PRACTICE PAPER–2
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) 'Amit regularly reflects on his strengths and weaknesses and seeks feedback to improve his performance and relationships at work.' Which self-management skill is clearly visible in the given statement?

(ii) What is the primary function of an Operating System?
   (a) Editing photos (b) Managing hardware
   (c) Sending mails (d) Making presentations

(iii) **Assertion (A):** Risk-taking is a key quality of a successful entrepreneur.
Reasoning (R): Entrepreneurs always avoid risky projects to ensure guaranteed 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) Which Sustainable Development Goal (SDG) supports Life Below Water?
   (a) SDG 16 (b) SDG 2
   (c) SDG 14 (d) SDG 1

(v) What is Specific Feedback?
   (a) It provides broad comments without details.
   (b) It offers only general observations.
   (c) It delivers clear, detailed information and suggestions.
   (d) It relies only on subjective judgement.

(vi) _____ is not a stress management technique.
   (a) Physical Exercise (b) Adequate Sleep
   (c) Social Support (d) Multitasking excessively

2. Answer any 5 out of the given 6 questions. **(1 × 5 = 5 marks)**

(i) **Assertion (A):** After applying stemming on a word, meaningful words cannot always be found.

Reasoning (R): Stemming reduces words to their root forms, which may sometimes result in non-standard or incomplete words.

(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 of the following is NOT a stage in the AI Project life cycle?

(a) Data Exploration (b) Problem Scoping

(c) Problem Avoidance (d) Modelling

(iii) **Statement 1:** Data features are characteristics of the object being analyzed.

Statement 2: Data features are attributes or properties that help describe the data and are crucial for analysis.

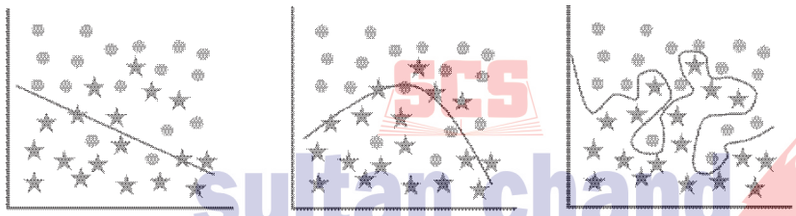
(a) Both Statement 1 and Statement 2 are correct.

(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 images denotes overfitting in a model?



(a) (b) (c) (d) None of these

(v) Recall is favourable when we want to minimize _____.

(a) True Positive (b) False Negative (c) False Positive (d) True Negative

(vi) Which feature is least important to consider while hiring a student for a Data Science internship?

(a) Relevant skills (b) Fashion sense

(c) Letter of recommendation (d) Performance in interview

3. Answer any 5 out of the given 6 questions. **(1 × 5 = 5 marks)**

(i) What does a pixel represent in an image?

(a) The smallest unit of information (b) The type of image format

(c) The physical size of an image (d) The resolution of an image

(ii) Precision is favourable when we want to minimize the _____.

(a) True Positive (b) False Negative (c) False Positive (d) True Negative

(iii) Which of the following is not an application of NLP?

(a) Named Entity Recognition (b) Machine Translation

(c) Image Classification (d) Text Summarization

(iv) 'Who' in 4Ws Canvas explains the _____.

(a) Definition of the problem (b) Importance of the problem

(c) Identification of stakeholders (d) Context of the problem

(v) Under which type of data does the blood group of a person fall?
(a) Continuous (b) Discrete (c) Ordinal (d) Nominal

(vi) What is Fluid Intelligence?
(a) Ability to learn and adapt (b) Ability to deal with uncertainties
(c) Ability to analyze (d) Ability to interact with the real world

4. Answer any 5 out of the given 6 questions. **(1 × 5 = 5 marks)**

(i) When a model is underfitting, its training performance is _____.

