MATH LOVE INSTITUTE

CBSE Class 9 Artificial Intelligence (Code: 417)

Home Exam 2025-26 - Sample Paper Set 2 with Solutions

Based on Latest CBSE Syllabus 2025-26

Maximum Marks	80 (Theory: 50 + Practical/Viva: 30)
Time Allowed	3 Hours
Class	IX (Nine)
Subject	Artificial Intelligence (417)

📋 GENERAL INSTRUCTIONS:

1. This question paper contains **35 questions** divided into **Five Sections A, B, C, D and E**.
2. **Section A** comprises of 15 MCQs of 1 mark each.
3. **Section B** comprises of 5 Very Short Answer questions of 2 marks each.
4. **Section C** comprises of 6 Short Answer questions of 3 marks each.
5. **Section D** comprises of 3 Long Answer questions of 5 marks each.
6. **Section E** comprises of 3 case study based questions of 4 marks each with internal choice.
7. All questions are **compulsory**. However, internal choices have been provided in some questions.
8. Write clean Python code with proper indentation wherever required.

SECTION A - MULTIPLE CHOICE QUESTIONS (1 × 15 = 15 Marks)

Q1. Computer Vision in AI enables machines to: **[1]**

(a) Understand text

(b) Interpret images and videos

(c) Process numerical data

(d) Create websites

Q2. Which of the following is an example of qualitative data? **[1]**

(a) Temperature: 30°C

(b) Weight: 50 kg

(c) Color: Red

(d) Height: 160 cm

Q3. Median is the: **[1]**

(a) Most frequently occurring value

(b) Middle value when data is arranged

(c) Average of all values

(d) Difference between highest and lowest

Q4. In a deck of 52 cards, the probability of drawing a King is: **[1]**

(a) 1/52

(b) 4/52

(c) 1/4

(d) 1/13

Q5. Which AI tool can generate images from text descriptions? **[1]**

(a) MS Word

(b) DALL-E

(c) Excel

(d) PowerPoint

Q6. In Python, which operator is used for exponentiation (power)? **[1]**

(a) ^

(b) **

(c) //

(d) %

Q7. What will be the output of: print(10 // 3)? **[1]**

(a) 3.33

(b) 3

(c) 3.0

(d) 4

Q8. Which method is used to add an element at the end of a list in Python? **[1]**

(a) add()

(b) append()

(c) insert()

(d) extend()

Q9. The process of training an AI model with data is called: **[1]**

(a) Data Acquisition

(b) Problem Scoping

(c) Modeling

(d) Evaluation

Q10. Which stage comes after Data Acquisition in AI Project Cycle? **[1]**

(a) Problem Scoping

(b) Data Exploration

(c) Modeling

(d) Evaluation

Q11. Which Python keyword is used to create a function? **[1]**

(a) function

(b) def

(c) create

(d) func

Q12. What is the correct way to create a list in Python? **[1]**

(a) list = (1, 2, 3)

(b) list = [1, 2, 3]

(c) list = {1, 2, 3}

(d) list = <1, 2, 3>

Q13. Which is NOT a measure of central tendency? **[1]**

(a) Mean

(b) Median

(c) Mode

(d) Range

Q14. AI Ethics primarily deals with: **[1]**

(a) AI programming languages

(b) Responsible and fair use of AI

(c) AI hardware requirements

(d) AI processing speed

Q15. Face recognition in smartphones is an example of: **[1]**

(a) Data domain

(b) Computer Vision

(c) NLP

(d) Manual processing

SECTION B - VERY SHORT ANSWER QUESTIONS (2 × 5 = 10 Marks)

Q16. What is the difference between AI and Machine Learning? **[2]**

Q17. Define Data Acquisition. Why is it important in AI projects? **[2]**

Q18. Find the mode of: 8, 12, 8, 15, 20, 8, 12, 25 **[2]**

Q19. Write a Python program to find the area of a rectangle where length and breadth are given by user. **[2]**

