

6E7101	Roll No. _____	[Total No. of Pages : 2]
	6E7101	
	B.Tech. VI-Sem. (Main/Back) Examination, April/May - 2026	
	Artificial Intelligence and Data Science 6AID3-01 Digital Image Processing CS, IT, AID, CAI, CDS, CCS, CIT, CSD, CSR	

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Attempt all Ten questions from Part A, Five questions out of seven questions from Part B and Three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

PART - A

(Answer should be given up to 25 words only)

All questions are compulsory.

(10×2=20)

1. Explain image formation in the eye.
2. Explain about image acquisition using a circular sensor strip.
3. What are the advantages of filtering in frequency domain?
4. What is Pseudo-colouring?
5. What is meant by image restoration?
6. How to estimate the degradation function by experimentation?
7. Define redundancy. Write the various types of redundancy techniques.
8. What is image compression? Why it is needed?
9. What is meant by image segmentation?
10. Explain how a point can be detected in an image?

PART - B

(Analytical/Problem solving questions)

Attempt any Five questions.

(5×4=20)

1. Explain the basic concepts of sampling and quantization in the generation of digital image.
2. Write the difference between wavelet transform and Fourier transform.
3. Determine the convolution and correlation between the following images:

$$f(x,y) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix} \text{ and } g(x,y) = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

4. Explain in detail about the HSI and CMYK color spaces.
5. What are the different types of mean filters used for noise reduction? Explain.
6. With an example, explain about Huffman coding.
7. Explain the basics of intensity thresholding in image segmentation.

PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any Three questions.

(3×10=30)

1. Enlist various fundamental steps in Digital Image Processing with neat block diagram and explain them in detail.
2. Discuss how the various filter masks are generated to sharpen images in spatial filters.
3. Discuss the minimum mean square error filtering which includes both the degradation function and statistical characteristics of noise into the restoration process.
4. What are the different types of image compression? Discuss the different image compression standards?
5. What is meant by edge linking? Why Edge Linking is Necessary? Explain edge linking using local and global processing.

6E7102	Roll No. _____	[Total No. of Pages : 2]
	6E7102	
	B.Tech. VI-Sem. (Main/Back) Examination, April/May - 2026	
	Artificial Intelligence and Data Science	
	6AID4-02 Machine Learning	
	CS, IT, AID, CAI, CDS, CCS, CIT, CSD, CSR	

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Attempt all Ten questions from Part A, Five questions out of seven questions from Part B and Three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

PART - A

(Answer should be given up to 25 words only)

All questions are compulsory.

(10×2=20)

1. Explain the role of labeled data in supervised learning.
2. How does K-Means assign a data point to a cluster?
3. Give one application of Apriori algorithm.
4. Compare wrapper and embedded methods
5. Mention one application of Singular Value Decomposition (SVD).
6. Why is margin maximization important in Support Vector Machine (SVM)?
7. Give an example of MDP in real life.
8. Why is Q-Learning considered model-free?
9. Explain the activation function in perceptron.
10. What is a neural network?

PART - B

(Analytical/Problem solving questions)

Attempt any Five questions.

(5×4=20)

1. Illustrate how Random Forest can be used for classification with a suitable example.
2. Compare FP-Growth with Apriori in terms of efficiency and memory usage.
3. Apply cross-validation techniques for selecting the best model.
4. Analyze the advantages and challenges of model-based Reinforcement Learning.
5. Describe the backpropagation algorithm used in training neural networks.
6. Explain the concept of Gaussian Mixture Models and probability distributions.
7. Explain the Bellman equation in the context of reinforcement learning.

$$V(s) = \max_a \left[R(s, a) + \gamma \sum_{s'} P(s' | s, a) V(s') \right]$$

PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any Three questions.

(3×10=30)

1. Explain the working principles of Naïve Bayes, Decision Tree, and K-Nearest Neighbour (KNN) algorithms with suitable diagrams.
 2. Analyze differences in cluster formation, scalability, and interpretability.
 3. Explain the concept of Singular Value Decomposition and its matrix factorization process.
 $A = U \Sigma V^T$
 4. Compare convergence speed and computational complexity of policy iteration vs value iteration.
 5. Design an intelligent recommendation system combining content-based filtering with ANN.
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6E7103	Roll No. _____	[Total No. of Pages : 2]
	6E7103	
	B.Tech. VI-Sem. (Main/Back) Examination, April/May - 2026 Artificial Intelligence and Data Science 6AID4-03 Information Security Systems CS, IT, AID, CAI, CIT, CCS, CDS, CSR	

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Attempt all Ten questions from Part A, Five questions out of Seven questions from Part B and Three questions out of Five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

PART - A

(Answer should be given upto 25 words only)

All questions are Compulsory.

