. Image Recognition:

Definition: Image Recognition is an AI technology that enables machines to identify and classify objects, people, animals, and scenes within images and videos.

Real-Life Examples:

- **Face Unlock on Smartphones:** iPhones and Android phones use facial recognition to unlock the device by identifying the user's face.

- **Photo Tagging:** Facebook and Google Photos automatically recognize and tag faces in photos using image recognition AI.
- **Self-driving Cars:** Cars use image recognition to detect traffic signals, pedestrians, and other vehicles on the road.

3. Recommendation Systems:

Definition: Recommendation Systems are AI algorithms that analyze user data and behavior to suggest products, content, or services that the user is likely to enjoy.

Real-Life Examples:

- **Netflix & YouTube:** These platforms recommend movies/videos based on what you have watched previously and what similar users enjoyed.
- **Amazon & Flipkart:** Online shopping sites suggest products based on your browsing history, past purchases, and items in your cart.
- **Spotify:** Music streaming service recommends songs based on your listening preferences and habits.

Marking: 1 mark for each AI application with proper definition and examples (3 marks total)

Q44. Answer: Video Conferencing – Definition, Advantages, and Software Requirements

Definition: Video conferencing is a technology that allows two or more people at different locations to communicate face-to-face in real-time using audio and video transmission over the internet. It simulates an in-person meeting without requiring physical travel.

Three Advantages of Video Conferencing:

1. **Saves Time and Travel Cost:** Participants do not need to travel to a common location for meetings. This saves significant time, money spent

on flights/trains, and hotel costs — especially for business meetings and school classes.

2. **Face-to-Face Interaction:** Unlike phone calls or emails, video conferencing allows participants to see each other's facial expressions and body language, making communication more personal, effective, and engaging.
3. **Screen Sharing and Collaboration:** Participants can share their computer screens to present slides, documents, or demonstrate software. This makes teamwork, teaching, and group projects much more efficient and interactive.

Software Requirements for Video Conferencing:

Software	Purpose
Video Conferencing Application	The main program to conduct the meeting (e.g., Zoom, Google Meet, Microsoft Teams, Skype)
Web Browser	Some platforms like Google Meet can be used directly through a web browser without installing software
Operating System	Windows, macOS, Linux, Android, or iOS to run the conferencing application
Internet Connection	A stable and fast internet connection (broadband) is essential for smooth audio and video transmission

Marking: 1 mark for definition, 1 mark for three advantages, 1 mark for software requirements (3 marks total)

Q45. Answer: Python Logical Operators – and, or, not

1. 'and' Operator:

Rule: Returns True only when BOTH conditions are True. If any one condition is False, the result is False.

```
age = 20
has_id = True

if age >= 18 and has_id:
    print("Entry allowed")    # Both conditions are True
→ Entry allowed
else:
    print("Entry denied")
```

2. 'or' Operator:

Rule: Returns True if AT LEAST ONE condition is True. Returns False only when BOTH conditions are False.

```
is_student = True
has_coupon = False

if is_student or has_coupon:
    print("Discount applied") # is_student is True →
Discount applied
else:
    print("No discount")
```

3. 'not' Operator:

Rule: Reverses (negates) the boolean value. Turns True into False and False into True.

```
is_raining = False

if not is_raining:
```

```
    print("Go outside!")      # not False = True → Go
outside!
else:
    print("Stay inside")
```

Summary Table:

Operator	Returns True When	Returns False When
and	Both conditions are True	Any condition is False
or	At least one condition is True	Both conditions are False
not	The condition is False	The condition is True

Marking: 1 mark for each operator with correct explanation and example (3 marks total)

Section E - Practical/Programming Questions

Answers

Q46. Answer: Python program – Triangle Type Checker

```
# Triangle Type Checker Program

print("===== TRIANGLE TYPE CHECKER =====")
print()

# Input three sides
side1 = float(input("Enter side 1: "))
side2 = float(input("Enter side 2: "))
side3 = float(input("Enter side 3: "))
```

```
print()

# Check if triangle is valid
# Rule: Sum of any two sides must be greater than the
third side
if side1 + side2 > side3 and side2 + side3 > side1 and
side1 + side3 > side2:
    print("The triangle is VALID.")
    print()

# Determine type of triangle
if side1 == side2 == side3:
    print("Type: EQUILATERAL Triangle")
    print("(All three sides are equal)")
elif side1 == side2 or side2 == side3 or side1 ==
side3:
    print("Type: ISOSCELES Triangle")
    print("(Two sides are equal)")
else:
    print("Type: SCALENE Triangle")
    print("(No sides are equal)")
else:
    print("The triangle is NOT VALID.")
    print("Reason: The sum of two sides must be greater
than the third side.")

print()
print("===== Thank you for using Triangle Checker!
=====")
```