Q20. Name two benefits and two limitations of using Generative AI. **[2]**

SECTION C - SHORT ANSWER QUESTIONS (3 × 6 = 18 Marks)

Q21. Explain with examples how AI is used in healthcare, education, and entertainment (one example each). **[3]**

Q22. What is Data Exploration? Explain any two data visualization techniques. **[3]**

Q23. Two dice are thrown together. Find the probability of getting: **[3]**

(i) Sum of 7

(ii) Both numbers same

OR

Calculate the mean and range of: 22, 18, 30, 25, 28, 20, 32

Q24. Write a Python program to find the largest of three numbers entered by user. **[3]**

Q25. What is AI bias? Explain with an example. How can we reduce AI bias? **[3]**

Q26. Differentiate between supervised and unsupervised learning in AI with one example each. **[3]**

SECTION D - LONG ANSWER QUESTIONS (5 × 3 = 15 Marks)

Q27. Explain how Computer Vision and Natural Language Processing work. Give two real-world applications of each. **[5]**

OR

What is a Decision Tree in AI? Explain with a suitable example how it helps in making decisions.

Q28. Write a Python program that: **[5]**

(a) Creates a list of 5 student names

(b) Takes a new name from user and adds it to the list

(c) Displays total number of names

(d) Removes the first name from the list

(e) Prints the final list

Q29. The table shows monthly rainfall (in cm) for 6 months: **[5]**

Month	Jan	Feb	Mar	Apr	May	Jun
Rainfall (cm)	5	8	12	15	20	18

(a) Calculate the mean rainfall

(b) Find the median

(c) What is the mode? (if any)

(d) Which visualization would be best for this data - Line chart or Pie chart? Why?

SECTION E - CASE STUDY BASED QUESTIONS (4 × 3 = 12 Marks + 3 Internal Choice Marks = 15 Marks + Practical 30 = 80 Marks)

Q30. **[4]**

CASE STUDY 1: E-Commerce Recommendation System

An online shopping platform wants to build an AI recommendation system to suggest products to customers. The system analyzes customer data including:

- Past purchases (Product names, categories)
- Browsing history (Pages visited, time spent)
- Customer ratings (1-5 stars)
- Age group (Teenager, Adult, Senior)

The AI system uses this data to predict what products a customer might like and shows personalized recommendations on the homepage.

Based on the above information, answer the following questions:

(i) Which domain of AI is primarily used - Data, Computer Vision, or NLP? **[1 mark]**

(ii) Is "Customer ratings (1-5 stars)" qualitative or quantitative data? **[1 mark]**

OR

Is "Age group" qualitative or quantitative data?

(iii) What could be one ethical concern with this recommendation system? How can it be addressed? **[2 marks]**

Q31. **[4]**

CASE STUDY 2: Agriculture AI Assistant

A team of developers is creating an AI system to help farmers identify crop diseases from plant images. The project follows these stages:

Stage 1: Problem Scoping - Identify that farmers need help detecting diseases early
Stage 2: Data Acquisition - Collect 10,000 images of healthy and diseased plants
Stage 3: Data Exploration - Clean images, remove duplicates, categorize by disease type
Stage 4: Modeling - Train Computer Vision model to recognize disease patterns
Stage 5: Evaluation - Test with 2,000 new images, achieve 92% accuracy

Based on the above information, answer the following questions:

(i) Which AI domain is being used in this project? **[1 mark]**

(ii) In which stage is the AI model actually trained? **[1 mark]**
OR
What is the purpose of Stage 3 (Data Exploration)?

(iii) The model achieved 92% accuracy. What does this mean? How can accuracy be improved further? **[2 marks]**

Q32. **[4]**

CASE STUDY 3: Python Programming Challenge

A coding competition requires students to work with lists in Python. The initial list contains test scores: [85, 92, 78, 95, 88, 90]

Students need to perform the following operations:
• Find the highest and lowest scores
• Calculate the average score
• Add a new score 87 to the list
• Remove the lowest score
• Display the final list

Based on the above information, answer the following questions:

(i) What is the highest score in the original list? **[1 mark]**

(ii) Calculate the average of all scores in the original list. **[1 mark]**
OR
What will be the length of the list after adding 87 and removing the lowest score?

