

SECTION A: OBJECTIVE TYPE QUESTIONS

Q1

(1 x 4 = 4 marks)

i. Which type of non-verbal communication involves maintaining the way you sit or stand to express confidence or attitude?

- a) Gesture b) Facial Expression c) Posture d) Eye Contact

ii. Which of the following habits helps you stay calm and improves your ability to manage emotions effectively?

- a) Making decisions based only on feelings b) Ignoring your emotions and reactions
c) Practising relaxation techniques such as meditation and deep breathing
d) Reacting immediately without thinking

iii. When you use the mouse wheel to move up and down through the contents of a webpage or document, what is this action known as?

- a) Click b) Drag c) Scroll d) Hover

iv. Asha launched a small homemade snacks business. In the first few months, she struggled to attract customers, managed finances carefully, and focused on keeping the business running despite low profits. Which stage of the entrepreneurial process is she currently in?

- a) Survive b) Enter c) Grow d) Retire

Q2

(1 x 5 = 5 marks)

i. AI models are majorly divided into ____ types depending on the data provided.

ii. Assertion (A): The consequentialism framework evaluates whether an action is right or wrong based on the outcomes it produces.

Reason (R): According to this framework, actions are considered ethical if they lead to the greatest overall benefit or minimize harm.

Choose the correct option:

- a) Both A and R are correct, and R is the correct explanation of A
b) Both A and R are correct, but R is not the correct explanation of A
c) A is correct, but R is incorrect
d) A is incorrect, but R is correct

iii. A company deploys an AI-based customer support chatbot that replies using predefined rules. It provides correct responses only when users type queries in a specific format. However, when customers use new phrases, slang, or different sentence structures, the chatbot fails to understand them and gives irrelevant replies. What is the most likely reason for this problem?

- a) The chatbot was trained on too many conversations.
b) The rule-based chatbot cannot adjust to new or unexpected language patterns.
c) Customers are asking questions that are too long.
d) The chatbot's interface was not designed properly.

iv. _____ is an essential step in AI project cycle. In this step unnecessary data is removed.

v. Improving a model's ability to learn patterns from data, making predictions, and performing intelligent tasks such as classification or regression are central goals of which field? This field is considered a subset of _____.

- a) Computer Vision b) Machine Learning c) Image Processing d) Object Detection

Q3.

(1 x 5 = 5 marks)

i.

Gender	Frequency	Percentage
Male	120	40%
Female	180	60%
Total	300	100%

In the above dataset, what do we call Gender, Frequency and Percentage as?

- a) Instances (b) Values (c) Models (d) Features
- ii. A wildlife monitoring AI model identifies animals in camera trap images. Out of 500 total images, 150 actually contain tigers. The system correctly detects 120 tiger images but also wrongly labels 40 deer images as tigers. What is the precision of this model?
- a) 0.80 b) 0.70 c) 0.75 d) 0.90

iii. **Assertion (A):** In data science, cleaning and preprocessing data are essential steps because raw data often contains noise, missing values, and inconsistencies.

Reason (R): Properly cleaned data improves the performance of analytical models and leads to more accurate and reliable insights.

- a) Both A and R are correct, and R is the correct explanation of A
b) Both A and R are correct, but R is not the correct explanation of A
c) A is correct, but R is incorrect d) A is incorrect, but R is correct

iv. Identify the application of Computer Vision from the picture:



given

- a) Facial Recognition b) CV in Retail
c) Medical Imaging d) Face Filters
- v. Count and write the number of tokens in the sentence:

Here is a sentence that includes **commas** and a **full stop**:

I bought apples, oranges, and bananas from the market today.

4. (1 x 5 = 5 marks)

i. In the context of solving complex problems, what is the main purpose of using a framework?

- a) To organize the process in a structured way b) To guess solutions randomly
c) To create unnecessary steps d) To ignore important information

ii. **Statement 1:** In most AI projects, around 70–80% of the data is used for training the model.

Statement 2: The remaining 20–30% of the data is typically used for testing the model's performance. Which of the following is correct?

- a) Both Statement 1 and Statement 2 are correct.
b) Both Statement 1 and Statement 2 are incorrect.
c) Only Statement 1 is correct. d) Only Statement 2 is correct.

iii. A company uses a simple AI model to decide whether a person should go out for a walk based on weather conditions. The model uses four inputs:

- $x_1 = 1$ (It is sunny) with $w_1 = 0.5$ $x_2 = 0$ (No rain) with $w_2 = 0.3$
 - $x_3 = 1$ (Wind is low) with $w_3 = 0.6$ $x_4 = 1$ (Temperature is pleasant) with $w_4 = 0.2$
- A bias value of $b = 0.4$ is added.

