

**PRACTICE PAPER–3**  
**CLASS X**  
**ARTIFICIAL INTELLIGENCE (CODE 417)**

Time: 2 Hours

Maximum Marks: 50

**General Instructions:**

1. Please read the instructions carefully.
2. This Question Paper consists of **21 questions** in two sections: **Section A & Section B**.
3. Section A has Objective type questions whereas Section B contains Subjective type questions.
4. **Out of the given (5 + 16 =) 21 questions, a candidate has to answer (5 + 10 =) 15 questions in the allotted (maximum) time of 2 hours.**
5. All questions of a particular section must be attempted in the correct order.
6. **SECTION A – OBJECTIVE TYPE QUESTIONS (24 MARKS):**
  - (a) This section has 5 questions.
  - (b) Marks allotted are mentioned against each question/part.
  - (c) There is no negative marking.
  - (d) Do as per the instructions given.
7. **SECTION B – SUBJECTIVE TYPE QUESTIONS (26 MARKS):**
  - (a) This section has 16 questions.
  - (b) A candidate has to do 10 questions.
  - (c) Do as per the instructions given.
  - (d) Marks allotted are mentioned against each question/part.

**SECTION A – OBJECTIVE TYPE QUESTIONS**

**1. Answer any 4 out of the given 6 questions on Employability Skills.**

**(1 × 4 = 4 marks)**

- (i) 'Despite facing a major setback in her project, Priya stayed calm, re-evaluated the situation and motivated her team to overcome the challenges together.' Which self-management skill is clearly visible in the given statement?
- (ii) What does Sustainable Development primarily emphasize?
  - (a) Economic growth at any cost
  - (b) Environmental preservation and responsible resource use
  - (c) Prioritizing industrialization over nature conservation
  - (d) Rapid technological advancement
- (iii) **Assertion (A):** Entrepreneurs are crucial for regional development.  
**Reasoning (R):** Entrepreneurs establish businesses only in urban areas to maximize profits.
  - (a) Both A and R are true and R is the correct explanation of A.
  - (b) Both A and R are true but R is not the correct explanation of A.
  - (c) A is true but R is false.
  - (d) A is false but R is true.
- (iv) \_\_\_\_\_ and \_\_\_\_\_ are not the qualities of an entrepreneur.
  - (a) Risk-taking ability, Adaptability
  - (b) Passion, Leadership
  - (c) Pessimistic, Procrastination
  - (d) Continuous Learning, Time Management
- (v) Which of the following is the shortcut key combination to paste something copied?
  - (a) Ctrl + P
  - (b) Ctrl + V
  - (c) Ctrl + X
  - (d) Ctrl + E
- (vi) \_\_\_\_\_ and \_\_\_\_\_ are the two main parts of a sentence.
  - (a) Subject, Object
  - (b) Subject, Predicate
  - (c) Predicate, Verb
  - (d) Subject, Preposition

2. Answer any 5 out of the given 6 questions.

(1 × 5 = 5 marks)

- (i) **Assertion (A):** Parts-of-Speech (POS) tagging is not required in the process of text normalization.

**Reasoning (R):** Text normalization primarily involves converting text into a standard form, including lowercase, stemming and lemmatization.

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true but R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

- (ii) Which element of the 4Ws Problem Canvas helps in understanding the underlying causes or reasons of the problem?

(a) What

(b) Why

(c) When

(d) Where

- (iii) **Statement 1:** Accuracy can be misleading when the dataset is balanced between the classes.

**Statement 2:** Specificity is used to balance Precision and Recall.

(a) Both Statement 1 and Statement 2 are correct.

(b) Both Statement 1 and Statement 2 are incorrect.

(c) Statement 1 is correct but Statement 2 is incorrect.

(d) Statement 2 is correct but Statement 1 is incorrect.

- (iv) Which of the following is not an authentic source of data?



