



COMMON PRE-BOARD EXAMINATION
ARTIFICIAL INTELLIGENCE - Code No. 843



Class-XII-(2025-26)

SET: 3

Time allowed: 2 Hrs.

Maximum Marks: 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 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.
7. SECTION B – SUBJECTIVE TYPE QUESTIONS (26 MARKS):
 - i. This section has 16 questions.
 - ii. A candidate has to do 10 questions.
 - iii. Marks allotted are mentioned against each question/part.

SECTION A: OBJECTIVE TYPE QUESTIONS

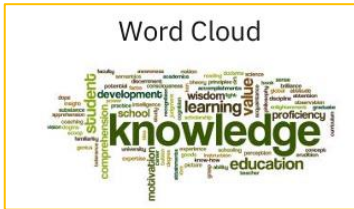
1. **Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)**
 - i. Nathaliya spends all her after-school hours practicing more and more sample question papers. 1
She wants to do well in her exams so that she can get admission in her dream college in the city.
This is an example of _____ motivation.
 - ii. Green collar workers include professionals such as organic farmers, environmental consultants, 1
and solar energy engineers. (TRUE/FALSE)

- iii. Assertion (A): The concept of an entrepreneur differs across disciplines. 1
- Reason (R): Experts define entrepreneurship based on their area of focus — such as economic resources, psychological traits, social influence, or leadership vision.
- 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
- iv. Which of the following functions can be performed with the help of spreadsheets? 1
- i. Maintaining records
 - ii. Creating videos
 - iii. Analyzing data
 - iv. Performing financial calculations
 - v. Writing letters
- a) i, ii, iii, iv, v
 - b) i, iii, iv
 - c) i, iii, v
 - d) iii, iv, v
- v. Effective communication can be abbreviated as _____ communication. 1
- a) 6 Cs
 - b) 7 Cs
 - c) 8 Cs
 - d) 9 Cs
- vi. _____rearranges the range of cells but filtering only hides temporarily the rows/
columns you do not want. 1
- a) Charts
 - b) Built in functions
 - c) Sorting
 - d) Solve

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

- i. A research institute is conducting a study on public sentiment towards environmental conservation efforts. They aim to gather insights from various data sources to understand public opinions and perceptions. They collect data from diverse sources such as news articles, online forums, blog posts, and social media comments. Which type of data does this description represent? 1
- a) Structured Data
 - b) Unstructured Data
 - c) Real time Data
 - d) Time Series Data
- ii. _____ is the process of selecting, modifying, or creating new features from raw data to improve the performance of machine learning models. 1
- iii. Which image segmentation technique would be most effective in this scenario: 1
- Salma is developing a quality control system for a manufacturing plant. The system needs to analyse images captured by cameras above a conveyor belt to identify and isolate defective products.
- a) Semantic segmentation
 - b) Instance segmentation
 - c) Edge detection
 - d) Segmentation
- iv. Assertion (A): Deepfake technology can be used to create highly realistic fake videos. 1
- Reason (R): Deepfakes use discriminative models to generate realistic images and videos.
- 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.
- v. An Artificial Neural Network (ANN) with two or more hidden layers is known as a _____ (Fill in the blank) 1

vi. Which of the following best describes the give visualization type used in text data analysis? 1



- a) A chart that shows numerical trends over time
- b) A visual representation of words where size indicates frequency or importance
- c) A table that lists words in alphabetical order
- d) A graph that shows relationships between variables

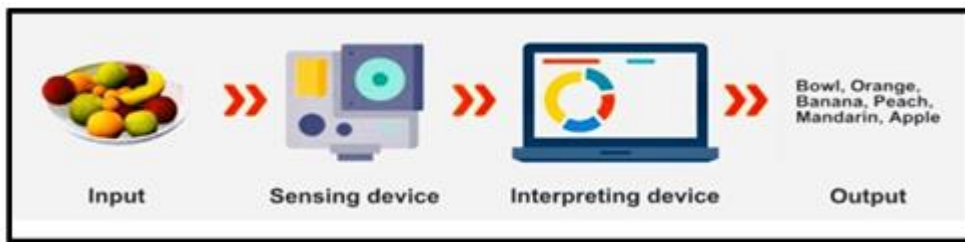
3. Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)

i. Assertion (A): The “Velocity” characteristic of Big Data is concerned with the variety of data sources. 1

Reasoning (R): Velocity refers to the speed at which data is generated and must be processed in real-time or near-real-time, not the variety of data sources.