Sample Output 1 (Equilateral):

```
===== TRIANGLE TYPE CHECKER =====
```

```
Enter side 1: 5
```

```
Enter side 2: 5
```

```
Enter side 3: 5
```

```
The triangle is VALID.
```

```
Type: EQUILATERAL Triangle
```

```
(All three sides are equal)
```

```
===== Thank you for using Triangle Checker! =====
```

Sample Output 2 (Invalid Triangle):

```
Enter side 1: 1
```

```
Enter side 2: 2
```

```
Enter side 3: 10
```

```
The triangle is NOT VALID.
```

```
Reason: The sum of two sides must be greater than the  
third side.
```

Sample Output 3 (Isosceles):

```
Enter side 1: 5
```

```
Enter side 2: 5
```

```
Enter side 3: 3
```

```
The triangle is VALID.
```

```
Type: ISOSCELES Triangle
(Two sides are equal)
```

Key Points in the Program:

- Uses 'and' operator to check all three triangle validity conditions at once
- Uses nested if-elif-else to determine the triangle type after validation
- Uses float() to accept decimal side lengths
- Checks equilateral first (most specific), then isosceles, then scalene (most general)
- Provides clear explanation messages for each output

Marking: 1.5 marks for triangle validity check with 'and' operator, 2 marks for correct triangle type classification (nested if-elif-else), 1 mark for proper input/output and comments, 0.5 marks for edge cases (5 marks total)



Q47. Answer: Python program – Temperature Converter

```
# Temperature Converter Program

print("=" * 45)
print("      TEMPERATURE CONVERTER")
print("=" * 45)
print()
print("Select conversion type:")
print("1. Celsius to Fahrenheit")
print("2. Fahrenheit to Celsius")
print()

# Get user's choice
choice = input("Enter your choice (1 or 2): ")

print()
```

```

if choice == "1":
    # Celsius to Fahrenheit
    celsius = float(input("Enter temperature in Celsius
(°C): "))

    # Formula: F = (C x 9/5) + 32
    fahrenheit = (celsius * 9 / 5) + 32

    print()
    print("=" * 45)
    print("RESULT:")
    print(f" {celsius} °C = {fahrenheit} °F")
    print("=" * 45)
    print(f"Formula used: F = (C x 9/5) + 32")
    print(f"Calculation: F = ({celsius} x 9/5) + 32 =
{fahrenheit} °F")

elif choice == "2":
    # Fahrenheit to Celsius
    fahrenheit = float(input("Enter temperature in
Fahrenheit (°F): "))

    # Formula: C = (F - 32) x 5/9
    celsius = (fahrenheit - 32) * 5 / 9

    print()
    print("=" * 45)
    print("RESULT:")
    print(f" {fahrenheit} °F = {celsius:.2f} °C")
    print("=" * 45)
    print(f"Formula used: C = (F - 32) x 5/9")
    print(f"Calculation: C = ({fahrenheit} - 32) x 5/9

```

```
= {celsius:.2f} °C")

else:
    print("Invalid choice! Please enter 1 or 2.")

print()
print("Thank you for using Temperature Converter!")
```

Sample Output 1 (Celsius to Fahrenheit):

```
=====
                TEMPERATURE CONVERTER
=====

Select conversion type:
1. Celsius to Fahrenheit
2. Fahrenheit to Celsius

Enter your choice (1 or 2): 1

Enter temperature in Celsius (°C): 100

=====
RESULT:
    100.0 °C = 212.0 °F
=====

Formula used:  $F = (C \times 9/5) + 32$ 
Calculation:  $F = (100.0 \times 9/5) + 32 = 212.0 \text{ °F}$ 

Thank you for using Temperature Converter!
```

Sample Output 2 (Fahrenheit to Celsius):

```
Enter your choice (1 or 2): 2

Enter temperature in Fahrenheit (°F): 98.6

=====
RESULT:
  98.6 °F = 37.00 °C
=====

Formula used: C = (F - 32) × 5/9
Calculation: C = (98.6 - 32) × 5/9 = 37.00 °C
```

Sample Output 3 (Invalid choice):

```
Enter your choice (1 or 2): 5

Invalid choice! Please enter 1 or 2.
```

Key Features:

- Menu-based system using if-elif-else structure
- Uses correct formulas: $F = (C \times 9/5) + 32$ and $C = (F - 32) \times 5/9$
- Input validation — shows error for invalid choice
- Uses float() to accept decimal temperatures
- Shows step-by-step calculation for better understanding
- Uses f-strings and :.2f for formatted output (2 decimal places)

