KENDRIYA VIDYALAYA SANGATHAN
TINSUKIA REGION
PRE-BOARD EXAMINATION
SESSION: 2025-26
CLASS-X
ARTIFICIAL INTELLIGENCE (417)

Max. Time: 2 Hours **Max. Marks: 50**

General Instructions:

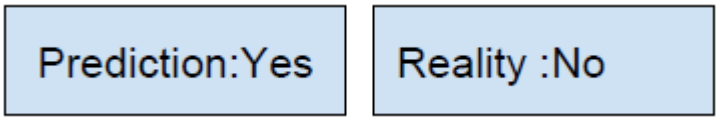
1. *Please read the instructions carefully.*
2. *This Question Paper consists of **21 questions** in two sections: Section A & Section B.*
3. *Section A has Objective type questions whereas Section B contains Subjective type questions.*
4. ***Out of the given (5 + 16 =) 21 questions, a candidate has 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):***
    i. *This section has 05 questions.*
    ii. *Marks allotted are mentioned against each question/part.*
    iii. *There is no negative marking.*
    iv. *Do as per the instructions given.*
7. ***SECTION B – SUBJECTIVE TYPE QUESTIONS (26 MARKS):***
    i. *This section has 16 questions.*
    ii. *A candidate has to do 10 questions.*
    iii. *Do as per the instructions given.*
    iv. *Marks allotted are mentioned against each question/part.*

SECTION A: OBJECTIVE TYPE QUESTIONS

Q.1	Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)	Marks
i.	Rani is a young woman who makes earrings. She buys jute from a farmer and makes earrings from that. She sees that most women in her village do not work. So, she hires two women to help her. As her orders increase, she hires three more women to work for her. How was she helping her village grow? (a) By selling earrings to women without a job (b) By purchasing earrings from the local market (c) By buying jute from the local farmer and by providing jobs to local women (d) By attracting the women in her village with her creative earrings	**1**
ii.	Which of the following allows you to move a file from one folder to another? (a) Copy and paste (b) Cut and paste (c) Delete (d) Open	**1**
iii.	Which of the following can cause stress? (a) Yoga and meditation (b) Roaming around in crowded area	**1**

	(c) Organized academic life (d) Enjoying holidays with family	
iv.	A misunderstanding arises between two colleagues due to a lack of trust and poor relationship. This is an example of:_____. (a) Organisational barrier (b) Linguistic barrier (c) Interpersonal barrier (d) Physical barrier	**1**
v.	"Efforts are made to ensure that everyone has access to safe and nutritious food and no one suffers from hunger." Which SDG can you relate this statement to? (a) Good health and well-being (b) Zero hunger (c) Clean water and sanitation (d) Quality education	**1**
vi.	Assertion (A): A software engineer is working remotely for a multinational company. Reason (R): The engineer is self-employed. (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 not correct. (d) A is not correct, but R is correct.	**1**
Q.2	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	**Marks**
i.	Which stage of the AI Project Cycle involves defining the problem statement? (a) Modelling (b) Problem Scoping (c) Data Acquisition (d) Evaluation	**1**
ii.	Which AI learning type works on *unlabelled* data? (a) Supervised (b) Unsupervised (c) Reinforcement (d) Rule-based	**1**
iii.	Which metric is derived from Confusion Matrix and focuses on minimizing false negatives? (a) Precision (b) Recall (c) Accuracy (d) F1 Score	**1**
iv.	Which of the following is NOT an application of Computer Vision? (a) Facial Recognition (b) Text Translation (c) Medical Imaging (d) Self-driving Cars	**1**
v.	Assertion (A): Neural Networks are inspired by the functioning of the human brain. Reason (R): They consist of interconnected layers of nodes that process information. (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	**1**

