SECTION A – OBJECTIVE TYPE QUESTIONS (24 Marks)

Q1. Attempt ANY 4 out of 6 (1×4=4) — Employability Skills

i. Riya is giving a presentation in her class about environmental awareness. Although her content is well-prepared, she stands still, avoids eye contact, and keeps her arms folded. Many classmates seem distracted and less interested. Her teacher later explains that gestures such as open hand movements, eye contact, and appropriate facial expressions help the audience connect better. Without gestures, even a well-prepared message may fail to engage listeners. . Why did Riya's classmates lose interest in her presentation?

a) Her topic was not important **b) She used too many gestures**

c) She lacked effective gestures and body language **d) She spoke in a very loud voice**

ii. A key feature of Schizotypal Personality Disorder is _____ thinking, which often includes odd beliefs, unusual perceptions, and magical ideas.

iii. Match the following:

1. **Leadership → a. Staying focused on goals**
2. **Creativity → b. Guiding and motivating others**
3. **Goal Orientation → c. Thinking of new ideas**

a) 1→c,2→b,3→a

b) 1→a,2→c,3→b

c) 1→b,2→c,3→a

d) 1→b,2→a,3→c

iv. In a presentation, which option is used to apply visual movement to text or images?

a) Layout **b) Animation** **c) Theme** **d) Master Slide**

v. Assertion (A): Entrepreneurs often take calculated risks.

Reason (R): All risks taken by entrepreneurs always lead to success.

a) A and R true, R explains A

b) A and R true, R does not explain A

c) A true, R false

d) A false, R true

vi. Renewable resources like solar energy help reduce carbon emissions. (True/False)

Q2. Attempt ANY 5 out of 6 (1×5=5)

i. Match Column A with Column B:

Column A | Column B

1. What data is needed?	**a. Modelling**
2. What is the business goal?	**b. Analytic Approach**
3. How will the model be built?	**c. Data Understanding**
4. Which method best fits?	**d. Business Understanding**

a) 1→c,2→d,3→a,4→b

b) 1→d,2→c,3→b,4→a

c) 1→a,2→b,3→c,4→d

d) 1→b,2→a,3→d,4→c

ii. A company collects large amounts of customer purchase information and analyzes it to find shopping trends. This process is known as _____.

iii. Which Big Data characteristic is represented when data comes from sensors every second?

a) Variety **b) Volume** **c) Velocity** **d) Veracity**

iv. A neural network with many hidden layers is known as _____.

v. Identify the outcomes:

Actual Predicted Result

1 0 (1)

0 0 (2)

a) FN, TN b) FP, TP c) TN, FN d) TP, FP

vi. A repeated trend or behaviour observed in a dataset over time is called a:

a) Insight b) Pattern c) Summary d) Annotation

Q3. Attempt ANY 5 out of 6 (1×5=5)

i. _____ is the process of improving raw data to create strong features for ML models.

ii. A hospital uses an AI-based screening tool to detect early signs of diabetes. The system analyzes patient blood reports and predicts whether they are "At Risk" or "Not At Risk."
Last week, the system flagged Mr. Arvind as *"At Risk"*, suggesting that he might have early diabetes. However, after additional medical tests conducted by doctors, it was confirmed that Mr. Arvind was completely healthy and did NOT have diabetes. What type of classification error did the AI system make in Mr. Arvind's case?

a) True Positive b) True Negative c) False Positive d) False Negative

iii. Match Column A with Column B:

Column A	Column B
1. Histogram Equalization	a. Finding object boundaries
2. Edge Detection	b. Distributing brightness evenly
3. Cropping	c. Reducing image size
4. Compression	d. Removing unwanted parts

a) 1→b,2→a,3→d,4→c b) 1→a,2→b,3→c,4→d

c) 1→c,2→d,3→b,4→a d) 1→d,2→a,3→b,4→c

iv. Which of the following BEST represents a core characteristic of Big Data?