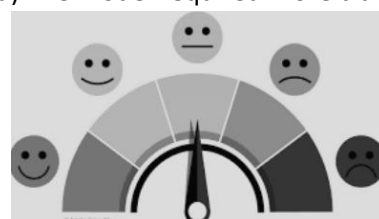
The formula used is: $Y = w_1x_1 + w_2x_2 + w_3x_3 + w_4x_4 + (1 \times b)$

What will be the value of Y?

iv. A data scientist trains an Artificial Neural Network (ANN) to predict student exam scores using a set of 2,000 labeled examples. After training, she tests the ANN on the same 2,000 examples and observes very high accuracy. However, when she tests the model on new student data, the accuracy drops sharply. Why did this happen?

- a) The ANN had too many hidden layers
b) The ANN was tested on the same data it learned from, causing overfitting
c) The activation function was not chosen correctly d) The model required more training epochs

v. Identify the application of NLP shown in the given picture:



- a) Autogenerated captions
b) Sentiment Analysis
c) Text Classification
d) Keyword Extraction

5.

(1 x 5 = 5 marks)

i. You are choosing which disaster-relief charity to support. One charity helps flood victims in your own state, while the other supports victims in another continent. Which factor is most likely to subconsciously influence your choice?

- a) How close the affected people feel to you b) The color of the charity's website
c) The day of the week you make the donation d) The shape of the charity's logo

ii. A model predicted that a car would sell for ₹6,20,000, but the actual selling price turned out to be ₹5,75,000. What is the error rate of this prediction (rounded to three decimal places)?

- a) 0.043 b) 0.072 c) 0.089 d) 0.145

iii. The process in computer vision that divides an image into multiple meaningful regions—such as separating a person from the background or isolating roads, trees, and buildings in a scene—is called ____.

- a) Image Classification b) Image Segmentation
c) Object Detection d) Feature Extraction

iv. is the outcome of the model wrongly predicting the positive class as negative class.

v. What are the stemmed and lemmatized forms of the word 'wrongly'?

- a) Stemmed: wrong, Lemmatized: wrong b) Stemmed: wrongl, Lemmatized: wrong
(c) Stemmed: wrong, Lemmatized: wrongl d) None of these

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer each question in 20 – 30 words. (2x3=6 marks)

Q6. What is the difference between noun and pronoun? Give examples.

Q7. How can a virus harm your computer?

Q8. Rita starts a small furniture workshop in her town. She hires local carpenters, trains young apprentices, and buys raw materials from nearby suppliers. As her business grows, more people in the community find employment, and their income levels improve.

Which function of an entrepreneur is being highlighted in this situation?

Answer given questions in 20 – 30 words each (2 x 4 = 8 marks)

Q9. What do you do in the fourth and fifth stages of an AI Project cycle?

Q10. Identify the type of deep learning model.

a. This type of deep learning model is mainly used for image-related tasks. It learns patterns such as edges, shapes, and textures through filters and feature maps to classify or recognize objects. **Identify the model.**

b. This model consists of interconnected nodes (neurons) arranged in layers, inspired by how the human brain works. It learns complex relationships from data without manual feature engineering. **Name this model.**

Q11. What is the difference between RGB and grayscale image?

Q12. Explain different stages of NLP.

Answer given questions in 50– 80 words each (4 x 3 = 12 marks)

Q13. a) A home security system uses AI to learn normal movement patterns inside a house. One night, it detects unusual motion in the living room and immediately sends an alert, identifying it as unusual behaviour. Which application of AI is used here?

b) A farming drone captures images of crops and an AI model analyzes them to sort plants into categories such as "healthy," "diseased," and "needs water." Which ML/DL application is being used?

c) A smartphone camera app shows labels on-screen—such as "Tree," "Car," "Dog"—as soon as it detects these objects in the frame while recording video. What AI application does this represent?

d) A digital tablet app allows you to draw letters or numbers with your finger, and the system identifies them correctly even if your handwriting is rough or tilted. What ML/DL application is this?

Q14. A hotel introduces an AI system to predict whether guests will leave a positive review or negative review after their stay. The hotel tests the model on 120 guests:

- The system correctly predicted that **45 guests would leave a positive review**, and they actually did.
- It also correctly predicted that **35 guests would leave a negative review**.
- However, it predicted **20 guests would leave a positive review**, but they ended up giving negative reviews.

- Additionally, it predicted **20 guests would leave a negative review**, but those guests actually left positive reviews.
- a) Draw the confusion matrix for the model's predictions. (2)
- b) Calculate the accuracy of the AI model. Show your working. (1)
- c) State the total number of wrong predictions made by the model. (1)

Q15. Read the following three documents and answer the questions that follow:

- **Document 1:** *"Robots are transforming industries"*
- **Document 2:** *"AI and robots work together in automation"*
- **Document 3:** *"Modern industries rely on AI tools"*

After applying basic preprocessing (lowercasing, removing punctuation, and tokenizing), the documents become:

- **Document 1:** [robots, are, transforming, industries]
- **Document 2:** [ai, and, robots, work, together, in, automation]
- **Document 3:** [modern, industries, rely, on, ai, tools]

- Create the dictionary (vocabulary) of all unique words from the three documents.
- Construct the document vector for **Document 3** using the vocabulary.
- Explain how the Bag of Words model represents text for machine learning.
- Why does the Bag of Words model ignore the order of words in a sentence?