	(d) Both A and R are false	
vi.	Which of the following is NOT an application of Computer Vision? (a) Facial Recognition (b) Text Translation (c) Medical Imaging (d) Self-driving Cars	**1**
Q.3	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	**Marks**
i.	Match the following: (1) Classification → (a) Predicting weather temperature (2) Regression → (b) Spam email detection (3) Clustering → (c) Customer segmentation (4) NLP Application → (d) Sentiment analysis	**1**
ii.	The input layer of a neural network receives — (a) Processed data (b) Raw data (c) Labels (d) Outputs	**1**
iii.	Which of these is an application of NLP? (a) Speech recognition (b) Image detection (c) Video streaming (d) Object segmentation	**1**
iv.	Which of the following is a **reinforcement learning example**? (a) Sorting emails (b) Playing chess (c) House price prediction (d) Market segmentation	**1**
v.	The F1 score is the harmonic mean of — (a) Accuracy and Recall (b) Precision and Recall (c) Error and Accuracy (d) Precision and Error	**1**
vi.	Which model is best for predicting stock market prices? (a) Regression (b) Classification (c) Clustering (d) Association	**1**
Q.4	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	**Marks**
i.	Assertion (A): Computer Vision deals with interpreting images and videos. Reason (R): NLP is the same as Computer Vision. (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) Both A and R are false	**1**
ii.	In Bag of Words, the main focus is on — (a) Grammar	**1**

	(b) Word occurrence/frequency (c) Sentence structure (d) Semantic meaning	
iii.	Which operator is used in Computer Vision for edge detection? (a) Convolution (b) Pooling (c) Gradient (d) Normalization	**1**
iv.	Hidden layers in Neural Networks are responsible for — (a) Storing data (b) Extracting patterns/features (c) Giving outputs directly (d) Input preprocessing only	**1**
v.	Which of the following comes under Problem Scoping? a)System Mapping b) 4Ws Canvas c) Data Features d) Web scraping	**1**
vi.	A corpus contains 12 documents. How many document vectors will be there for that corpus? (a) 12 (b) 1 (c) 24 (d)1 / 12	**1**
Q.5	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	**Marks**
i.	In a binary classification problem, a model predicts 70 instances as positive out of which 50 are actually positive. What is the recall of the model? (a) 50% (b) 70% (c) 80% (d) 100%	**1**
ii.	Which one of the following is the second stage of AI project cycle? (a)Data Exploration (b) Data Acquisition (c) Modelling (d) Problem Scoping	**1**
iii.	Which condition of the evaluation does the following diagram indicate?  (a) True Positive (b) True Negative (c) False Positive (d) False Negative	**1**
iv.	Which model works on the principle of reward and punishment? a) Supervised Learning b) Unsupervised Learning c) Classification	**1**

	d) Reinforcement Learning	
v.	Which of the following words represent an example of a lemma resulting from lemmatisation for "caring" in context to Natural Language Processing (NLP)? (a) Care (b) Cared (c) Cares (d) Car	**1**
vi.	Assertion: Ethics provide guidance in distinguishing right from wrong. Reasoning: Ethics consist of a set of values and morals that aid individuals in making moral judgments and decisions. a)Both Assertion and Reasoning are true, and Reasoning is the correct explanation of the Assertion. b)Assertion is true, but Reasoning is false. c)Both Assertion and Reasoning are true, but Reasoning is not the correct explanation of the Assertion. d)Assertion is false, but Reasoning is true.	**1**

SECTION B: SUBJECTIVE TYPE QUESTIONS

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	List any four barriers to effective communication.	**2**
Q.7	Explain two ways to manage stress effectively.	**2**
Q.8	Write and explain any two qualities of an Entrepreneur.	**2**
Q.9	Discuss two ways ICT skills are useful in daily life.	**2**
Q.10	Discuss briefly about any two problems related to Sustainable Development.	**2**

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

Q.11	Outline the six stages of the AI Project Cycle.	**2**
Q.12	Differentiate between sector-based and value-based ethical frameworks.	**2**
Q.13	Differentiate between Rule-based and Learning-based models with examples.	**2**
Q.14	Write short notes on Classification and Regression models.	**2**
Q.15	Why are accuracy and error together important for model evaluation?	**2**
Q.16	Differentiate between 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	Explain Bioethics and its four principles with one case study.	**4**

Q.18	Explain supervised, unsupervised, and reinforcement learning with suitable real-life cases.	**4**
Q.19	Explain Bag of Words and TF–IDF with an example.	**4**
Q.20	Explain the six stages of the AI Project Cycle with example.	**4**
Q.21	A fraud detection system was tested on 1000 transactions. The results are: True Positives (TP) = 80 (fraud correctly detected) False Positives (FP) = 20 (legit transactions incorrectly flagged as fraud) True Negatives (TN) = 880 (legit correctly identified) False Negatives (FN) = 20 (fraud missed) Tasks: a) Construct the confusion matrix. b) Calculate Accuracy. c) Calculate Precision and Recall. d) Calculate the F1-score.	**4**

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