(10×2=20)

1. Define the terms -Cryptography and Steganography.
2. Define the terms - Cryptanalysis and Brute-force attack.
3. Define the term - Relative Prime (Co-Prime) Numbers. State the properties of Relative Prime Numbers using Mathematical Expression.
4. Differentiate between - Symmetric cipher and Asymmetric Cipher with suitable examples of each.
5. Define - Euler's Totient Function $\phi(n)$, where 'n' is a Positive integer. Evaluate - $\phi(400)$.
6. What is Triple DES algorithm? Explain in brief?
7. What is Cryptographic Hash Function? Write down its properties?
8. What is Transposition Cipher? Explain it with the help of suitable example.
9. What is SSH? Explain in brief.
10. Define the term -Primitive Root of a Prime 'p'. List all the Primitive Roots of Prime '5' over Z_5 . Show your calculations.

PART - B

(Analytical/Problem solving questions)

Attempt any Five questions.

(5×4=20)

1. Define the term - Security Attacks. What are the different categories of Passive and Active Attacks? Explain each of them with suitable schematic diagram.
2. Define the terms - Monoalphabetic Cipher and Polyalphabetic Cipher with suitable examples of each. Decrypt the following Ciphertext (CT) into Plaintext (PT) using Vigenère Cipher - Ciphertext (CT) - MHVHSFFIUEBCQRJW Key (K) - UNIVERSE
3. Using the Extended Euclidean Algorithm, find the Multiplicative Inverse of '7 mod 187'.
4. Perform, Encryption and Decryption using RSA Algorithm for the given data - $p = 5$; $q = 13$; $e = 11$ and Plain Text $M = 10$.
5. List all the Block Cipher Modes of Operation and explain any One of them in detail with suitable diagram.
6. Explain Message Authentication Codes (MACs) based on Hash Functions (HMAC).
7. Explain the Distribution of Public Keys using Public-key Certificates scheme.

PART - C

(Descriptive/Analytical/Problem Solving/Design question)

Attempt any Three questions.

(3×10=30)

1. a) Construct a Playfair Cipher Matrix using the Key (K) - "remember" and Encrypt the Plaintext (PT) - "universe". Show the calculations/ process for Encryption of the Plaintext (PT) to the Ciphertext (CT). (4)
b) Using the Hill Cipher with the Key $(K) = \begin{pmatrix} 9 & 4 \\ 5 & 7 \end{pmatrix}$ do the following -
 - i) Encrypt the message - "mars".
 - ii) Also show the calculations/ process for the corresponding Decryption of the Ciphertext (CT) to recover the original Plaintext (PT). (6)
2. What is Advanced Encryption Standard (AES)? Explain the Transformation Stages (Steps) involved in Encryption and Decryption process of AES with suitable diagrams.
3. Explain ElGamal Algorithm in detail. Perform, Encryption and Decryption using ElGamal Algorithm for the given data - Prime $q = 19$, and a Primitive Root $\alpha = 13$. If B has a Private Key $X_B = 5$; and A choose a random integer $k = 6$; then what is Cipher Text (C_1, C_2) for Plain Text $M = 17$? If Prime $q = 19$, and Primitive Root $\alpha = 10$; B has a Private key $X_B = 7$; and Cipher Text (C_1, C_2) be the $(11, 13)$ then what is the Plain Text M ?
4. Explain ElGamal Digital Signature Scheme in detail with suitable diagrams. State the main limitation of ElGamal Digital Signature Scheme.
5. Draw the SSL Protocol Stack and explain all the Protocols associated with upper two layers of this Stack in detail with suitable diagrams.

6E7104	Roll No. _____	[Total No. of Pages : 2]
	6E7104	
	B.Tech. VI-Sem. (Main/Back) Examination, April/May - 2026 Artificial Intelligence and Data Science 6AID4-04 Computer Architecture and Organization CS, IT, AID, CAI, CDS, CCS, CIT, CSD, CSR	

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Attempt all Ten questions from Part A, Five questions out of seven questions from Part B and Three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

PART - A

(Answer should be given up to 25 words only)

All questions are compulsory

(10×2=20)

1. What is a cache coherence?
2. What is meant by instruction cycle?
3. What is meant by micro-operation?
4. Why do you need instruction format?
5. What do you understand by RISC?
6. What do you mean by control memory?
7. What is meant by pipelining?
8. What is auxiliary memory?
9. Define vector processing.
10. What do you mean by DMA?