(a)

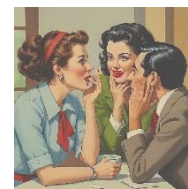


(b)



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Open Government Data (OGD) Platform India

(c)



(d)

- (v) Which feature must be reduced while choosing a keynote speaker for a technology conference?

(a) Expertise in the field

(b) Public speaking skills

(c) Time of birth

(d) Previous speaking engagements

- (vi) Cost of a smartphone falls under which type of data?

(a) Continuous

(b) Discrete

(c) Ordinal

(d) Nominal

3. Answer any 5 out of the given 6 questions.

(1 × 5 = 5 marks)

- (i) Which of the following metric cannot be directly calculated using a confusion matrix

(a) Accuracy

(b) Precision

(c) Mean squared error

(d) Recall

- (ii) What does digital divide refer to?

(a) Gap between individuals who have access to technology and those who don't have access to technology

(b) Gap between the internet speed in rural as well as urban areas

(c) Gap between individuals who prefer digital communication and those who don't

(d) Gap between young generation and old generation

- (iii) In which stage of the AI Project Cycle do we try to discover hidden patterns and useful information from data?
- |                      |                |
|----------------------|----------------|
| (a) Data Exploration | (b) Evaluation |
| (c) Problem Scoping  | (d) Modelling  |
- (iv) Which of the following is an application of Computer Vision?
- |                     |                               |
|---------------------|-------------------------------|
| (a) Data encryption | (b) Speech translation        |
| (c) Tagging images  | (d) Classifying spam messages |
- (v) Identify the given Chatbot type: It learns from its environment and experience. It also builds on its capabilities based on the knowledge. These can collaborate with humans, working alongside them and learning from their behaviour.
- (vi) What is the last stage of AI Project Cycle?
- |                      |                |
|----------------------|----------------|
| (a) Data Acquisition | (b) Evaluation |
| (c) Problem scoping  | (d) Modelling  |

**4. Answer any 5 out of the given 6 questions.**

**(1 × 5 = 5 marks)**

- (i) Rohit came across a term that describes the ability of AI systems to improve performance over time by learning from experience. What is this term?
- (ii) **Statement 1:** Parts-of-Speech (POS) Tagging is an application of Natural Language Processing (NLP).  
**Statement 2:** Image Recognition is an application of NLP.
- |  |
|--|
| (a) Both Statement 1 and Statement 2 are correct.        |
| (b) Both Statement 1 and Statement 2 are incorrect.      |
| (c) Statement 1 is correct but Statement 2 is incorrect. |
| (d) Statement 2 is correct but Statement 1 is incorrect. |
- (iii) Ravi wants to use a machine learning model for predicting weather conditions. Which of the following is NOT correct?
- |  |
|--|
| (a) Linear regression is suitable if the output is continuous (e.g., temperature).         |
| (b) A model trained only on data of summer will perform poorly in winter.                  |
| (c) Preprocessing of data like normalization is unnecessary for weather prediction models. |
| (d) Training data must include features like humidity, pressure and wind speed.            |
- (iv) In Orange Data Mining, which widget is used to import images for analysis?
- |                  |                   |
|------------------|-------------------|
| (a) Data Table   | (b) Import Images |
| (c) Image Viewer | (d) Test & Score  |
- (v) F1 Score calculates the \_\_\_\_\_ of Precision and Recall in binary classification.
- |                      |                     |
|----------------------|---------------------|
| (a) Geometric Mean   | (b) Harmonic Mean   |
| (c) Weighted Average | (d) Arithmetic Mean |
- (vi) Priya trained a model for classifying images of cats and dogs. During training, the model achieved very high accuracy, but when tested with new images, the performance dropped significantly. What is such a scenario termed as?

