



# **B.K. BIRLA CENTRE FOR EDUCATION**

**SARALA BIRLA GROUP OF SCHOOLS  
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL**



## **PRE BOARD 3 EXAM : 2025-26**

### **ARTIFICIAL INTELLIGENCE (417)**

## Class: X (SET 02)

Date: 12-01-2026

Admission No. : .....

**Time : 2 Hrs.**

**Max Marks: 50**

Roll No. :

### ***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 question.
  - ii. Marks allotted are mentioned against 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.**

$$(4 \times 1 = 4)$$

(i) Which of these is not a common communication barrier ?

(a) Linguistic barrier (b) Interpersonal barrier  
(c) Financial barrier (d) Organisational barrier

(ii) The self management skills of an employee are very important at the workplace to acquire

(a) Driving skill (b) maintenance skill  
(c) Self confidence (d) Physical strength

(iii) What makes you complete work or studies without others cheering you ?

(a) Self confidence (b) Communication  
(c) Self motivation (d) Self esteem

(iv) Which of the following are individuals who use the internet to exploit, manipulate or abuse others ?

(a) Online predators (b) Worms  
(c) Trojan horse (d) Antivirus

**Q.(2) Answer any 5 out of the given 6 questions.**

$$(5 \times 1 = 5)$$

(i) Machines and robots powered by AI can replace human workers, which could lead to .....  
(ii) Which of the following is NOT an application of computer vision ?  
(a) Categorising photos in a smartphone  
(b) Identifying faces in CCTV footage  
(c) Playing music based on mood  
(d) Enabling self driving cars  
(iii) What is the main goal of the data acquisition stage in AI project ?  
(a) To collect raw data for analysis and reference  
(b) To visualise data using statistical methods  
(c) To test the AI model  
(d) To deploy the model into production  
(iv) Self driving cars utilise ..... to recognise objects such as lamp posts, pedestrian crossings and stop signs.  
(v) Which ethical framework emphasises good character traits such as kindness and compassion?  
(a) Value based ethical framework  
(b) Virtue based ethical framework  
(c) Right based ethical framework  
(d) Utility based ethical framework  
(vi) **State True or False :**  
ANNs are inspired by the structure and function of neurons in the human brain.

**Q.(3) Answer any 5 out of the given 6 questions.**

$$(5 \times 1 = 5)$$

- (i) Which of the following is labelled data ?
  - (a) Unmarked data
  - (b) Marked or tagged data
  - (c) Raw data
  - (d) Unusable data
- (ii) Machine Learning focuses on .....
  - (a) Building circuits
  - (b) Learning from data
  - (c) Simulating emotions
  - (d) Physical robots
- (iii) Which algorithm is primarily used in image related tasks like facial recognition ?
  - (a) Regression
  - (b) ANN
  - (c) CNN
  - (d) Classification
- (iv) Which term refers to the actual value being positive, but the model predicting it as negative?
  - (a) True Positive
  - (b) False Positive
  - (c) False Negative
  - (d) True Negative
- (v) Which metric is used to reduce the no. of false positives and false negatives ?
  - (a) Accuracy
  - (b) F1 Score
  - (c) Precision
  - (d) Recall
- (vi) Which evaluation technique involves dividing the dataset into training and testing subsets?
  - (a) Precision
  - (b) Gradient boosting
  - (c) Train test split
  - (d) Recall