(iii) Write Python code to find and print the highest score using the max() function. **[2 marks]**

📚 END OF QUESTION PAPER 📚

Theory Total Marks: 50

Section A: 15 marks | Section B: 10 marks | Section C: 18 marks (including OR)

Section D: 15 marks (including OR) | Section E: 12 marks (including OR)

Practical/Viva/Project: 30 marks

Grand Total: 80 marks

Based on Latest CBSE Class 9 AI Syllabus 2025-26
Complete coverage of all important examination topics

🎯 DETAILED ANSWER KEY WITH SOLUTIONS

SECTION A - ANSWERS (1 × 15 = 15 Marks)

Q1. Answer: (b) Interpret images and videos

Explanation: Computer Vision enables machines to see, analyze, and understand visual information from images and videos, similar to human vision.

Q2. Answer: (c) Color: Red

Explanation: Qualitative data describes qualities or characteristics (like color, taste, texture) that cannot be measured numerically. Red is a quality, not a number.

Q3. Answer: (b) Middle value when data is arranged

Explanation: Median is the middle value when all data points are arranged in ascending or descending order.

Q4. Answer: (b) 4/52

Solution: There are 4 Kings in a deck of 52 cards (one in each suit)
P(King) = 4/52 = 1/13

Q5. Answer: (b) DALL-E

Explanation: DALL-E is a Generative AI tool developed by OpenAI that creates images from text descriptions.

Q6. Answer: (b) **

Explanation: In Python, ** is used for exponentiation. Example: 2**3 = 8

Q7. Answer: (b) 3

Solution: The // operator performs floor division (integer division)
10 // 3 = 3 (remainder is discarded)

Q8. Answer: (b) append()

Explanation: The append() method adds an element at the end of a list in Python.

Q9. Answer: (c) Modeling

Explanation: Modeling is the stage where we train the AI model using prepared data to learn patterns and make predictions.

Q10. Answer: (b) Data Exploration

Explanation: The AI Project Cycle order is: Problem Scoping → Data Acquisition → Data Exploration → Modeling → Evaluation

Q11. Answer: (b) def

Explanation: The 'def' keyword is used to define/create a function in Python.

Q12. Answer: (b) list = [1, 2, 3]

Explanation: Lists in Python are created using square brackets [ ]. Note: (1,2,3) is tuple, {1,2,3} is set.

Q13. Answer: (d) Range

Explanation: Range is a measure of dispersion (spread), not central tendency. Mean, median, and mode are measures of central tendency.

Q14. Answer: (b) Responsible and fair use of AI

Explanation: AI Ethics focuses on ensuring AI is used responsibly, fairly, and without causing harm to society.

Q15. Answer: (b) Computer Vision

Explanation: Face recognition analyzes visual features from images/cameras, which is Computer Vision.

SECTION B - ANSWERS (2 × 5 = 10 Marks)

Q16. Solution:

Marking Scheme: 1 mark for each definition/difference

Artificial Intelligence (AI): A broad field of computer science focused on creating intelligent machines that can perform tasks requiring human intelligence.
Examples: Reasoning, problem-solving, understanding language, recognizing patterns.

Machine Learning (ML): A subset of AI that enables machines to learn from data and improve their performance without being explicitly programmed.
Examples: Spam detection, recommendation systems, image recognition.

Key Difference:
• AI is the broader concept of machines being able to perform tasks intelligently
• ML is one approach to achieve AI by learning from data
• All ML is AI, but not all AI is ML (some AI uses rule-based systems)

Q17. Solution:

> **Marking Scheme:** 1 mark for definition + 1 mark for importance

Data Acquisition: Data Acquisition is the second stage of the AI Project Cycle where we collect relevant data from various sources that will be used to train and test the AI model.