Marking: 1 mark for menu display and choice input, 1.5 marks for correct conversion formulas, 1 mark for proper if-elif-else structure, 1 mark for input validation and formatted output, 0.5 marks for comments and presentation (5 marks total)

```
<!DOCTYPE html>
<html>
<head>
  <title>Student Report Card</title>
</head>
<body bgcolor="#f5f5f5">

  <!-- Main Heading (Centered) -->
  <h1 align="center" style="background-color:
#1e5a96; color: white; padding: 15px;">
    STUDENT REPORT CARD
  </h1>

  <!-- Student Information Table -->
  <h2 style="color: #1e5a96;">Student
Information</h2>

  <table border="2" cellpadding="10" cellspacing="0"
width="70%">
    <!-- Merged header using colspan -->
    <tr>
      <th colspan="2" style="background-color:
#4caf50; color: white;">
        STUDENT DETAILS
      </th>
    </tr>
    <tr>
      <td><b>Student Name:</b></td>
      <td>Arjun Mehta</td>
    </tr>
    <tr>
      <td><b>Class:</b></td>
      <td>VII - A</td>
    </tr>
  </table>

```

```
</tr>
<tr>
    <td><b>Roll Number:</b></td>
    <td>2025-07-0142</td>
</tr>
</table>

<!-- Horizontal line to separate sections -->
<hr>

<!-- Marks Table -->
<h2 style="color: #1e5a96;">Marks Obtained</h2>

<table border="2" cellpadding="10" cellspacing="0"
width="70%">
    <!-- Column Headers -->
    <tr style="background-color: #e0e0e0;">
        <th>Subject</th>
        <th>Marks Obtained</th>
        <th>Maximum Marks</th>
    </tr>

    <!-- Subject Rows -->
    <tr>
        <td>Mathematics</td>
        <td align="center">78</td>
        <td align="center">100</td>
    </tr>
    <tr>
        <td>Science</td>
        <td align="center">85</td>
        <td align="center">100</td>
    </tr>
</table>
```

```
<tr>
    <td>English</td>
    <td align="center">72</td>
    <td align="center">100</td>
</tr>
<tr>
    <td>Computer Science</td>
    <td align="center">92</td>
    <td align="center">100</td>
</tr>

<!-- Total Row -->
<tr style="background-color: #fff9c4;">
    <td><b>TOTAL</b></td>
    <td align="center"><b>327</b></td>
    <td align="center"><b>400</b></td>
</tr>
</table>

<!-- Horizontal line -->
<hr>

<!-- Footer -->
<p align="center">
    <b>Issued by: ABC School</b>

    Visit our website:
    <a href="https://www.abcschool.edu"
target="_blank">www.abcschool.edu</a>
</p>
<p align="center">
    <i>© 2025 ABC School - All Rights Reserved</i>
</p>
```

```
</body>
```

```
</html>
```

Explanation of All Required Components:

Requirement	How It Was Implemented
Page Title	<code><title>Student Report Card</title></code> — shows in browser tab
Centered Main Heading	<code><h1 align="center"></code> with blue background and white text
Student Info Table with colspan	<code><th colspan="2"></code> merges "STUDENT DETAILS" header across 2 columns
Student Details (Name, Class, Roll No)	Three rows in the student information table
Marks Table (4 subjects)	Table with Subject, Marks Obtained, Maximum Marks columns
Total Row	Last row with yellow background showing sum: 327/400
Horizontal Line (separator)	<code><hr></code> tag used between the two tables
Footer with School Name	Footer section with "ABC School" and hyperlink
Hyperlink to School Website	<code><a href></code> with <code>target="_blank"</code> to open in new tab

Marking: 1 mark for student info table with colspan, 2 marks for complete marks table with 4 subjects and total row, 1 mark for <hr> separator, 1 mark for footer with school name and hyperlink (5 marks total)

Marking Summary

Section	Question Type	Total Marks
Section A	Multiple Choice Questions (15 × 1)	15 marks
Section B	Fill in the Blanks / True-False (15 × 1)	15 marks
Section C	Short Answer Questions (10 × 2)	20 marks
Section D	Long Answer Questions (5 × 3)	15 marks
Section E	Practical/Programming (3 × 5)	15 marks
TOTAL		80 marks

END OF ANSWER KEY

Total Marks: 80

This is a solved practice paper for Class 7 Computer Science Annual Examination.

Study thoroughly and understand all concepts.

For doubts and queries, contact: **Math Love Institute**

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Education is the Foundation of Life | शिक्षा ही जीवन का आधार है

This paper covers: Python Conditional Statements & Logical Operators | HTML Tables (colspan/rowspan/caption) |
Internet Services | Video Conferencing | Artificial Intelligence & Chatbots | Computer Vision | Machine Learning

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