(ii) **Statement 1:** A major issue related to AI access is that it can make everyone's life better.
Statement 2: A major issue related to AI access is that it can make existing inequalities worse.
(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) Which color is represented by value 0 of a grayscale pixel?
(a) Black (b) Gray (c) Red (d) White

(iv) What is the main purpose of Stopword Elimination?
(a) To increase computational efficiency by reducing the dataset size
(b) To correct grammatical errors that are present in the text
(c) To stop translating words from one language to another
(d) To enhance the visual representation of the text

(v) Which of the following is an example of semi-structured data?
(a) Images (b) JSON files (c) Tables (d) None of these

(vi) What is the first stage of AI Project Cycle?
(a) Data Acquisition (b) Evaluation (c) Problem Scoping (d) Modelling

5. Answer any 5 out of the given 6 questions. **(1 × 5 = 5 marks)**

(i) Under which type of data the rating of an app falls?
(a) Continuous (b) Discrete (c) Ordinal (d) Nominal

(ii) _____ is to Artificial Neural Network as dendrites is to Biological Neural Network.

(iii) What is the use of Instance Segmentation?
(a) Labels pixels by class (b) Classifies objects without making boundaries
(c) Identifies individual objects in an image (d) Enhances the quality of image

(iv) After applying Lemmatization on a word, _____.
(a) Meaningful word is found (b) Meaningful word is not found
(c) Both (a) and (b) (d) None of these

(v) _____ is the subset of Machine Learning that uses complex neural networks for learning.

(vi) Which of the following features is least important to consider while granting scholarship to a student?
(a) Academic achievements (b) Extracurricular involvement
(c) Time of birth (d) Financial need

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)**

6. How does the behaviour of a green consumer contribute to environmental sustainability? Can you provide examples of such behaviours?

7. Why are phrases important in constructing sentences and how do different types of phrases impact sentence structure and meaning? Can you identify and analyze examples?

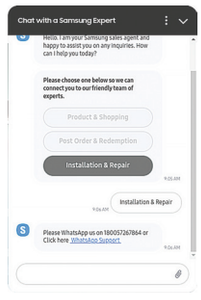
8. Stress affects people in different ways. How would you choose and apply specific stress management techniques for someone balancing work and personal life? Justify your approach.
9. Operating systems are the backbone of modern devices. How do smartphone operating systems like Android or iOS differ in functionality and what factors influence a user's preference?
10. Entrepreneurship is surrounded by myths that can deter aspiring entrepreneurs. Why do such myths exist, and how can dispelling them encourage more individuals to pursue entrepreneurship?

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

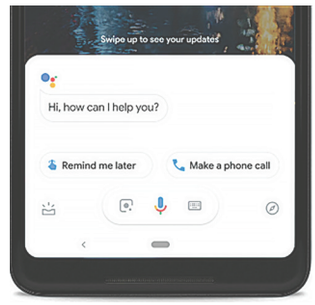
11. AI is divided into various domains, including machine learning and natural language processing. In what ways do these domains interact to solve complex problems such as in autonomous vehicles or virtual assistants?
12. Ananya is building a system that can recognize handwritten digits by learning from labelled datasets. Which type of learning model would be suitable for her project and why?
13. Riya is defining the scope of her AI project. What two key questions should she ask to ensure she clearly identifies the problem and its requirements?
14. Consider the sentence 'The quick brown fox jumps over the lazy dog.' Which stopwords are essential to retain the grammatical structure and why?
15. What do image classification and localization refer to?
16. Draw the confusion matrix for the following data
    - the number of true positives = 75
    - the number of true negatives = 50
    - the number of false positives = 25
    - the number of false negatives = 100

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

17. Your younger sibling hears you talk about AI and asks what it means. Explain Artificial Intelligence in simple terms and give an example of how it is used in everyday life.
18. Ria is struggling to clearly define the goals of her AI project. Explain to her how the '4Ws Problem Canvas' can help her understand the problem better and formulate a clear problem statement.
19. Classify the given images as Smart Chatbots and Script-based Chatbots. What is the difference between the two Chatbots?



(A)



(B)

20. Explain the process of discovering the hidden patterns in data.
21. A medical AI model predicts the presence of a disease. The Confusion Matrix is given below:

	Reality (Positive)	Reality (Negative)
Prediction (Positive)	45	15
Prediction (Negative)	25	65

(a) How many correct predictions were made by the model?

(b) Calculate Precision, Recall and F1 Score.