**Q.(4) Answer any 5 out of the given 6 questions.**

**(5 x 1 = 5)**

- (i) Which of the following statements is true about F1 score ?
  - (a) F1 score is the average of precision and recall
  - (b) F1 score only considers false negatives
  - (c) F1 score is the sum of precision and recall
  - (d) F1 score is always equal to the accuracy of the model.
- (ii) What is the primary purpose of model evaluation in machine learning ?
  - (a) To reduce the size of the dataset
  - (b) To measures the model's performance and ensure it generalizes well to unseen data
  - (c) To increase the complexity of the model
  - (d) To avoid the need fro real world testing
- (iii) In which scenario is a model said to be “underfitting” ?
  - (a) The model performs poorly on both training and test sets
  - (b) The model performs well on both training and test sets
  - (c) The model memorizes the training data but fails to generalize
  - (d) The model performs well on the training set but poorly on the test set
- (iv) In a grayscale image, what does the darkest shade represent ?
  - (a) Total presence of colour
  - (b) Zero value of pixel
  - (c) Lightest shade of gray
  - (d) Maximum pixel value
- (v) What is the primary goal of computer vision ?
  - (a) To understand and interpret visual information from the world
  - (b) To simulate human brain activity
  - (c) To create 3D models from images
  - (d) To develop algorithms for natural language processing
- (vi) Object detection and handwriting recognition are examples of tasks commonly associated with :
  - (a) Computer vision
  - (b) Image processing
  - (c) Both a and b
  - (d) None of these

**Q.(5) Answer any 5 out of the given 6 questions.**

**(5 x 1 = 5)**

- (i) Which of the following is the real world example of image processing ?
  - (a) Self driving cars
  - (b) Automated surveillance systems
  - (c) Removing red eye effects in photos
  - (d) Virtual Reality devices
- (ii) Which NLP stage arranges words and sentences according to the grammar of the language ?
  - (a) Lexical analysis
  - (b) Syntactic analysis
  - (c) Semantic analysis
  - (d) Pragmatic analysis
- (iii) Which of the following is not a rule that governs languages ?
  - (a) Syntax
  - (b) Lexicon
  - (c) Algorithm
  - (d) Semantics
- (iv) Chat means ..... while bot means .....
- (v) Which term refers to the number of documents in which a specific word appears, irrespective of how many times it occurs in those documents ?
  - (a) Word frequency
  - (b) Term frequency
  - (c) Document frequency
  - (d) Inverse document frequency
- (vi) What do personal assistant applications like Siri, Cortana and Alexa primarily use to understand human language ?
  - (a) Image recognition
  - (b) NLP
  - (c) Data analysis
  - (d) Machine learning algorithms

## **SECTION B: SUBJECTIVE TYPE QUESTIONS**

**Answer any 3 out of the given 5 questions on Employability Skills.**

**(3 x 2 = 6)**

**Answer each question in 20-30 words.**

**Q. (6)** What is communication ? Give any two measures to overcome barriers to effective communication.

**Q. (7)** What are the tips for practicing the four steps for effective time management ?

**Q. (8)** List any four important functions performed by an operating system.

**Q. (9)** Explain in detail any four functions performed by an entrepreneur.

**Q. (10)** What do you mean by green skills ? What initiative is taken by the Government of India in the context of green skills ?

**Answer any 4 out of the given 6 questions in 20-30 words each.**

**(4 x 2 = 8)**

**Q. (11)** What is the need of ethical frameworks for AI ? (any 4 points)

**Q. (12)** Differentiate between labelled and unlabelled dataset.

**Q. (13)** Explain any two examples of Regression model.

**Q. (14)** Explain the concept of a confusion matrix and its components. How is it used to evaluate a classification model ?

**Q. (15)** What is Computer Vision and how does it relate to AI ? Explain in detail.

**Q. (16)** What is NLP ? Define language translation.

**Answer any 3 out of the given 5 questions in 50-80 words each.**

**(3 x 4 = 12)**

**Q. (17)** Explain all the steps of AI project cycle.

**Q. (18)** Differentiate between Machine Learning and Deep Learning.

**Q. (19)** Name and explain any four real world applications of Neural Network.

**Q. (20)** A bank developed an AI model to detect fraudulent transactions. After testing the model on 1000 transactions, the following confusion matrix was generated :

	<b>Predicted : Fraud</b>	<b>Predicted : Not fraud</b>
<b>Actual : Fraud</b>	40	10
<b>Actual : Not fraud</b>	20	930

Calculate the Accuracy, Precision, Recall and F1 score.

**Q. (21)** Consider the following documents :

Document 1 : A deep learning model requires data.

Document 2 : A model learns from training data.

Implement the four steps of the Bag of Words (BoW) model to create a document vector table for this corpus.

\*\*\*\*\* ALL THE BEST \*\*\*\*\*