

**KENDRIYA VIDYALAYA SANGATHAN, JABALPUR REGION**  
**FIRST PRE- BOARD EXAMINATION (2025-26)**  
**CLASS- X**  
**SUBJECT: ARTIFICIAL INTELLIGENCE**  
**SUBJECT CODE: 0417**

**TIME: 2 HRS.**

**MM: 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**

Q1	Answer any 4 out of the given 6 questions on Employability Skills	1 X 4 = 04
I	<p><b>Assertion (A):</b> Raman always makes sure to maintain eye contact and he is appreciated by everyone for his communication skills.</p> <p><b>Reason (R):</b> Keeping a proper eye contact shows that you are mentally present and actively involved in the communication.</p> <p>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 correct explanation of A. c) A is correct but R is not correct. d) A is not correct but R is correct.</p>	1
II.	<p>What are the ABC of Stress Management?</p> <p>a) Avertable, Belief, Consequences. b) Adversarial, Being, Control c) Adversity, Belief, Consequences d) Adversity, Belief, Control</p>	1

III.	Which of the following is not one of the suggested steps to manage emotional intelligence? a) Making decisions purely based on emotions b) Observing your own behavior to understand your emotions c) Practicing meditation and yoga to stay calm d) Thinking rationally before making decisions	1
IV.	<b>Assertion(A):</b> A software developer works for a multinational company. <b>Reason(R):</b> The statement given above is an example of self-employment. 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
V.	Ram has started his own café. He keeps on trying new ideas to make different dishes for his customer and making plans for combo meals too, as an entrepreneur, Ram is- a) Impatient b) Lazy c) Creative d) Under-confident	1
VI.	What do the 3Rs in sustainability mean? a) Reuse, Repair, and Restore b) Reduce, Reuse, and Recycle c) Reform, Rebuild, and Reuse d) Redesign, Replace, and Renew	1
<b>Q2.</b>	<b>Answer any 5 questions out of 6 questions</b>	<b>1 X 5 = 05</b>
I.	In Statistical Data, what is the primary function of the system in relation to data? a) Generating large datasets b) Analyzing data to extract insights c) Converting data into images d) Distributing data across networks	1
II.	<b>Assertion (A) :</b> Ethics provide guidance in distinguishing right from wrong. <b>Reason (R) :</b> Ethics consist of a set of values and morals that aid individuals in making moral judgments and decisions 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 incorrect d) A is incorrect, but R is correct	1
III.	A smart assistant recommends songs based on listening history. Which type of learning is it using? a) Supervised b) Unsupervised c) Reinforcement d) Regression	1
IV.	Which model is commonly used for color representation in digital images? a) CMYK b) RGB c) HSV d) RYB	1

V.	After a model has been created and trained, it must be thoroughly tested in order to determine its efficiency and performance; this is known as _____.	1
VI.	Which feature of NLP helps in understanding the emotions of the people mentioned with the feedback? a) Virtual assistants b) Sentiment analysis c) Text classification d) Automatic summarization	1
<b>Q3</b>	<b>Answer any 5 questions out of 6 questions</b>	<b>1 X 5 = 05</b>
I.	<b>Assertion(A):</b> Grayscale images consist of varying shades of gray and use one byte per pixel. <b>Reason(R):</b> Each pixel in grayscale has three intensity values ranging from 0 to 255.  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 incorrect d) A is incorrect, but R is correct	1
II.	An AI agent playing a game and learning from its rewards and penalties is an example of: a) Supervised Learning b) Unsupervised Learning c) Reinforcement Learning d) Evolutionary Learning	1
III.	A student solved 90 out of 100 questions correctly in a multiple-choice exam. What is the error rate of the student's answers?? a) 50% b) 10% c) 80% d) 60%	1
IV.	<b>Statement 1:</b> Overfitting is not recommended for evaluation of a model. <b>Statement 2:</b> This is because the model will simply remember the whole training set, and will therefore always predict the correct label for any point in the training set.  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
V.	 Identify the logo of an application of AI given in the picture.	1
VI.	What do we call the process of dividing a string into component words? a) Regression b) Tokenization c) Classification d) Clustering	1

