

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):**
 - (a) This section has 5 questions.
 - (b) Marks allotted are mentioned against each question/part.
 - (c) There is no negative marking.
 - (d) Do as per the instructions given.
7. **SECTION B—SUBJECTIVE TYPE QUESTIONS (26 MARKS):**
 - (a) This section has 16 questions.
 - (b) A candidate has to do 10 questions.
 - (c) Do as per the instructions given.
 - (d) 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 × 4 = 4 marks)**

- (i) Riya has been feeling stressed due to heavy workload and tight deadlines. Instead of letting the pressure overwhelm her, she takes short breaks, practises deep breathing and organizes her tasks. Which key skill is she using?
- (ii) Which of the following is a social media platform?

(a) Windows	(b) Google
(c) YouTube	(d) Amazon
- (iii) **Assertion (A):** Entrepreneurship involves starting a new business venture to address market needs or create innovative solutions.
Reasoning (R): Entrepreneurs often study financial markets and provide business advice to startups as part of their journey.
 - (a) Both A and R are true and R is the correct explanation for A.
 - (b) Both A and R are true but R is not the correct explanation for A.
 - (c) A is true but R is false.
 - (d) A is false but R is true.
- (iv) Which of the following is a declarative sentence?

(a) Oxygen is necessary for human respiration.	(b) Wash your hands before eating food.
(c) Please close the door when you leave.	(d) Complete your homework before dinner.
- (v) Ravi has always been passionate about creating new business ideas and taking risks to bring them to life. He decides to launch a startup, taking full responsibility for its success and growth. What best describes Ravi's role?
 - (a) Studying financial markets to take informed business decisions
 - (b) Providing business advice to startups
 - (c) Starting a new business venture
 - (d) All of these
- (vi) In an ecosystem, various factors influence the survival of organisms. Some of these factors are non-living and include elements like temperature and sunlight. Which of the following is an example of an abiotic factor in an ecosystem?

(a) Plants	(b) Animals	(c) Temperature	(d) Fungi
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2. Answer any 5 out of the given 6 questions.

(1 × 5 = 5 marks)

- (i) **Assertion (A):** Traditional computers can efficiently perform tasks like basic arithmetic, data storage and repetitive tasks.

Reasoning (R): Traditional computers are capable of reading and interpreting human emotions accurately.

- (a) Both A and R are true and R is the correct explanation for A.
- (b) Both A and R are true but R is not the correct explanation for A.
- (c) A is true but R is false.
- (d) A is false but R is true.

- (ii) The Indian Government banned a few apps stating, 'servers in the hostile nation are receiving and using the acquired data improperly'. Which terminology suits this action?

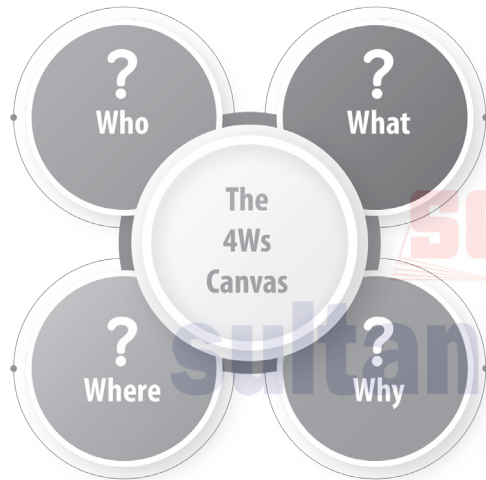
- (a) AI Ethics
- (b) Data Privacy
- (c) AI Bias
- (d) AI Access

- (iii) **Statement 1:** Predicting the category of an object is a classification task.

Statement 2: Clustering is used to assign objects to predefined categories.

- (a) Both Statement 1 and Statement 2 are correct.
- (b) Both Statement 1 and Statement 2 are incorrect.
- (c) Statement 1 is correct but Statement 2 is incorrect.
- (d) Statement 2 is correct but Statement 1 is incorrect.

- (iv) Under which stage of AI project cycle does this Canvas play a role?



- (v) What does the term 'Black Box' refer to in the context of Generative AI?

- (a) A model with transparent and easily understood processes
- (b) A model whose internal workings are not fully understood
- (c) A model that operates without data
- (d) A model that requires no human oversight

- (vi) Mean is also known as the _____ of a dataset.

3. Answer any 5 out of the given 6 questions.

(1 × 5 = 5 marks)

- (i) _____ is to Generative AI as fuel is to car.

- (a) Algorithm
- (b) Code
- (c) Data
- (d) Hardware

- (ii) In probability, what does the term 'sample space' mean?

- (a) The number of trials conducted
- (b) The set of all possible outcomes
- (c) The most frequent outcome
- (d) The least likely outcome

- (iii) What is Artificial Intelligence?

- (a) It is a type of technology that helps people find their lost belongings.
- (b) It is a branch of Computer Science that focuses on creating systems that are capable of performing tasks that typically require human intelligence.
- (c) It is a method for predicting the weather accurately for up to 10 years in advance.
- (d) It is a type of software that helps organize email inbox automatically.

