KENDRIYA VIDYALAYA SANGTHAN, RAIPUR REGION
FIRST PRE-BOARD EXAM (2025-26)
SUBJECT: ARTIFICIAL INTELLIGENCE (417)
CLASS: X

Maximum Marks: 50 *Time Allowed: 2 hours*

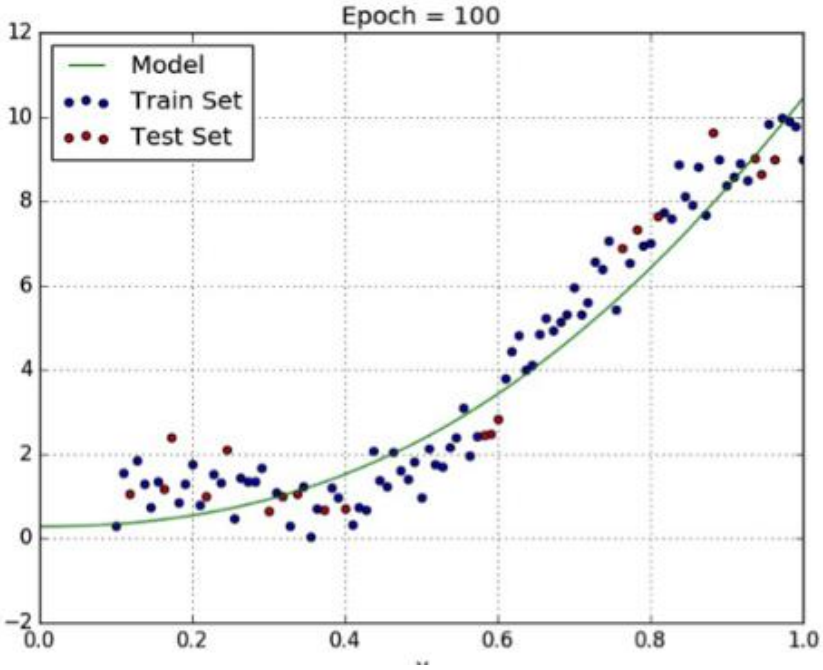
General Instructions:

I. *Please read the instructions carefully.*
II. *This question paper consists of 21 questions in two Sections:* ***Section A*** *and* ***Section B.***
III. ***Section A*** *has Objective Type Questions, whereas Section B contains Subjective Type Questions.*
IV. *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.*
V. *All questions of a particular section must be attempted in the correct order.*
VI. ***Section A****: Objective Type Questions (24 marks) :*
   a) *This section has 5 questions.*
   b) *There is no negative marking.*
   c) *Do as per the instructions given.*

   Marks allotted are mentioned against each question/part.
VII. ***Section B****: Subjective Type Questions (26 marks) : This section has 16 questions.*
   a) *A candidate has to do 10 questions.*
   b) *Do as per the instructions given.*
   c) *Marks allotted are mentioned against each question/part.*

Section A
OBJECTIVE TYPE QUESTIONS (24 Marks)

Q. 1	**Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)**	
i.	Which of these is NOT a common communication barrier? (a) Linguistic barrier (b) Interpersonal barrier (c) Financial barrier (d) Organisational barrier	1
ii.	Goal setting is a very essential factor in your personal life, We can use SMART method to set goals. what does 'M' stand for_____	1
iii.	We can check secure websites using _____. (a) http:// (b) https:// (c) Www (d) None of the above	1
iv	Arjun started selling handmade crafts online. He takes risks and manages his business himself. Which quality does he represent? (a) Leadership (b) Entrepreneurship (c) Self-confidence (d) Marketing skill	1
v.	Priya always carries a cloth bag for shopping instead of using plastic. This shows: (a) E-waste management (b) Waste burning (c) Digital literacy (d) Sustainable practice	1
vi.	**Assertion (A):** Self-awareness helps an individual understand their strengths and weaknesses. **Reason (R):** Knowing one's strengths and weaknesses allows a person to improve decision-making and personal growth. (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True	1