<b>Q4</b>	<b>Answer any 5 out of the given 6 questions</b>	<b>1 X 5 = 05</b>
I.	How does data science contribute to disease research? a) It provides a deeper understanding of genetic issues in drug response. b) It allows integration of different kinds of data with genomic data. c) It helps in personalizing treatments based on individual genetics. d) All of the above	<b>1</b>
II.	How is the relationship between model performance and accuracy described? a) Inversely proportional b) Not related c) Directly proportional d) Randomly fluctuating	<b>1</b>
III.	Statement A: Neural networks are made up of layers of neurons. Statement B: Human brain consists of millions of neurons. a) Only Statement A is correct b) Only Statement B is correct c) Both the statements are correct d) None of the statements is correct	<b>1</b>
IV.	The value of measure of balance between precision and recall ranges from _____ to _____.	<b>1</b>
V.	What does the pixel value represent in an image? a) Width of the pixel b) Brightness or color of the pixel c) Height of the pixel d) Resolution of the pixel	<b>1</b>
VI.	Aditi, a student of class XII developed a chatbot that clarifies the doubts of Economics students. She trained the software with lots of data sets catering to all difficulty levels. If any student would type or ask questions related to Economics, the software would give an instant reply. Identify the domain of AI in the given scenario. a) Computer Vision b) Data Science c) Natural Language Processing d) None of these	<b>1</b>
<b>Q5.</b>	<b>Answer any 5 out of the given 6 questions</b>	<b>1 X 5 = 05</b>
I.	The data we use for training must be _____. a) Biased b) Unbiased c) Not relevant d) None	<b>1</b>
II.	In an unsupervised learning scenario, the goal is to: a) Predict a specific output based on labelled data. b) Identify patterns and relationships within unlabelled data. c) Train an AI agent through rewards and penalties. d) Develop complex neural network architectures.	<b>1</b>

III.	 <div>Prediction: Yes</div> <div>Reality: Yes</div>	<p>Identify the case based on given picture?</p> <p>a) True positive b) True Negative c) False positive d) False Negative</p>	1
IV.	<p>_____ are the words which occur very frequently in the corpus but do not add any value to it.</p> <p>a) Special Characters b) Stopwords c) Roman Numbers d) Useless Words</p>		1
V.	<p>Which technique is used to assess the meaningfulness of the input text?</p> <p>a) Lexical Analysis b) Semantic Analysis c) Discourse Integration d) Syntactic Analysis</p>		1
VI.	<p>What does accuracy measures in AI model?</p> <p>a) The number of mistakes it makes b) The speed of prediction c) How often the model is correct d) How many errors it has</p>		1

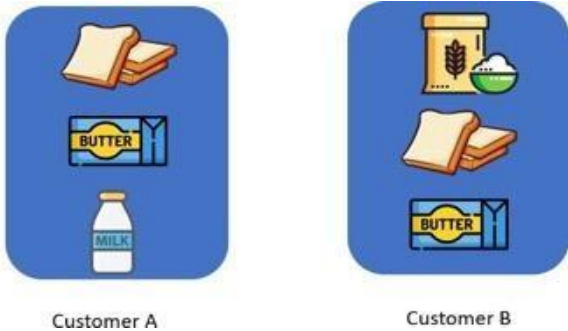
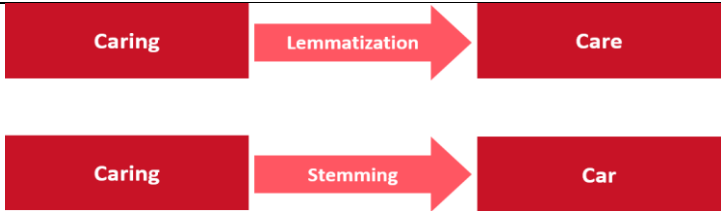
### SECTION B: SUBJECTIVE TYPE QUESTIONS