Importance:
1. **Foundation of AI:** Without quality data, AI models cannot learn effectively
2. **Determines Accuracy:** More and better data leads to more accurate AI models
3. **Covers Different Scenarios:** Diverse data ensures the model works in various situations
4. **Reduces Bias:** Proper data collection helps minimize bias in AI systems

Q18. Solution:

> **Marking Scheme:** 2 marks for correct mode with explanation

Data: 8, 12, 8, 15, 20, 8, 12, 25

Finding Mode:
Mode is the value that appears most frequently in the dataset.

Frequency count:
• 8 appears 3 times
• 12 appears 2 times
• 15 appears 1 time
• 20 appears 1 time
• 25 appears 1 time

Since 8 appears most frequently (3 times),
Mode = 8

Q19. Solution:

> **Marking Scheme:** 1 mark for input + 1 mark for calculation and output

Python Program:

```
# Program to find area of rectangle
length = float(input("Enter length: "))
breadth = float(input("Enter breadth: "))

area = length * breadth

print("Area of rectangle =", area)
```

Q20. Solution:

> **Marking Scheme:** 0.5 mark for each point (2 benefits + 2 limitations)

Two Benefits of Generative AI:
1. **Creativity and Content Creation:** Can generate text, images, code, music quickly

2. **Productivity Enhancement:** Automates repetitive tasks, saves time

Two Limitations of Generative AI:
1. **Accuracy Issues:** May generate incorrect or misleading information (hallucinations)
2. **Lack of Originality:** Creates content based on existing data, may not be truly innovative

(Other valid points: Bias in outputs, Copyright concerns, Privacy issues, Environmental cost, Job displacement)

SECTION C - ANSWERS (3 × 6 = 18 Marks)

Q21. Solution:

> **Marking Scheme:** 1 mark for each sector with example

AI in Different Sectors:

1. Healthcare:
AI helps doctors diagnose diseases by analyzing medical images (X-rays, MRIs) and patient data.
Example: AI systems can detect cancer, diabetes, or heart disease early by analyzing symptoms and test results. IBM Watson Health assists doctors in diagnosing and recommending treatments.

2. Education:
AI personalizes learning for students by adapting content based on individual needs and pace.
Example: Intelligent tutoring systems like BYJU's use AI to provide customized lessons, practice problems, and instant feedback to students based on their learning patterns.

3. Entertainment:

AI recommends content based on user preferences and viewing history.
Example: Netflix and Spotify use AI to suggest movies, shows, and music that users might enjoy based on their past choices and behavior patterns.

Q22. Solution:

> **Marking Scheme:** 1 mark for definition + 1 mark for each visualization technique

Data Exploration: Data Exploration is the third stage of the AI Project Cycle where we analyze, clean, and understand the collected data before using it for modeling. It involves identifying patterns, trends, and relationships in the data.

Two Data Visualization Techniques:

1. Bar Chart/Bar Graph:
• Used to compare different categories
• Displays data using rectangular bars
• Height/length of bars represents values
• Best for: Comparing sales across months, student marks comparison
Example: Comparing population of different cities

2. Line Chart/Line Graph:
• Used to show trends over time
• Connects data points with lines
• Shows increase/decrease patterns clearly
• Best for: Temperature changes, stock prices over time
Example: Tracking website traffic over weeks

(Other techniques: Pie chart, Histogram, Scatter plot, Box plot)

Q23. Solution:

> **Marking Scheme:** 1.5 marks for each probability calculation

When two dice are thrown, total outcomes = 6 × 6 = 36

(i) P(Sum = 7):
Favorable outcomes: (1,6), (2,5), (3,4), (4,3), (5,2), (6,1) = 6 outcomes
P(Sum = 7) = 6/36 = 1/6