Q. 2	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)	
i.	A company is designing a chatbot for customer queries. Before using customer data, they ensure user privacy. This step follows: (a) Model Evaluation (b) Data Pre-processing (c) Ethical AI principles (d) Deployment	1
ii.	Rohan is planning an AI project on detecting fake news. The first step he should take is: (a) Data collection (b) Problem scoping (c) Model training (d) Evaluation	1
iii.	The following picture depicts which type of the model.  (a) Classification (b) Clustering (c) Regression (d) All the Above	1
iv	The measure of balance between precision and recall is (a) Accuracy (b) F1 Score (c) Precision (d) None of these	1
v.	A self-driving car stops automatically when it detects a red traffic light. This is an application of: (a) NLP (b) Computer Vision (c) Deep Learning (d) Data Mining	1
vi.	What is the first stage of Natural Language Processing (NLP)? (a) Semantic Analysis (b) Pragmatic Analysis (c) Lexical Analysis (d) Syntactic Analysis	1

Q. 3	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)	
i.	In an AI project on predicting exam results, the team splits data into training set and testing set. This belongs to which stage? (a) Data Acquisition (b) Modelling (c) Deployment (d) Problem Scoping	1
ii.	Words that we want to filter out before doing any analysis of the text are called _____. (a) Rare words (b) Stop words (c) Frequent words (d) Filter words	1
iii.	Which of the following statements is NOT true about supervised learning? a) Requires labelled data for training. b) Used for classification and regression tasks. c) Can be less efficient for large datasets. d) Often used in image recognition applications.	1
iv	**Which of the following parameters will be considered by recall, while evaluating a model's performance?** i. False negative ii. True negative iii. False positive iv. True positive a. only (i) b. (ii) and (iii) c. (iii) and (iv) d. (i) and (iv)	1
v.	Seema is learning the conditions that make up the confusion matrix. She came across a scenario in which the machine that was supposed to predict a bird was always predicting a bird. What is this condition called? a. True Positive b. False Positive c. False Negative d. True Negative	1
vi.	**Assertion(A):** Unsupervised Learning is a type of learning without any guidance. **Reasoning(R):** Unsupervised learning models work on unlabeled datasets, where the data fed into the machine is random and the person training the model may not have any prior information about it. (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True	1

Q. 4	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)	
i.	What is the central focus of virtue-based value-based frameworks? (a) Maximizing utility (b) Protecting human rights (c) Aligning actions with ethical principles and beliefs (d) Ensuring compliance with legal regulations	1
ii.	Clustering algorithms are commonly used in unsupervised learning for: (a) Spam filtering (b) Image classification (c) Stock price prediction (d) Grouping similar data points	1
iii.	An app predicts whether a student will score “above 60%” or “below 60%” in exams. This	1

	is an example of: (a) Regression (b) Clustering (c) Classification (d) NLP	
iv	Evaluating Models How is the relationship between model performance and accuracy described? A) Inversely proportional B) Not related C) Directly proportional D) Randomly fluctuating	1
v.	How is resolution typically expressed? (a) By the number of pixels along the width and height, such as 1280x1024 (b) By the brightness level of each pixel, ranging from 0 to 255 (c) By the total number of pixels, such as 5 megapixels (d) By the arrangement of pixels in a 2-dimensional grid	1
vi.	Lemma of "caring" is _____. (a) Care (b) Cared (c) Cares (d) Car	1

Q. 5	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	
i.	Which of the following is used for finding frequency of words in a text sample? (a) Stemming (b) Lemmatisation (c) Bag of words (d) None of the above	1
ii.	A neural network with multiple layers of interconnected neurons is called a: (a) Single-layer network (b) Deep Neural Network (c) Linear network (d) Perceptron	1
iii.	The percentage of correct predictions out of all observations is a. Prediction b. Accuracy c. F1 Score d. None of these	1
iv	Which range represents grayscale image pixel values? (a) 1 to 128 (b) 0 to 255 (c) 0 to 1000 (d) 1 to 256	1
v.	Which of the following is NOT a step in Text Normalisation? (a) Tokenization (b) Lemmatization (c) Punctuation removal (d) Document summarization	1
vi.	**Assertion:** Value-based frameworks in ethics provide guidance by focusing on fundamental ethical principles and values. **Reasoning:** These frameworks reflect different moral philosophies guiding ethical reasoning and are concerned with assessing the moral worth of actions. (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True	1