a) Data stored only in spreadsheets b) Data that is always perfectly accurate

c) Extremely large, fast, and varied data generated from multiple sources

d) Data that can be easily processed by a single computer

v. Odd one out:

a) Sigmoid b) Tanh c) Softmax d) Confusion Matrix

vi. In data storytelling, the combined region of visuals + narrative + data is called _____.

a) Story Zone b) Insight Center c) Data Hub d) Message Core

Q4. Attempt ANY 5 out of 6 (1×5=5)

i. Assertion (A): Evaluation helps check if the AI model performs well.
Reason (R): Evaluation is done only after deployment.

a) A & R correct, R explains A b) A & R correct, R does NOT explain A

c) A correct, R incorrect d) A incorrect, R correct

ii. The smallest component of an image grid is called a _____.

iii. Which of the following open-source frameworks is commonly used to store and process large-scale Big Data across distributed systems?

a) MySQL b) Excel c) Hadoop d) PowerPoint

iv. Which metric is commonly used in regression models to measure the average squared difference between predicted and actual values?

a) Accuracy b) Precision c) MSE d) Recall

v. Name the two models that work together in a GAN.

vi. Match the AI tools with their output type:

1. Claude	a. Image
2. Midjourney	b. Text
3. Adobe Firefly	c. Code
4. GitHub Copilot	d. Graphic Creation

a) 1→b,2→a,3→d,4→c **b) 1→c,2→d,3→a,4→b**
c) 1→d,2→b,3→c,4→a **d) 1→a,2→c,3→b,4→d**

Q5. Attempt ANY 5 out of 6 (1×5=5)
i. "Deployment helps put the model into real-world use." (True/False)
ii. Assertion (A): Normalization makes data fall within a specific range.
Reason (R): It speeds up training of machine learning models.
a) A & R true, R explains A **b) A & R true, R does NOT explain A**
c) A true, R false **d) A false, R true**
iii. Identifying the exact class of an object inside an image is called _____.
a) Classification **b) Segmentation** **c) Feature Mapping** **d) Denoising**
iv. Match Neural Network Types:

Column A	Column B
1. CNN	a. Time-series analysis
2. RNN	b. Simple classification
3. Perceptron	c. Image processing

a) 1→c,2→a,3→b **b) 1→a,2→b,3→c** **c) 1→b,2→c,3→a** **d) 1→c,2→b,3→a**
v. In a VAE, the compressed version of data is called the _____.
vi. A chart that shows distribution of age groups in a city is a _____.
a) Histogram **b) Line Chart** **c) Pie Chart** **d) Tree Map**

SECTION B – SUBJECTIVE TYPE (26 Marks)
(Attempt ANY 3 × 2 marks each)
Q6. What are idioms? Give one example and its meaning.
Q7. Write any two steps to manage time effectively.
Q8. a) What is a function in in Excel?
b) Explain the use of SQRT with example.
Q9. An entrepreneur faces a financial loss but continues working hard to improve the business. Name the quality shown and explain.
Q10. What is meant by "sustainable development"? Give one example.
(Attempt ANY 4 × 2 marks each)
Q11. What is a dataset? Give an example.
Q12. Mention two common challenges faced in training neural networks.
Q13. Differentiate between supervised learning and unsupervised learning.
Q14. Inputs: X_1=0, X_2=1
Weights: 4, –2
Bias = –1
Activation = Step Function
Calculate output.
Q15. What are stages of Computer Vision?
Q16. List two advantages of data visualization.
(Attempt ANY 3 × 4 marks each)
Q17. What do you mean by train-test split? Explain the working and importance of this method.

Q18. A weather forecasting company collects satellite images, sensor readings, and historical temperature logs. Identify the Big Data characteristics shown in:

a) Multiple data formats

b) Large collection of data

c) Real-time updates

d) Noisy or missing data

Q19. Explain the role of CNNs in medical image analysis. Give four points.

Q20. Compare rule-based AI systems with modern machine-learning systems.

Q21. Explain the four stages of a data story: Introduction, Conflict, Analysis, and Conclusion.