SET-2

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PRE-BOARD EXAMINATION (2025-26)
CLASS X
SUBJECT: ARTIFICIAL INTELLIGENCE (417)

MAXIMUM MARKS:=80 **MAXIMUM TIME ALLOWRD: 2HRS**

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)**	
i.	Which of the following does not help in stress management? (a) Healthy food (b) Sound sleep (c) Yoga asanas (d) Negative thoughts	**1**
ii.	Which of the following is a cloud-based storage service? (a) MS Word (b) VLC Media Player (c) Google Drive (d) Calculator	**1**
iii.	Ahana had been chosen for school exchange program for Korea. However, she only knows a very little about the Korean language. Thus, she often misinterprets things. This is an example of _____ . (a) Organisational barrier (b) Interpersonal barrier (c) Linguistic barrier (d) Cultural barrier	**1**

iv.	A weekly planner helps in: (a) Wasting time (b) Avoiding work (c) Organizing tasks and managing time (d) Increasing confusion	**1**
v.	What is the meaning of 'risk-taking' in entrepreneurship? (a) Avoiding all business activities (b) Taking unsafe decisions blindly (c) Making calculated decisions with possible outcomes (d) Waiting for others to start a business	**1**
vi.	A village community decides to start an organic farming initiative. They use natural compost, avoid synthetic pesticides, and promote soil health. This initiative is a direct application of green skills in: (a) Industrial waste management (b) Sustainable agriculture (c) Energy conservation (d) Waste to energy conversion	**1**

Q.2	**Answer any 5 out of the given 6 questions (1x5= 5 marks)**	
i.	You would feed the data into the machine. This is the data with which the machine can be trained. Now, once it is ready, it will predict his next data efficiently. This previous data is known as _. a)Testing Data b) Training Data c) Exploring Data d) All of the above	**1**
ii.	**Assertion(A):** Ethics provide guidance in distinguishing right from wrong. **Reasoning(R):** 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**
iii.	Statement 1: In the "When" block of the 4Ws canvas, we find the stakeholders. Statement 2: Stakeholders are the people who face a particular problem and would benefit from the solution. (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.	**1**
iv.	Suggesting songs based on listening history uses: a) Computer Vision b) NLP c) Data Science d) Robotics	**1**
v.	Q20._____ summarizes all of the important points in one place. a) Problem statement template b) Problem statement document c) Problem statement files d) None of the above	**1**
vi.	Which algorithms result in two things, a vocabulary of words and frequency of the words in the corpus? (a) Sentence segmentation (b) Tokenisation (c) Bag of words (d) Text normalisation	**1**

Q.3	**Answer any 5 out of the given 6 questions (1x5= 5 marks)**	
i.	The Disease Prediction System outputs labels like Healthy or Diseased. This is an example of: a) Classification b) Regression c) Clustering d) Reinforcement Learning	**1**
ii.	_____ balances precision and recall, making it useful for imbalanced datasets.	**1**
iii.	Which of the following is a feature in a dataset? a) Labels only b) Column attributes c) Output values d) Predefined answers	**1**

iv.	Deep learning is best applied in which scenario? a) large image datasets b) Structured tabular data c) small dataset d) Binary classification	**1**
v.	Identify the given Chatbot type: It follows a fixed script and cannot understand new questions.	**1**
vi.	A school trains an AI model to predict student's exam scores based on study hours. What should the school do to ensure the model performs well on new students? (a) Train on all student data (b) Train on 80% of data and test on 20% (c) Only test the AI (d) Use one student's data	**1**
Q.4	**Answer any 5 out of the given 6 questions (1x5= 5 marks)**	
i.	Divya was learning neural networks. She understood that there were three layers in a neural network. Help her identify the layer that does processing in the neural network. (a) Output layer (b) Hidden layer (c) Input layer (d) Data layer	**1**
ii.	Regression is mainly used for: a) Grouping unlabeled data b) Predicting categories c) Predicting continuous numerical values d) Detecting emotions from text	**1**
iii.	What does overfitting indicate in model evaluation? a) The model performs poorly on training data b) The model performs well on both training and test data c) The model performs well on training data but poorly on test data d) The model has high bias	**1**
iv.	Which model is commonly used for color representation in digital images? (a) CMYK (b) RGB (c) HSV (d) RYB	**1**
v.	_____is an NLP tool to express an opinion, whether the underlying sentiment is positive, negative, or neutral. (a) Text Classification (b)Machine Translation (c) Sentiment Analysis (d) Automatic Text Summarization	**1**
vi.	A city has implemented a traffic monitoring system. Cameras are installed at major intersections to detect vehicle count, identify traffic violations, and adjust signal timings automatically. The system also captures images of vehicles breaking traffic rules and sends e-challans to their owners. Name the concept.	**1**
Q.5	**Answer any 5 out of the given 6 questions (1x5= 5 marks)**	