SECTION B
SUBJECTIVE TYPE QUESTIONS (26 marks)

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

Q. 6	Draw any four common signs used for Visual Communication. Explain what each conveys and where did you see it?	2
Q. 7	Ravi is preparing for his board exams but gets distracted by mobile games and social media. As a result, he is unable to complete his daily study schedule. Suggest two self-management strategies Ravi can use to stay focused.	2
Q. 8	A user installs a game from the internet, but it quietly steals personal data in the background. What do we call this harmful program in computer terminology?	2
Q. 9	List any two qualities of the entrepreneur?	2
Q. 10	'Reduced Inequalities' is one of the Sustainable development goals set by the UN. Give any two ways to reduce inequalities.	2

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

Q. 11	A school is planning to build an AI project to predict students' exam results. Explain the two most important steps they should do before model training?	2
Q. 12	While developing an AI model for hiring employees, the team realizes the dataset is biased towards one gender. Why is it important to remove this bias?	2
Q. 13	Identify the type of model (classification, regression, clustering, association model) are the following case studies most likely based on? a) A bank wants to predict whether a loan applicant will "default" or "non-default" on their loan payments. They have a dataset containing information such as income, credit score, loan amount, and employment status. b) A real estate agency wants to predict the selling price of houses based on various features such as size, location, number of bedrooms, and bathrooms. They have a dataset containing historical sales data. c) A marketing company wants to segment its customer base into distinct groups based on purchasing behaviour for targeted marketing campaigns. They have a dataset containing information such as purchase history, frequency of purchases, and amount spent. d) A grocery store wants to identify associations between different products purchased by customers to understand which products are commonly bought together. They have a transaction dataset containing records of items purchased together during each transaction.	2
Q. 14	Draw confuse matrix for the following case: In a medical test for a rare disease, out of 1000 people tested, 50 actually have the disease while 950 do not. The test correctly identifies 40 out of the 50 people with the disease as positive, but it also wrongly identifies 30 of the healthy individuals as positive	2
Q. 15	Define Computer Vision and provide one real-life application.	2
Q. 16	Differentiate Script Bot and Smart Bot	2

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

Q. 17	What do you mean by Bioethics? Mention the four principles of it.	4
Q. 18	Identify the type of learning (supervised, unsupervised, reinforcement learning) and justify (reason for) your answer are the following case studies most likely based on? I. A bank wants to detect fraudulent transactions. They have past transaction data with labels indicating "fraudulent" or "legitimate."	4

<table>
<tr><td></td><td>II. A movie streaming platform wants to cluster users into groups based on their viewing history to recommend similar movies. There are no predefined labels.
III. A robot is trained to play football by receiving rewards for scoring goals and penalties for missing or fouling.
IV. An e-commerce company wants to categorize products into different groups automatically based on descriptions and reviews, but the categories are not given in advance.</td><td></td></tr>
<tr><td>Q. 19</td><td>Explain neural networks. Describe the three layers of neural networks.</td><td>4</td></tr>
<tr><td>Q. 20</td><td>What is Text Normalization and write the steps of it?</td><td>4</td></tr>
<tr><td>Q. 21</td><td>A fraud detection system is used to identify fraudulent transactions (1) from legitimate ones (0). Out of 1000 transactions:

<table><tr><td colspan="2" rowspan="2">Confuse Matrix</td><td colspan="2">Reality</td></tr><tr><td>True</td><td>False</td></tr><tr><td rowspan="2">Predicted</td><td>True</td><td>TP=80</td><td>FP=30</td></tr><tr><td>False</td><td>40</td><td>850</td></tr></table>
Calculate accuracy, precision, recall, and F1-score.</td><td>4</td></tr>
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