PART - B

(Analytical/Problem solving questions)

Attempt any Five questions.

(5×4=20)

1. State the differences MAR and MBR.
2. Design a 4×4 ROM.
3. Design a 4×3 RAM.
4. Explain Memory transfer?
5. Is there any difference among PROM, EPROM and PLA? Explain.
6. Show propagation of multiple data processing in a pipeline.
7. Design a bus system for 4 registers.

PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any Three questions.

(3×10=30)

1. What are the arithmetic operations and how it can be implemented? Explain with diagram.
 2. Design a stage of Arithmetic Unit and Logic Unit.
 3. Show the steps of multiplication algorithm for 22×19 .
 4. Is there any difference associative and set associative mapping related to cache memory.
 5. Apply booth's algorithm for 10100×01101 .
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6E7105	Roll No. _____	[Total No. of Pages : 2]
	6E7105	
	B.Tech. VI-Sem. (Main/Back) Examination, April/May - 2026 Artificial Intelligence and Data Science 6AID4-05 Principles of Artificial Intelligence CS, IT, AID, CAI, CCS, CIT, CSD, CSR	

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Attempt all Ten questions from Part A, Five questions out of seven questions from Part B and Three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

PART - A

(Answer should be given up to 25 words only)

All questions are compulsory

(10×2=20)

1. What do you understand by Artificial Intelligence?
2. What is an Intelligent Agent? Name any two.
3. What do you mean by Searching?
4. What is Constraint Satisfaction Problem?
5. Define and write a heuristic function?
6. What is Partial Order Planning?
7. What is Propositional Logic?
8. What do you mean by Situation Calculus?
9. What are different forms of Learning?
10. What is Natural Language Processing (NLP)?

PART - B

(Analytical/Problem solving questions)

Attempt any Five questions.

(5×4=20)

1. What do you understand by AI Intelligent Agents? Explain Rule of AI agents with Example.
2. Explain the Hill Climbing algorithm. Discuss its different variants and limitations.
3. Enumerate classical "Water Jug Problem". Describe the state space for this problem solve this problem by giving its operation sequence.
4. Explain Building a Knowledge Base using Propositional Logic and write the following sentence propositional logic.
 - "If the thief runs, the dog barks, else not"
 - Today is Sunday and nice weather, we go for walk
 - Ram eats orange Biscuits
 - If Raihan buys mobile then colour is pink
5. Explain the role of Probability Theory in handling uncertainty in Artificial Intelligence.
6. What is a Decision Tree? Explain the working of a Decision Tree.
7. Explain different Phases of Natural Language Processing with suitable examples.

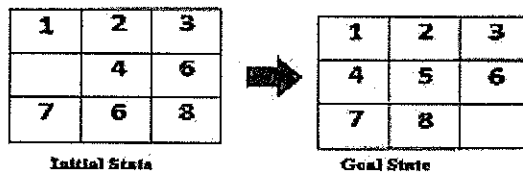
PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any Three questions.

(3×10=30)

1. Describe Uninformed Search techniques. Explain Breadth First Search (BFS) and Depth First Search (DFS) algorithms with examples. Compare BFS and DFS.
2. What do you mean by "Tile Problem"? Solve the given below - tile problem (8-puzzle problem).



3. What is Theorem Proving in First Order Logic? Explain resolution, unification proofs with a suitable example.
4. What is SVM? Explain its advantages. Describe the concept of SVM with diagram and real-life applications.
5. What do you understand by Robotics? Explain different Components of Expert System with example.

6E7106	Roll No. _____	[Total No. of Pages : 2]
	6E7106	
	B.Tech. VI-Sem. (Main/Back) Examination, April/May - 2026 Artificial Intelligence and Data Science 6AID4-06 Cloud Computing CS, IT, AID, CAI, CCS, CIT, CSD, CSR	

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Attempt all Ten questions from Part A, Five questions out of seven questions from Part B and Three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

PART - A

(Answer should be given up to 25 words only)

All questions are compulsory.