i.	To help the field of agriculture, the government is using many AI technologies. One such usage is optimizing yield production by using data from sensors and satellites while considering climate conditions. This requires a great computation and complex models having many-many computational layers. Which AI technology do you think it may be based on. (a) Machine learning (b) Deep learning (c) Computer Vision (d) Natural Language processing	**1**
ii.	The process of adjusting the weights in a neural network to improve performance is called: (a)Activation (b)Learning (c)Optimization (d)Training	**1**
iii.	What is the function of the Rectified Linear Unit (ReLU) layer in a CNN? (a)To reduce the image size for more efficient processing (b)To assign importance to various aspects/objects in the input image (c)To get rid of negative numbers in the feature map and retain positive numbers (d)To perform the convolution operation on the input image	**1**
iv.	In the context of NLP, which of the following words represents a stem resulting from stemming for "Studies"? (A) Study (B) Stud (C) Studi (D) Studied	**1**
v.	In the context of text processing, what is the purpose of tokenisation? (a)To convert text into numerical data (b)To segment sentences into smaller units (c)To translate text into multiple languages (d)To summarize documents for analysis	**1**
vi.	Which metric is commonly used to evaluate the accuracy of a classification model? a) Precision b) Confusion Matrix c) Mean Squared Error d) Accuracy	**1**

SECTION B:SUBJECTIVE TYPE QUESTIONS

Answer any 3 out of the given 5 questions on Employability Skills (2x3=6marks)
Answer each question in 20 – 30 words.

Q.6	What do you understand by feedback?	**2**
Q.7	Define stress management. Mention any two stress management techniques.	**2**
Q.8	Explain the function of a firewall in computer security.	**2**
Q.9	List any two qualities of a successful entrepreneur.	**2**
Q.10	What are some eco-friendly alternatives to plastic bags?	**2**

Answer any 4 out of the given 6 questions in 20 –30 words each (2x4 =8marks)

Q.11	What is the necessity for Ethical Frameworks in AI development?	**2**
Q.12	An autonomous vehicle is learning to navigate through a city and receives rewards for safe driving and penalties for violations.	**2**

	a) What kind of learning is being implemented? b) How does this method help the AI system learn to perform the task better over time?	
Q.13	Explain train-test split with an example.	**2**
Q.14	What is image resolution?	**2**
Q.15	What is the role of NLP in chatbots?	**2**
Q.16	Why is it important to avoid overfitting in AI models?	**2**

Answer any 3 out of the given 5 questions in 50–80 words each (4x3=12 marks)

<table>
<tr><td>Q.17</td><td>A city government wants to implement a computer vision-based traffic monitoring system to detect traffic violations like running red lights and illegal parking. The system uses real-time video feeds and AI to automatically identify license plates and send violation notices.
What are the key ethical considerations for successfully deploying this computer vision application, and how can these challenges be addressed?</td><td>4</td></tr>
<tr><td>Q.18</td><td>Explain Convolutional Neural Network with respect to Computer Vision.</td><td>4</td></tr>
<tr><td>Q.19</td><td>Explain the Perceptron Model with the given context. (Illustrative Model)
Context: A manager is deciding whether to approve a work-from-home request from an employee.
Factors: Does the employee perform well when working remotely? Are there any Upcoming team meetings or collaborative projects? Does the company's policy support remote work? Is it beneficial for both the employee and the company?</td><td>4</td></tr>
<tr><td>Q.20</td><td>Normalize the given text for the given document below:
Corpus:
Raj and Vijay are best friends. They play together with other friends. Raj likes to play football but Vijay prefers to play online games. Raj wants to be a footballer. Vijay wants to become an online gamer.</td><td>4</td></tr>
<tr><td>Q.21</td><td>An AI model made the following digital payment usage prediction in a state where government has recently launched the facility of digital payments:
<table>
<tr><td colspan="2" rowspan="2">Confusion Matrix</td><td colspan="2">Reality</td></tr>
<tr><td>Yes</td><td>No</td></tr>
<tr><td rowspan="2">Prediction</td><td>Yes</td><td>50</td><td>40</td></tr>
<tr><td>No</td><td>12</td><td>10</td></tr>
</table>
(i) Identify the total number of wrong predictions made by the model.
(ii) Calculate precision, recall and F1 Score.</td><td>4</td></tr>
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