



# B.K. BIRLA CENTRE FOR EDUCATION

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

## PRE BOARD - III (2025-26) ARTIFICIAL INTELLIGENCE (843) / SUBJECT-05

Set-02 / 843

Class : XII A/B/C  
Date : 17-01-2026  
Admission No.:

Duration: 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 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 behaviours are part of active listening? 1  
(a) maintain eye contact (b) nodding and making eye contact  
(c) asking for clarification (d) all of these
- ii. \_\_\_\_\_ motivation is based on the physical needs to satisfy hunger or thirst. 1  
(a) Psychological (b) Physiological (c) Intrinsic (d) None of these
- iii. A person suffering from \_\_\_\_\_ disorder appears to be emotionally frigid and displays little interest in building personal ties. 1  
a) Schizoid personality disorder b) Dependent personality disorder  
c) Antisocial personality disorder d) Narcissistic personality disorder
- iv. If A1:A4 contains the numbers 11, 12, 13, 14, the formula =AVERAGE(A1:A4) in cell A5 will display \_\_\_\_\_. 1  
(a) 50 (b) 12.5 (c) 25 (d) None of these

v. Sayed knows what business he wants to do but does not know what steps he has to take to get it running. The barrier stopping him is \_\_\_\_\_.  
(a) building the right team (b) lack of plan (c) risk taking (d) None of these 1

vi. To address the skilled workforce issues associated with sustainable development, the Ministry of Skill Development and Entrepreneurship has set up the \_\_\_\_\_.  
(a) Skill Council for Green Jobs (b) Skill Council for Entrepreneurship  
(c) Skill Council for Sustainability (d) None of these 1

**Q. 2 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**

i. Statement 1- There is no optimal split percentage  
Statement 2- The most common split percentage between training and testing data is 20%-80%  
(a) Statement 1 is true Statement 2 is false  
(b) Statement 2 is true Statement 1 is false  
(c) Both Statement 1 and 2 are true  
(d) Both Statement 1 and 2 are false 1

ii. Train-test split function is imported from which Python module?  
(a) sklearn.model\_selection (b) sklearn.ensemble  
(c) sklearn.metrics (d) sklearn.preprocessing 1

iii. Identify the incorrect statement:  
i. cross-validation gives a more reliable measure of your model's quality  
ii. cross-validation takes short time to run  
iii. cross-validation gets multiple measures of model's quality  
iv. cross-validation is preferred with small data  
(a) ii and iii (b) iii only (c) ii only (d) ii, iii and iv 1

iv. A computer sees an image as a series of \_\_\_\_\_.  
(a) colours (b) pixels (c) objects (d) all of the above 1

v. \_\_\_\_\_ empowers computer vision systems to extract valuable insights and drive intelligent decision-making in various applications, ranging from autonomous driving to medical diagnostics.  
(a) Low level processing (b) High insights (c) High-level processing (d) None of the above 1

vi. In Feature Extraction, which technique identifies abrupt changes in pixel intensity and highlights object boundaries?  
(a) Edge detection (b) Corner detection (c) Texture Analysis (d) boundary detection 1

**Q. 3 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**

i. Choose the incorrect statement related to pre-processing stage of computer vision  
(a) It enhances the quality of acquired image  
(b) Noise reduction and Image normalization is often employed with images  
(c) Techniques like histogram equalization can be applied to adjust the distribution of pixel intensities  
(d) Edge detection and corner detection are ensured in images. 1

ii. 1 byte = \_\_\_\_\_ bits  
(a) 10 (b) 8 (c) 2 (d) 1 1

iii. What is the primary purpose of data pre-processing in big data analytics?  
(a) To increase data volume (b) To reduce data variety  
(c) To improve data quality (d) To speed up data processing 1

- iv. Which technique is commonly used for analyzing large datasets to discover patterns and relationships? 1  
(a) Linear regression (b) Data mining (c) Decision trees (d) Naive Bayes
- v. Which term describes the process of extracting useful information from large Datasets ? 1  
(a) Data analytics (b) Data warehousing (c) Data integration (d) Data virtualization
- vi. What is backpropagation in neural networks? 1  
(a) The process of adjusting weights and biases to minimize the error in the network.  
(b) The process of propagating signals from the output layer to the input layer.  
(c) The process of initializing the weights and biases of the network.  
(d) The process of defining the architecture of the neural network.
- Q. 4 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**
- Assertion and Reasoning questions:**  
Direction: Questions i-ii, consist of two statements – Assertion (A) and Reasoning (R). Answer these questions by selecting the appropriate option given below:  
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. A is false, but R is true.
- i. **Assertion (A):** The Business Understanding stage is the most crucial step in Data Science Methodology. 1  
**Reasoning (R):** Without a clear understanding of the problem, the AI model may still provide an accurate solution.
- ii. **Assertion (A):** The right analytic approach is selected based on the nature of the problem in an AI project. 1  
**Reasoning (R):** Choosing an incorrect analytic approach can lead to misleading insights and ineffective decision-making.
- iii. Which type of neural network is commonly used for image recognition? 1  
(a) Feedforward neural network. (b) Convolutional neural network.  
(c) Recurrent neural network. (d) Perceptron.
- iv. How do neural networks learn from data? 1  
(a) By adjusting their weights and biases based on the error in their predictions.  
(b) By memorizing the training data.  
(c) By using a fixed set of rules.  
(d) By ignoring the input data.
- v. Which technology raises concerns about the authenticity of digital content and the spread of misinformation? 1  
(a) Deepfake AI (b) Generative Adversarial Networks (GANs)
- vi. Which of the following is NOT an application of generative AI? 1  
(a) Creating original music compositions  
(b) Crafting promotional videos for marketing campaigns  
(c) Analysing sentiment in social media posts (d) Identifying features in image datasets

**Q. 5 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**

**Assertion and Reasoning questions:**

Direction: Questions i-ii, consist of two statements – Assertion (A) and Reasoning (R). Answer these questions by selecting the appropriate option given below:

- 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. A is false, but R is true.

- i. **Assertion (A):** Freytag's Pyramid helps structure data stories by providing a clear framework for storytelling. 1  
**Reasoning (R):** Freytag's Pyramid includes stages like introduction, rising action, climax, falling action, and conclusion.
- ii. **Assertion (A):** Ethical storytelling is essential for building trust with the audience. 1  
**Reasoning (R):** Misleading visuals and biased narratives can lead to false conclusions and poor decisions.
- iii. Data storytelling involves presenting insights and findings in a compelling narrative format. - 1  
**True / False**
- iv. Which of the following is NOT a component of effective data storytelling? 1  
(a) Compelling visuals (b) Clear narrative structure  
(c) Overcomplicating the message (d) Insightful analysis
- v. Which function quantifies the difference between the predicted values and the actual values in a Neural Network ? 1  
(a) Loss function (b) Bias function (c) Weight function (d) Transfer function
- vi. In which type of task would a neural Network typically have a single output node that predicts a numerical value ? 1  
(a) Binary classification (b) Multi-class classification  
(c) Continuous value prediction (d) Image segmentation

**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. How can we ensure active listening? 2
- Q 7. What is Goal-setting? Explain with the help of S.M.A.R.T acronym. 2
- Q 8. Write one difference each between the following with example (Any One): 2  
(a) Sorting and Filtering (b) Function and Formula
- Q 9. Describe a few barriers in entrepreneurship. 2
- Q 10. Define a Green job. Mention a few benefits of a green job. 2

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

- Q 11. Write any four applications of computer vision. 2
- Q 12. Enlist the four types of Big Data Analytics and explain any two. 2

**Q 13.** Calculate MSE and RMSE values for the data given below. 2

Predicted value	14	19	17	13	12	7	24	23	17	18
Actual Value	17	18	18	15	18	11	20	18	13	19

**Q 14.** You are planning to go out for dinner and are deciding between two restaurants. You consider three factors which are food quality, ambience, and distance. Using a neural network concept, determine the inputs and weights. 2

**Q 15.** What are the limitations and risks involved with Large Language Models? 2

**Q 16.** A retail company conducted a customer behaviour analysis to understand shopping patterns and preferences. They collected data on purchase history, browsing behaviour, and customer demographics. Based on the analysis, they created a data storytelling presentation to improve marketing strategies. How did the retail company use data storytelling to enhance their marketing strategies? 2

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

**Q 17.** Explain the role of neural networks in the future of AI. 4

**Q 18.** What steps would you take to evaluate the performance of the AI model in your Capstone Project? Discuss the metrics you would use. 4

**Q 19.** Explain the 6 V's related to Big data. 4

**Q 20.** A marketing agency, "Creative Horizons", leverage Generative AI technologies to enhance its campaign strategies. The agency uses various AI models for creating unique advertising content, including AI-generated images, personalised text for email campaigns, dynamic video ads, and innovative audio jingles. One of their key projects involves launching a new line of eco-friendly products for a client. The campaign's success hinges on the uniqueness and engagement of the generated content, aiming to highlight the product's sustainability features innovatively. 4

i) What are the primary types of AI models used by "Creative Horizons" for their campaign?  
ii) How does Generative AI contribute to creating personalised email campaign content?  
iii) Identify one potential ethical consideration the agency must address when using Generative AI in advertising.  
iv) What is a significant advantage of using Generative AI for dynamic video ad creation?

**Q 21.** A healthcare organization analyzed patient satisfaction survey data to identify areas for improvement in patient care and services. They collected data on patient feedback, treatment outcomes, and facility experiences. How can data storytelling be used for improvement in patient care? 4

**\*\*\*\*\* BEST OF LUCK \*\*\*\*\***