(ii) P(Both numbers same):
Favorable outcomes: (1,1), (2,2), (3,3), (4,4), (5,5), (6,6) = 6 outcomes
P(Both same) = 6/36 = 1/6

OR

Data: 22, 18, 30, 25, 28, 20, 32

Mean:
Mean = Sum / Number of values
Mean = (22 + 18 + 30 + 25 + 28 + 20 + 32) / 7
Mean = 175 / 7 = 25

Range:
Range = Highest - Lowest
Range = 32 - 18 = 14

Q24. Solution:

> **Marking Scheme:** 1 mark for input + 1 mark for logic + 1 mark for output

Python Program to find largest of three numbers:

```
# Program to find largest of three numbers
num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))
num3 = int(input("Enter third number: "))

if num1 >= num2 and num1 >= num3:
    largest = num1
```

```
elif num2 >= num1 and num2 >= num3:
    largest = num2
else:
    largest = num3

print("Largest number is:", largest)
```

Alternative Method using max():

```
num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))
num3 = int(input("Enter third number: "))
largest = max(num1, num2, num3)
print("Largest number is:", largest)
```

Q25. Solution:

> **Marking Scheme:** 1 mark for definition + 1 mark for example + 1 mark for solution

AI Bias: AI bias occurs when an AI system produces unfair or prejudiced results because it was trained on biased, incomplete, or unrepresentative data. This leads to discrimination against certain groups of people.

Example of AI Bias:
A job recruitment AI system that was trained mostly on resumes of male engineers might unfairly reject qualified female candidates. The system learned from historical data where most engineers were male, creating a bias against women.

Another example: Facial recognition systems that work better for certain ethnicities than others because the training data had more images of those groups.

How to Reduce AI Bias:
1. **Diverse Training Data:** Use data that represents all groups fairly and equally
2. **Regular Auditing:** Test AI systems for bias and monitor their decisions

3. **Diverse Development Teams:** Include people from different backgrounds in AI development
4. **Transparency:** Make AI decision-making processes clear and explainable
5. **Continuous Monitoring:** Keep checking AI outputs for unfair patterns

Q26. Solution:

Marking Scheme: 1.5 marks for each type with example

Supervised Learning:
In supervised learning, the AI model learns from labeled data (data with known correct answers). The model is trained with input-output pairs and learns to predict outputs for new inputs.

Example: Email spam detection - The model is trained with emails labeled as "spam" or "not spam". After learning, it can classify new emails correctly.
Other examples: House price prediction, Image classification, Weather forecasting

Unsupervised Learning:
In unsupervised learning, the AI model learns from unlabeled data (data without predefined categories). The model finds patterns, groupings, and relationships on its own.

Example: Customer segmentation - An e-commerce company groups customers based on their shopping behavior without predefined categories. The AI discovers natural groupings like "frequent buyers", "seasonal shoppers", etc.
Other examples: Market basket analysis, Anomaly detection, Recommendation systems

Key Difference:
• Supervised: Learns from labeled data with known answers
• Unsupervised: Finds patterns in unlabeled data without guidance

SECTION D - ANSWERS (5 × 3 = 15 Marks)

Q27. Solution:

> **Marking Scheme:** 2.5 marks for each domain with applications

1. Computer Vision (CV):

How it works:

• Enables machines to extract information from images and videos
• Uses cameras/sensors to capture visual data
• Applies algorithms to identify objects, faces, patterns, text
• Processes pixel data to understand scene content
• Uses techniques like edge detection, feature extraction, object recognition

Two Applications:

1. **Self-Driving Cars:** Camera systems detect pedestrians, traffic signs, lane markings, other vehicles to navigate safely
2. **Medical Imaging:** Analyzes X-rays, CT scans, MRIs to detect diseases like tumors, fractures, or abnormalities

(Other applications: Face unlock, Quality inspection in manufacturing, Gesture recognition)

2. Natural Language Processing (NLP):

How it works:

• Enables machines to understand, interpret, and generate human language
• Processes text/speech to extract meaning
• Uses techniques like tokenization, sentiment analysis, named entity recognition
• Converts words into numerical representations for processing
• Applies algorithms to understand context and intent

Two Applications:

1. **Virtual Assistants:** Siri, Alexa, Google Assistant understand voice commands and respond in natural language
2. **Language Translation:** Google Translate converts text/speech from one language to another while maintaining meaning

(Other applications: Chatbots, Text summarization, Sentiment analysis of reviews)

OR

Decision Tree in AI:

A Decision Tree is a tree-like model used in AI for making decisions and predictions. It breaks down a complex decision into a series of simple yes/no questions, similar to a flowchart.

Structure:
• **Root Node:** Starting point (main question)
• **Internal Nodes:** Decision points (questions)
• **Branches:** Possible answers (Yes/No)
• **Leaf Nodes:** Final decisions/outcomes

Example: Predicting if a student will pass or fail

[Students should draw a tree diagram showing:]

Root: Did student attend > 75% classes?
├─ Yes → Did student score > 60% in assignments?
│ ├─ Yes → PASS
│ └─ No → Check exam score > 70%?
│ ├─ Yes → PASS
│ └─ No → FAIL
└─ No → Check if attendance > 60%?
├─ Yes → Check overall performance
└─ No → FAIL

How it helps in Decision Making:
1. **Clear Path:** Shows step-by-step logic
2. **Easy to Understand:** Visual and intuitive
3. **Handles Multiple Factors:** Considers different criteria
4. **Transparent:** Decisions can be explained
5. **Versatile:** Works for classification and prediction

Q28. Solution:

> **Marking Scheme:** 1 mark for each sub-part (a to e)

Complete Python Program:

```
# (a) Create a list of 5 student names
students = ["Rahul", "Priya", "Amit", "Neha", "Vikram"]
print("Original list:", students)

# (b) Take new name from user and add it
new_name = input("Enter new student name: ")
students.append(new_name)
print("After adding:", students)

# (c) Display total number of names
total = len(students)
print("Total number of names:", total)

# (d) Remove the first name from list
students.pop(0)
# or: del students[0]
# or: students.remove(students[0])
print("After removing first name:", students)

# (e) Print final list
print("Final list:", students)
```

Sample Output:

Original list: ['Rahul', 'Priya', 'Amit', 'Neha', 'Vikram']
Enter new student name: Simran
After adding: ['Rahul', 'Priya', 'Amit', 'Neha', 'Vikram', 'Simran']
Total number of names: 6
After removing first name: ['Priya', 'Amit', 'Neha', 'Vikram', 'Simran']
Final list: ['Priya', 'Amit', 'Neha', 'Vikram', 'Simran']

Q29. Solution:

> **Marking Scheme:** 1 mark for mean + 1 mark for median + 1 mark for mode + 2 marks for visualization choice with reason

Rainfall data: 5, 8, 12, 15, 20, 18

(a) Mean Rainfall:

Mean = Sum of all values / Number of values

Mean = (5 + 8 + 12 + 15 + 20 + 18) / 6

Mean = 78 / 6

Mean = 13 cm

(b) Median:

First arrange in order: 5, 8, 12, 15, 18, 20

Number of values = 6 (even)

Median = Average of 3rd and 4th values

Median = (12 + 15) / 2

Median = 27 / 2

Median = 13.5 cm

(c) Mode:

All values appear only once

No mode (or all values are modes)

(d) Best Visualization:

Line Chart would be best for this data.

Reasons:

1. Data is time-series (monthly progression)
2. Line chart shows trends over time clearly
3. Can easily see increase/decrease patterns
4. Helps identify seasonal patterns
5. Connects related data points to show continuity

Pie chart would NOT be suitable because:

• It shows parts of a whole (percentages)

• Does not show trends or time progression
• Cannot show individual values clearly

SECTION E - ANSWERS (4 × 3 = 12 Marks)

Q30. Solution: CASE STUDY 1 - E-Commerce Recommendation System

Marking Scheme: 1 + 1 + 2 = 4 marks

(i) The domain primarily used is **Data**.
Explanation: The system analyzes large amounts of customer data (purchases, browsing history, ratings) to find patterns and make predictions. This is the Data domain of AI.

