



B.K. BIRLA CENTRE FOR EDUCATION

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

PRE BOARD - 01 (2025-26) ARTIFICIAL INTELLIGENCE (843) / SUBJECT-05

Class : XII A/B/C
Date : 07-11-2025
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 is NOT a phase of active listening ? | 1 |
| | a) Evaluating b) Receiving c) Understanding d) Post | |
| ii. | What is the meaning of R in 'SMART' goal setting ? | 1 |
| | a) Right b) Rigid c) Realistic d) Reasonable | |
| 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. | _____ is a collection of numerous rows and columns. | 1 |
| | a) worksheet b) slide c) workbook d) sidebar | |
| v. | An entrepreneur's primary responsibility is to secure the timely availability of all the _____. | 1 |
| | a) money b) infrastructure c) resources d) supplies | |

- vi. Why is the wind energy sector growing ? 1
a) Decreasing demand for renewable energy b) Increasing global demand for clean energy
c) Preference for fossil fuels d) Lack of employment opportunities

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

- i. In linear regression, which library is typically used for importing and managing data ? 1
a) Numpy b) Pandas c) Matplotlib d) Scikit-learn
- ii. Which python platform offers GPU and TPU acceleration for faster execution of deep learning models ? 1
a) Visual Studio Code b) Python IDLE c) Jupyter Notebook d) Google Colab
- iii. Which pandas method is used to delete rows or columns in a DataFrame ? 1
a) .remove() b) .delete() c) .drop() d) .discard()
- iv. How many steps are included in the Data Science Methodology ? 1
a) 5 b) 8 c) 10 d) 12
- v. Which of the following is an example of a secondary data source ? 1
a) Focus Groups b) Experiments and Observations
c) Books, Journals, and Research Papers d) Oral Histories
- vi. Train-test split function is imported from which Python module ? 1
a) sklearn.model_selection b) sklearn.ensemble c) sklearn.metrics d) sklearn.preprocessing

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

- i. Which colour model is commonly used in Computer Vision for coloured images ? 1
a) CMYK b) HSV c) RGB d) Greyscale
- ii. What does R-CNN stand for ? 1
a) Recurrent-Convolutional Neural Network b) Region-based Convolutional Neural Network c) Regularised-Convolutional Neural Network d) Refined-Convolutional Neural Network
- iii. Which algorithm may be used for supervised learning in computer vision ? 1
a) KNN b) K-means c) K-fold d) KEAM
- iv. Why do businesses like Amazon and Netflix use Big Data ? 1
a) To manage employee schedules b) To suggest products or shows based on user preferences.
c) To control website design and layout d) To create customer profiles manually.
- v. Which of the following is a common Big Data tool used for managing large datasets ? 1
a) Photoshop b) Hadoop c) Canva d) Excel
- vi. Orange has built-in support for live stream data processing. (True / False). 1

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)** : Neural Networks raise concerns about data privacy. 1
Reasoning (R) : Without proper safeguards, data used by Neural Networks can be misused, leading to security breaches and identify theft.
- ii. **Assertion (A)** : The growing adoption of Neural Networks will create new job opportunities in data science, AI research, and machine learning engineering. 1
Reasoning (R) : Addressing challenges like data privacy, algorithmic bias and job displacement requires a responsible approach to AI development, supported by clear regulatory frameworks.
- iii. GAN stands for Generative Adversarial network.(True/False) 1
- iv. In neural network, which layer is responsible for transforming data and recognizing patterns ? 1
a) Input layer b) hidden layer c) Output layer d) Data Storage layer
- v. Which of the following generative AI tools is known for enabling video editing and artistic rendering ? 1
a) Jukebox b) Runway and Stable Diffusion c) DALL-E d) AlphaGo
- vi. GPT is a discriminative model used for classifying text data. (True / False) 1

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):** Amazon's Titan is an AI model designed to enhance business and cloud service. 1
Reason (R) : Amazon's Titan is specifically designed to improve customer reviews and ratings on Amazon's e-commerce platform.
- ii. **Assertion (A):** Voice synthesis technology can generate realistic speech, imitating specific voices, accents, or creating entirely new ones. 1
Reason (R) : Voice synthesis models rely on AI algorithms that analyse can replicate speech patterns to produce natural-sounding audio.
- iii. Which of the following best describes the purpose of storytelling ? 1
a) To teach cooking skills b) To express emotions and share ideas
c) To improve handwriting d) To memorise historical data
- iv. What element in data storytelling connects data insights in a structured and engaging manner ? 1
a) Graph b) Narrative c) Info graphic d) Dataset
- v. Effective Data storytelling is built upon five fundamental elements. (True / False) 1
- vi. Which of the following is a timeless ability of stories ? 1
a) To confuse readers b) To inform, inspire and connect people
c) To replace traditional learning methods d) To entertain only children

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.** What do you understand by Feedback ? Why is it necessary in communication ? 2

- Q 7. What is stress ? List any three steps to overcome stress. 2
- Q 8. What is cell address ? Explain with the help of an example. 2
- Q 9. List few environmental barriers to becoming an entrepreneur. 2
- Q 10. Is rain water harvesting a green job ? Why / Why not ? 2

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

- Q 11. What is the purpose of a Confusion matrix in evaluating a classification model ? 2
- Q 12. What is the main difference between classification and detection ? 2
- Q 13. A telecom company is facing a high rate of customer complaints about call drops and poor network coverage. You are asked to analyse the issue using big data analytics.
a) What types of data should be collected to analyse network performance ?
b) What predictive models can be used to forecast future network congestion ? 2
- Q 14. How does a node in a neural network determine whether to pass data to the next layer ? 2
- Q 15. List any two applications of text generation and also describe them. 2
- Q 16. What are the key elements of a story ? 2

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

- Q 17. You are required to create a DataFrame in Python using **pandas**.
You can use **either of the two methods** given below: a) Dictionary or b) Using a CSV file
Assume you have a CSV file named "**student_data.csv**" containing the following data: 4

Student_ID	Name	Marks
101	Amit	85
102	Bhavna	78
103	Charan	92

- a) **Add a new row** to the DataFrame for a student with details:
Student_ID = 104, Name = 'Deepa', Marks = 88.
b) **Update the Marks** of the student with Student_ID = **102** to **82**.

- Q 18. A machine learning model's matrix is shown below: 4

	False Positive	False Negative
True Positive	50	10
True Negative	5	35

Using this confusion matrix, calculate the following metrics:

- a. Precision b. Recall c. F1 score d. Accuracy

- Q 19. Explain the significance of real-world applications of Computer Vision in various industries. 4
- Q 20. What are the steps followed by a Neural Network to process data ? 4
- Q 21. What is deepfake technology, and what are its potential risks and solutions ? 4

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