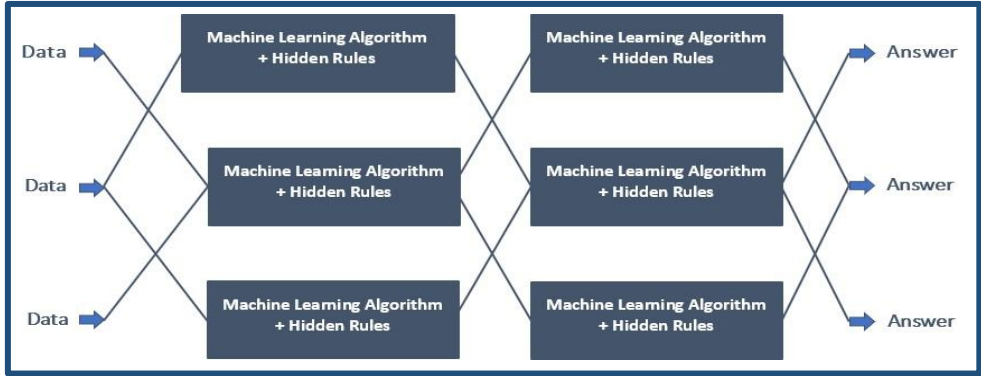
**Answer any 3 out of the given 5 questions on Employability Skills(20 – 30 words)  
2 X 3 =06**

Q6.	Write down the common communication barriers you may come across when you move to a new city or country.	2
Q7.	Enlist 4 steps used for effective time management	2
Q8.	Why is it important to create backups of data?	2
Q9.	Is it a reality or a myth “Entrepreneurs are born, not made”, support your answer with an example?	2
Q10.	What are some eco-friendly alternatives to plastic bags?	2

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

Q11.	What is meant by the term Artificial Intelligence, how it is different from human intelligence?	2
Q12.	<p>Identify the and explain the model used (classification or regression) in the following cases-</p> <p><b>Case 1:</b> Predicting whether a customer is eligible for a bank loan or not?</p> <p><b>Case 2:</b> Predicting weather for next 24 hours.</p>	2

Q13.	<p>Consider a supermarket example wherein</p> <ul style="list-style-type: none"> <li>Customer A buys bread, butter, and milk</li> <li>Customer B buys rice, bread, and butter</li> </ul>  <p>Customer A                      Customer B</p> <p>Identify the learning method used , How it helps to find relationships between variables from the database, which can be useful to recommend items to customers?</p>	2
Q14.	<p>Identify which metric (Precision or Recall) is to be used in the following cases and why?</p> <p>a) Gold Mining b) Viral Outbreak</p>	2
Q15.	Describe the role of Computer Vision in the healthcare industry.	2
Q16.	 <p>Differentiate between the processes shown in the given picture.</p>	2
<b>Answer any 3 out of the given 5 questions in 50– 80 words each (4 x 3 = 12 marks)</b>		
Q17.	What is meant by Ethical framework ,Briefly explain the types of Ethical Frameworks used to reduce AI bias?	4
Q18.	<p>Identify the model: <b>Supervised or Unsupervised</b> based on the given cases and explain why?</p> <p><b>Case 1:</b> Social Media platforms identify your friend in a picture from an album of tagged photographs</p> <p><b>Case 2:</b> OTT platform Recommendations based on someone's watch history</p> <p><b>Case 3:</b> Analyze bank data for suspicious-looking transactions and flag the fraud transactions.</p> <p><b>Case 4:</b> An email spam filter that learns to identify spam emails based on labelled examples.</p>	4

Q19.	<div></div> <p>Identify the concept shown in the above fig. and also explain its working?</p>	4													
Q20.	<p>Implement all the four steps of Bag of words Algorithm to create a document vector table for the given corpus:</p> <p>Document 1: We are going to Mumbai</p> <p>Document 2: Mumbai is a famous place.</p> <p>Document 3: We are going to a famous place.</p>	4													
Q21.	<p>An AI model made the following sales prediction for a new mobile phone which they have recently launched, Based on the given confusion matrix answer the following questions-</p> <table border="1" data-bbox="247 1180 1278 1467"><thead><tr><th colspan="2" rowspan="2">Confusion Matrix</th><th colspan="2">Reality</th></tr><tr><th>Yes</th><th>No</th></tr></thead><tbody><tr><th rowspan="2">Prediction</th><th>Yes</th><td>50</td><td>40</td></tr><tr><th>No</th><td>12</td><td>10</td></tr></tbody></table> <p>(i) Identify the total number of wrong predictions made by the model. (ii) Calculate a) accuracy b) precision c) recall</p>	Confusion Matrix		Reality		Yes	No	Prediction	Yes	50	40	No	12	10	4
Confusion Matrix				Reality											
		Yes	No												
Prediction	Yes	50	40												
	No	12	10												