**5. Answer any 5 out of the given 6 questions.**

**(1 × 5 = 5 marks)**

- (i) Ravi developed a system that identifies objects in images, such as cars, trees and animals, by analyzing patterns in pixels. Identify the domain of AI used in this scenario.
- |                                 |                     |
|---------------------------------|---------------------|
| (a) Natural Language Processing | (b) Computer Vision |
| (c) Reinforcement Learning      | (d) None of these   |
- (ii) What does 'Corpora' refer to?
- |  |                                    |
|--|------------------------------------|
| (a) A single set of language data                  | (b) A method for language analysis |
| (c) A large and structured collection of text data | (d) A synonym of 'vocabulary'      |

- (iii) Which of the following is an application of Machine Learning?
- |                      |                             |
|----------------------|-----------------------------|
| (a) Object Detection | (b) Parts-of-Speech Tagging |
| (c) Stock Prediction | (d) Face Recognition        |
- (iv) Which layer in Convolutional Neural Network is responsible for detecting important features in an image?
- |                           |                         |
|---------------------------|-------------------------|
| (a) ReLU layer            | (b) Convolutional layer |
| (c) Fully connected layer | (d) Pooling layer       |
- (v) What is NER in Natural Language Processing?
- |   |
|---|
| (a) A method of tokenizing the sentences      |
| (b) A method of lemmatizing the sentences     |
| (c) A method of finding entities in sentences |
| (d) A method of correcting grammar            |
- (vi) Which of the following is an application of NLP?
- |  |
|--|
| (a) Weather prediction                     |
| (b) Image recognition                      |
| (c) Stock market analysis                  |
| (d) Sentiment analysis of customer reviews |

### SECTION B – SUBJECTIVE TYPE QUESTIONS

**Answer any 3 out of the given 5 questions on Employability Skills in 20–30 words each. (2 × 3 = 6 marks)**

- What role do internet cookies play in enhancing user experience and how could their misuse affect privacy?
- In what ways does entrepreneurship contribute to solving social and economic challenges in a community? Provide examples.
- How can managing stress improve decision-making and productivity in professional or personal life?
- How does understanding the difference between Direct and Indirect Objects enhance clarity in sentence construction? Provide examples to illustrate.
- Choose one pillar of Sustainable Development and discuss how its neglect could impact future generations.

**Answer any 4 out of the given 6 questions in 20–30 words each. (2 × 4 = 8 marks)**

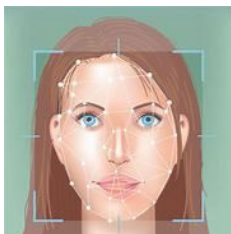
- AI is widely used in areas like healthcare, education and transportation. What potential risks or challenges might arise from relying on AI in these fields?
- A company wants to recommend products to users based on their browsing history and purchase behaviour without using labelled data. What type of learning model should they employ and why?
- Pooja is selecting a model for her AI project. What two factors should she consider to choose the most suitable model for her problem?
- In the text, 'Please visit our website at *www.cbse.com* for more information', identify the named entities and explain their significance in the context of NLP.
- Which Computer Vision library of Python is widely used? Explain.
- Draw the confusion matrix for the following data
  - the number of true positives = 90
  - the number of true negatives = 130
  - the number of false positives = 10
  - the number of false negatives = 40

Answer any 3 out of the given 5 questions in 50–80 words each. (4 × 3 = 12 marks)

- 17. Your friends are curious about voice assistants like Alexa and Siri. Explain to them what Natural Language Processing (NLP) is and how it helps these assistants understand and respond to human speech.
- 18. Meera is building a sentiment analysis model. Help her understand how to visualize data distribution and identify patterns during the data exploration phase. Why is this step crucial for building an effective model?
- 19. Identify the application of Computer Vision in the given images and explain how we can use it.



(a)



(b)

- 20. Differentiate between Lemmatization and Stemming.
- 21. A spam detection algorithm produces the following Confusion Matrix for a dataset:

	Reality (Spam)	Reality (Not Spam)
Prediction (Spam)	70	20
Prediction (Not Spam)	30	80

Define and find values of the terms given below:

- (a) Accuracy

(b) Precision
- (c) Specificity

(d) F1 Score