- (iv) What is the purpose of using Script Mode in Python?
- To allow real-time interaction with Python interpreter.
 - To execute a sequence of Python commands from a file
 - To improve the performance of Python programs
 - To engage in graphical user interface development
- (v) Imagine you are helping your friend who is looking to improve their data literacy skills for a school project. Which of the following is not a step to achieve data literacy skills?
- Achieving a Data Mindset
 - Data Collection and Acquisition
 - Building Physical Databases
 - Data Cleaning and Preprocessing
- (vi) Which among the following is part of data preprocessing?
- Handling missing values
 - Dealing with outliers
 - Encoding categorical data
 - All of these

4. Answer any 5 out of the given 6 questions.

(1 × 5 = 5 marks)

- (i) You are explaining to your friend the concept of smart cities and how they are developed. Identify the role of the government in making smart cities.
- Smart regulations
 - Data governance
 - Emergency management
 - All of these
- (ii) **Statement 1:** Job displacement and automation are major concerns when discussing the impact of AI on the job market.
- Statement 2:** The expansion of traditional job sectors is often highlighted as a significant positive outcome of AI in the job market.
- Both Statement 1 and Statement 2 are correct.
 - Both Statement 1 and Statement 2 are incorrect.
 - Statement 1 is correct but Statement 2 is incorrect.
 - Statement 2 is correct but Statement 1 is incorrect.
- (iii) Your sibling is learning Python programming and wants to know the data types in Python that cannot be modified after creation. Identify the correct response.
- List
 - Dictionary
 - Tuple
 - Set
- (iv) In which type of Generative AI model does generation of new data occur?
- GAN
 - RNN
 - VAE
 - All of these
- (v) A data point that is significantly different from the rest of the dataset is called an _____.
- (vi) Your friend is studying Artificial Intelligence and is learning about different methods used for training models. They are curious about how AI models make predictions, especially when they are given labelled data for training. How would you explain it to them?

5. Answer any 5 out of the given 6 questions.

(1 × 5 = 5 marks)

- (i) Your sibling wants to know about the concept of Data Acquisition in the context of Artificial Intelligence. Identify the correct response.
- Gathering information to train the AI model
 - Figuring out the problem we want to solve
 - Discovering patterns in data
 - Checking the model to solve our problem
- (ii) Which application of AI provides relevant search results on the web?
- Recommendation System
 - Online Search
 - Language Translation
 - Language Generation
- (iii) Which of the following is a reliable source of data?
- Comment section of YouTube videos
 - Government databases and repositories
 - ChatGPT's responses
 - Instagram feed
- (iv) Python is a high-level _____ language known for its readability and simplicity.
- Assembly
 - Machine
 - Programming
 - Markup

(v) Data _____ using Generative AI helps in training models when real-world data is scarce.

- (a) Analysis (b) Augmentation (c) Visualization (d) Compression

(vi) A die is rolled once. What is the probability of rolling a number greater than 4?

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer any 3 out of the given 5 questions on Employability Skills in 20–30 words each.

(2 × 3 = 6 marks)

6. What are the important components of a green economy?
7. Explain Corporate and Non-Corporate forms of business ownership.
8. Your friend is learning about email communication but is unsure about the different components that make up an email. How would you explain it to them?
9. What are the challenges of verbal communication?
10. How can one effectively manage stress?

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

(2 × 4 = 8 marks)

11. Your friend is working on a machine learning project and comes across the term 'Classification'. They are confused about what it means and how it is used. Explain it to them.
12. Your sibling is just starting to learn programming in Python and asks you about how to work with lists. They are unsure about the operations that can be performed on lists and need your help. How would you explain it to them?
13. You are working on a data science project and your colleague is struggling to understand how data can be categorized based on the type of application it is used for. They ask you for clarification. Provide an explanation for the same.
14. Differentiate between the two types of statistics.
15. What are some potential negative impacts of Generative AI on society?
16. Draw a confusion matrix for the following data:
☐ True positive = 350
☐ True negative = 150
☐ False positive = 30
☐ False negative = 50

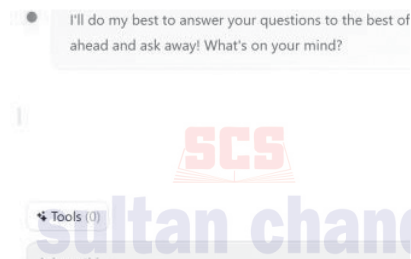
Answer any 3 out of the given 5 questions in 50–80 words each.

(4 × 3 = 12 marks)

17. Alisha is starting an AI project but feels unsure about where to begin. She understands that setting clear boundaries and understanding the problem is essential but she is not sure why this step is so important. Why is problem scoping considered the first step in any AI project and how will it help her move forward with her project effectively?
18. Aditya is curious to know why Python is the first choice of AI developers even though there are so many languages available. What explanation would you provide him?
19. Identify and explain the domains the following images represent.



(a)



(b)

20. Your classmate is working on an AI project and is confused about the concept of Problem Statement Template. They want to know about its components and how to properly use it in their project. Provide an explanation for the same.

21. You are working on a machine learning project and have built a classification model to predict whether an email is "Spam" or "Not Spam". After testing your model on a dataset of 1000 emails, you obtain the following results:

The model correctly predicted Spam emails as Spam: 350

The model correctly predicted Not Spam emails as Not Spam: 550

The model incorrectly predicted Not Spam emails as Spam: 50

The model incorrectly predicted Spam emails as Not Spam: 50

Based on these results, create a confusion matrix for your model.



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