(10×2=20)

1. List any two enabling technologies of cloud computing.
2. What are the key characteristics of cloud computing?
3. Name the different service models in cloud computing.
4. What is MapReduce, and how is it used in cloud computing?
5. What is CPU virtualization?
6. Name any two hypervisors used in virtualization.
7. List any two security challenges in cloud computing.
8. What is a Service Level Agreement (SLA) in cloud computing?
9. What is Microsoft Azure, and what is its role in cloud services?
10. Name any two major cloud platforms used in industry.

PART - B

(Analytical/Problem solving questions)

Attempt any Five questions.

(5×4=20)

1. Explain the key characteristics and components of cloud computing. Discuss the enabling technologies that support cloud computing.
2. Discuss the challenges and risks involved in migrating to cloud computing. What approaches can be adopted to ensure a smooth migration?
3. Explain the service models in cloud computing. Explain the architectural design of compute and storage clouds.
4. Describe different types of virtualization including CPU, memory, and I/O virtualization. Also explain virtual cluster and resource management in data centers.
5. Discuss data security in cloud computing. Explain the roles of business continuity, disaster recovery, risk mitigation, SLA (Service Level Agreement), and trust management.
6. Define virtualization and explain its key benefits. Discuss different implementation levels of virtualization.
7. Discuss Aneka as a cloud application platform. How does it support the integration of private and public clouds?

PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any Three questions.

(3×10=30)

1. Discuss the challenges, risks, and approaches for migration to cloud computing. Also explain ethical issues, business impact, and future trends of cloud computing, including the concept of ubiquitous cloud and its relationship with IoT.
2. Explain the Cloud Reference Model in detail. Discuss different layers, types of clouds, and service models. Also describe the design of data centers and interconnection networks along with the architectural design of compute and storage clouds.
3. Explain the virtualization and explain its importance. Discuss different implementation levels, structures, tools, and mechanisms of virtualization. Also explain the working of hypervisors such as VMware, KVM, and Xen.
4. Evaluate the concept of cloud information security fundamentals in detail. Discuss cloud security services, design principles, and policy implementation. Also analyze major cloud computing security challenges and the architecture used to address them.
5. Explain the architecture, design, and key features of major cloud platforms such as Amazon Web Services (AWS), Google App Engine, and Microsoft Azure. Compare their roles in providing scalable cloud solutions.

6E7136	Roll No. _____	[Total No. of Pages : 2]
	6E7136	
	B.Tech. VI-Sem. (Main/Back) Examination, April/May - 2026	
	Computer Science and Engineering (Regional Language)	
	6CSR5-11 Distributed System	
	CS, IT, CSD, CIT, CSR	
Time : 3 Hours		Maximum Marks : 70

Instructions to Candidates:

Attempt all ten questions from Part A, Five questions out of seven questions from Part B and three questions out of five questions from Part C

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/Calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No.205)

PART - A

(Answer should be given up to 25 words only)

All questions are compulsory.

(10×2=20)

1. What is distributed system?
2. Define distributed file system.
3. Define Inter-process Communication .
4. What is the difference between shared memory and distributed memory?
5. Differentiate between the RPC and RMI?
6. What is concept of Fault?
7. Define distributed deadlock.
8. Define Distributed Computing Environment (DCE).
9. What is Static Process Scheduling.
10. Explain Distributed Mutual Exclusion .

PART - B
(Analytical / Problem Solving Questions)

Attempt any Five questions.

(5×4=20)

1. Differentiate between centralized and distributed systems with examples.
2. What is a Memory Consistency Models? Explain a particular model.
3. Give the reason for "Access transparency is not maintained by Conventional Remote Process Call (RPC)".
4. Explain the role of Distributed Computing Environment.
5. Describe the language of Mechanisms for Synchronization.
6. Why do you need Dynamic Load Sharing and Balancing? Explain.
7. Briefly explain the issue in Concurrency Control in a distributed system.

PART - C

(Descriptive / Analytical / Problem Solving / Design Questions)

Attempt any Three questions.

(3×10=30)

1. Explain the need of distributed system and also explain its characteristics with example.
2. Explain following problems-
 - a) Explain Byzantine Agreement problem with example.
 - b) Explain CORBA architecture and services.
3. Explain the architectural models of distributed systems with neat diagrams and examples.
4. Explain following strategies used for deadlock handling in distributed system:
 - a) Deadlock prevention.
 - b) Deadlock avoidance.
 - c) Deadlock detection and Recovery.
5. