



B.K. BIRLA CENTRE FOR EDUCATION

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



TERM-1 EXAMINATION (2025-26)
ARTIFICIAL INTELLIGENCE (843) / SUBJECT-05

Class : XII A/B/C

Date : 05-09-2025

Admission No.:

Duration : 2 Hrs.

Max. Marks : 50

Roll No.:

General Instructions:

- (i) Please read the instructions carefully.
- (ii) This question paper consists of 21 questions in two Sections: Section – A & Section – B.
- (iii) Section – A has Objective type questions whereas Section – B contains Subjective type questions.
- (iv) Out of the given $(5 + 16) = 21$ questions, a candidate has to answer $(5 + 11) = 16$ questions in the allotted (maximum) time of 2 hours.
- (v) All questions of a particular section must be attempted in the correct order.

(vi) Section – A: Objective Type Questions (24 marks)

- (a) This section has 5 questions.
- (b) There is no negative marking.
- (c) Do as per the instructions given.
- (d) Marks allotted are mentioned against each question/part.

(vii) Section – B: Subjective Type Questions (26 marks)

- (a) This section has 16 questions.
- (b) A candidate has to do 11 questions.
- (c) Do as per the instructions given.
- (d) 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. MINTS is a simple set of rules that assist you in correctly _____ the words. 1
a. Capitalising b. Punctuating c. Joining d. Interjecting
- iii. “When will aunt Suman visit us “ ? is a _____. 1
a. Declarative Sentence b. Imperative Sentence c. Exclamatory Sentence
d. Interrogative Sentence
- iv. What type of motivation drives people to accomplish something because it gives them pleasure ? 1
a. Externally b. Internally c. Both (a) and (b) d. None of these
- v. In SMART goals, T stands for Time Bound. This means _____. 1
a. Set realistic goals b. Set a deadline and adhere to it. C. Track your goals.
d. Avoid unnecessary stress.

- vi. Which of the following sentences shows intrinsic motivation ? 1
- Reema helps others as it gives her satisfaction.
 - Rajesh serve in a restaurant for extra income.
 - Sunil planned maximum trees to get the first prize in a plantation drive.
 - Saksham visits old age home for his social science project.
- Q 2. Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)
- Which platform allows users to write and execute Python code directly in a web browser without installation ? 1
 - Jupyter Notebook
 - Visual Studio Code
 - Google Colab
 - Python IDLE - Which type of Numpy array represents a two-dimensional table of array ? 1
 - Rank 0 array
 - Rank 1 array
 - Rank 2 array
 - Rank 3 array - Which function can be used to export a DataFrame to a CSV file ? 1
 - export_csv()
 - to_file
 - to_csv()
 - save_csv() - Who introduced the Data Science Methodology, also known as the Foundational Methodology for Data Science ? 1
 - Andrew Ng
 - John Rollins
 - Geoffrey Hinton
 - Yann Lecun - Which of the following are common forms of feedback in the AI model life cycle ? 1
 - User reviews
 - Performance reports
 - Error logs
 - All of these - It consist of four statements – Assertion (A) and Reasoning (R). 1
- Answer these questions by selecting the appropriate option given below:
- Both A and R are True, and R is the correction explanation of A.
 - Both A and R are True , but R is not the correction explanation of A.
 - A is true but R is false
 - A is false but R is true.
- Assertion (A):** Data Visualization helps in understanding trends, patterns and relationships in data.
- Reasoning (R):** Data Visualization reduces the need for data cleaning and preparation.
- Q 3. Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)
- Which formula correctly represents Recall in a classification model ? 1
 - $TP / (TP + FP)$
 - $TP / (TP + FN)$
 - $TN / (TN + FP)$
 - $TN / (TN + FN)$ - What is the mail goal of Computer Vision ? 1
 - To make computers understand spoken language.
 - To enable computers to see, observe and understand the visual world.
 - To teach computers how to write poetry.
 - To improve internet speed. - Which colour model is commonly used in Computer Vision for coloured images ? 1
 - CMYK
 - HSV
 - RGB
 - Greyscale - In self-driving cars, how does Computer Vision contribute to safety ? 1
 - By analysing and detecting road signs, pedestrians, and vehicles.**
 - Br providing voice navigation.
 - By connecting to the internet for live weather updates.
 - By predicting fuel consumption - What is the main advantage of using Big data in business ? 1
 - It reduces the need for employees
 - It simplifies data entry for businesses.
 - It helps find patterns, make smart predictions and improve decision-making
 - It replaces customer service departments. - Which of the following is a common example of semi-structured data ? 1
 - SQL database
 - XML file
 - Audio recording
 - Printed document
- Q 4. Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)
- Which of the following is a common Big Data tool used for managing large datasets ? 1
 - Photoshop
 - Hadoop
 - Canva
 - Excel - Which of the following everyday applications is powered by Neural Networks ? 1
 - Facial recognition on smartphones
 - Manual calendar entries
 - Static road maps without updates
 - Basic text editors without predictive features

- iii. What happens when a neural network has more hidden layers ? 1
 a. The network becomes faster but less accurate. b. The network's learning process becomes simpler. c. The learning process becomes deeper and more complex.
 d. The network stops learning altogether.
- iv. Which application commonly uses Artificial Neural Networks (ANNs) ? 1
 a. Calendar reminders b. Spam filtering in emails. c. Calculator functions
 d. Digital locks
- v. In a neural network, which layer is responsible for transferring data and recognising patterns ? 1
 a. Input Layer b. Hidden Layer c. Output Layer d. Data Storage Layer
- vi. Which technique does Generative AI commonly used to create content ? 1
 a. Spreadsheets b. Deep learning and neural networks c. Binary coding
 d. Data Compression.
- Q 5. Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**
- i. What type of AI model is ChatGPT ? 1
 a. Large Language Model b. Image recognition model
 c. Data analysis tool d. Voice recognition system
- ii. 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
- iii. Which storytelling method combines visuals, sound and narratives for an immersive experience ? 1
 a. Films b. Novels c. Plays d. Handwritten copies of stories
- iv. What serves as the backbone of every data-driven story by providing essential evidence for insights and conclusions ? 1
 a. Visuals b. Narrative c. Data d. Charts
- v. Which of the following is a factor that makes storytelling powerful ? 1
 a. It promotes uniform thinking b. It facilitates openness for embracing differences.
 c. It limits creative expression d. It avoids reflecting on past events.
- vi. Which form of storytelling uses modern technology to create interactive and multimedia narratives? 1
 a. Epics b. Folklore c. Digital Storytelling d. Courtly Romances

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 does 'P' stand for in the acronym 'RESPECT' used to ensure active listening? Explain. 2
- Q 7. Ishaan is working in a multinational company. He is working from home today. He has to attend a very important meeting where he must listen and jot points. What should Ishaan do to listen effectively ? 2
- Q 8. Write about any two factors influencing self-motivation. 2
- Q 9. Samarth works hard for every exam but is not getting the desired results. Now, he is losing hope. What advice would you give him so that Samarth continues to work hard? 2
- Q 10. Compare Numpy arrays and Pandas DataFrames. 2
- Answer any 4 out of the given 5 questions in 20 – 30 words each (2 x 4 = 8 marks)**
- Q 11. An automobile company wants to predict the maintenance needs of its electric vehicle fleet. They plan to use IoT sensor data such as battery performance, engine temperature and mileage. What type of analytical model should be used ? 2
- Q 12. Write any four applications of computer vision. 2
- Q 13. Explain the working of a Neural Network. 2
- Q 14. Write about any two ethical principles that should be followed in data storytelling. 2
- Q 15. Explain any two advantages of Big data. 2

Answer any 4 out of the given 6 questions in 50– 80 words each (3 x 4 = 12 marks)

- Q 16. Write a python program to create a dataframe(df) using dictionary. The dictionary will contain following keys “Name”, “Age” and “City” and assume five values for each key. It should display full dataframe and also bottom three. 3
- Q 17. Consider the following data: 3

x	y
44	47
46	48
48	55
50	58
52	49

Regression Equation: $0.7x + 17.8$

Calculate the RMSE (Root means Square Error) for the above data.

- Q 18. Discuss the future of Big Data Analytics and the key technological advancements that will shape its growth. 3
- Q 19. What are the three main layers of a Convolutional Neural Network (CNN) ? Explain any two. 3
- Q 20. What are Variational Autoencoder (VAEs), and how do the encoder and decoder function within them ? 3
- Q 21. List any six key benefits of storytelling. 3

***** “ALL THE BEST !” *****