(ii) "Customer ratings (1-5 stars)" is **Quantitative data**.
Explanation: Ratings are numerical values that can be measured and used for calculations (like average rating).

OR
"Age group" is **Qualitative data**.
Explanation: Age group represents categories (Teenager, Adult, Senior) which describe qualities, not measured numbers.

(iii) One ethical concern and solution:

Ethical Concern: Privacy Violation
The system collects and analyzes personal browsing history and purchase patterns, which can be misused. Customers may feel their privacy is invaded if data is shared without consent.

How to Address:
1. Obtain clear consent from customers before collecting data
2. Implement strong data encryption and security measures
3. Allow customers to control what data is collected

4. Be transparent about how data is used
5. Provide option to opt-out of personalization

(Other concerns: Filter bubble/echo chamber effect, Price discrimination based on data, Data breaches)

Q31. Solution: CASE STUDY 2 - Agriculture AI Assistant

Marking Scheme: 1 + 1 + 2 = 4 marks

(i) The AI domain being used is **Computer Vision**.
Explanation: The system analyzes plant images to identify disease patterns, which requires visual analysis and image recognition capabilities.

(ii) The AI model is trained in **Stage 4: Modeling**.
Explanation: Modeling is the stage where the Computer Vision model learns to recognize disease patterns from the prepared training data.

OR
Purpose of Stage 3 (Data Exploration):
• Clean the images (remove blurry/corrupted images)
• Remove duplicate images
• Categorize images by disease type for organized training
• Ensure data quality before modeling
• Identify if more data is needed for certain diseases

(iii) Meaning of 92% accuracy and improvement:

What 92% accuracy means:
Out of 100 predictions, the model correctly identifies the disease 92 times. Or, when tested on 2,000 images, it correctly classified 1,840 images (92% of 2000) and made errors on 160 images (8%).

How to improve accuracy:
1. **Collect More Data:** Add more diverse plant images, especially of diseases where the model makes errors

2. **Better Data Quality:** Use higher resolution images, consistent lighting, multiple angles
3. **Data Augmentation:** Create variations of existing images (rotation, flipping, brightness changes)
4. **Model Refinement:** Try different algorithms or adjust model parameters
5. **Expert Review:** Have agricultural experts verify training data accuracy

Q32. Solution: CASE STUDY 3 - Python Programming Challenge

> **Marking Scheme:** 1 + 1 + 2 = 4 marks

Original list: [85, 92, 78, 95, 88, 90]

(i) Highest score in the original list:
Looking at all values: 85, 92, 78, 95, 88, 90
Highest score = 95

(ii) Average of all scores:
Average = Sum / Count
Average = (85 + 92 + 78 + 95 + 88 + 90) / 6
Average = 528 / 6
Average = 88

OR
Length after operations:
Original length = 6
After adding 87: length = 7
After removing lowest (78): length = 6
Final length = 6

(iii) Python code to find highest score:

```
# Code to find and print highest score
scores = [85, 92, 78, 95, 88, 90]

highest_score = max(scores)
```

```
print("Highest score:", highest_score)

# Alternative method without max()
highest_score = scores[0]
for score in scores:
    if score > highest_score:
        highest_score = score
print("Highest score:", highest_score)
```

Output: Highest score: 95

✅ END OF ANSWER KEY ✅

All solutions based on CBSE Class 9 AI Syllabus 2025-26

Complete step-by-step solutions with detailed explanations

Practical Component (30 marks):

• Python Programming Practicals (15 programs): 15 marks

• AI Project Work with SDGs: 10 marks

• Viva Voce & Portfolio: 5 marks

For queries: www.mathloveinstitute.com