- 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.

ii. 1



The given diagram shows the working of a vision-based system that identifies objects in an image. What is the other name for this technology?

iii. Generative AI focuses on learning how to draw lines or make rules to tell different things apart based on their features. (TRUE/FALSE). 1

iv. Match the Following

1

| | |
|--------------|--|
| 1. Accuracy | a. The proportion of true positives among all instances classified as positive |
| 2. Precision | b. The percentage of correctly classified instances |
| 3. Recall | c. The harmonic mean of precision and recall. |
| 4. F1-Score | d. The proportion of true positives correctly identified. |

- a) 1=b, 2=a, 3=d, 4=c
- b) 1=a, 2=b, 3=c, 4=d
- c) 1=b, 2=d, 3=a, 4=c
- d) 1=c, 2=a, 3=d, 4=b

v. Charu wants to do time series forecasting by feeding historical data into a neural network and training it to predict future values based on past observations. Which neural network should she use?

1

- a) GAN
- b) RNN
- c) CNN
- d) FFNN

vi.



1

The above figure from Uber represents data storytelling. What kind of information does it mainly show?

- a) To promote Uber's new features and services for the next year
- b) To visually summarize and celebrate a user's travel data and experience for the year
- c) To collect user feedback about Uber rides in 2017
- d) To compare Uber's performance with other ride-sharing companies

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

i. Name the two parts of Variational Autoencoders (VAEs).

1

ii. 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

iii. Choose the incorrect statement related to preprocessing stage of computer vision: 1

- a) It enhances the quality of acquired image
- b) Noise reduction and Image normalization are 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

iv. 1



A student is training a computer to recognize images of fruits. Before processing the image, the computer first interprets it as a grid of tiny dots that store color information. These dots are called _____.

v. Match the following 1

| | |
|----------------------------------|------------------------|
| 1) Which category? | A. (Anomaly Detection) |
| 2) How much or how many? | B. (Regression) |
| 3) Which group? | C. (Recommendation) |
| 4) Is this unusual? | D. (Classification) |
| 5) Which option should be taken? | E. (Clustering) |

- a) 1=D, 2=B, 3=E, 4=A, 5=C
- b) 1=C, 2=D, 3=B, 4=E, 5=A
- c) 1=D, 2=B, 3=C, 4=E, 5=A
- 1=E, 2=A, 3=D, 4=C, 5=B

- vi. Statement 1- There is no optimal split percentage 1
- 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

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

- i. In neural networks, which process is used to update the weights of connections based on the error in output to improve model accuracy? 1
- a) Dropout
 - b) Backpropagation
 - c) Forward propagation
 - d) Data normalization
- ii. Assertion (A): Normalization in data preprocessing scales numerical values to a specific range, such as 0–1 or -1–1. 1
- Reason (R): Scaling data makes values comparable and improves the performance of machine learning algorithms.
- 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.
- iii. Which of the following algorithm cannot be used for object detection? 1
- a) R-CNN
 - b) R-FCN
 - c) YOLO
 - d) K-Means



Which is the missing part represented by label A in the above figure?

- v. Which of the following is a best practice when incorporating AI-generated content in research or reports? 1
- Ignore copyright concerns as AI content is free to use
 - Attribute original creators, verify accuracy, and acknowledge AI tools
 - Use AI-generated content without context to save time
 - Replace all primary sources with AI-generated information
- vi. Ravi is designing a neural network for image recognition. He needs to understand how information flows through the network. Which of the following correctly describes the role of a neuron in a neural network? 1
- It stores the final output of the network only.
 - It receives inputs, computes a weighted sum, applies an activation function, and produces an output.
 - It randomly generates predictions without using input data.
 - It deletes irrelevant data from the dataset.

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.

- How to protect a spreadsheet with password? 2
- What are the Benefits of Green Jobs? 2
- Which attitudes make a person successful entrepreneur? 2
- Describe any two Cluster A: Suspicious personality disorders. 2
- What are various elements of a communication cycle? 2

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

11. What are the limitations of LLM? 2
12. What is the main difference between object classification and detection in CV process? 2
13. Explain any two global trends that have contributed to the rise of Big Data Analytics. 2
14. An Online Learning Platform has implemented a recommendation system to suggest personalized courses to users. They need to assess the effectiveness and accuracy of this system. Which phase of Data Science methodology can you relate this to? What is the importance of this phase in the Data Science Methodology? 2
15. List the steps involved in creating a compelling story through data. 2
16. Consider the following perceptron that predicts the performance of a salesman with inputs, weights, and a bias of -3 . Calculate Output/Predicted outcome (\hat{y}) for the given scenario. 2

| Factor | Input | Weight |
|---------------------|-------|--------|
| Customer Calls Made | 1 | 5 |
| Break Time Taken | 0 | 2 |
| Product Knowledge | 1 | 4 |

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

17. What are the 6V's of Big Data, and how do they provide a more holistic view of Big Data? 4
18. Explain Narrative structure of a data story telling with a neat diagram of Freytag's Pyramid. 4
19. What are the different types of data analytics, and how do they differ from each other? 4
20. Explain the two powerful models GANs and VANS of Generative AI. 4
21. Describe the structure of a neural network with a neat diagram. What is meant by the depth of a neural network, and how does increasing depth affect the network's learning capability? 4

*****END OF THE QUESTION PAPER*****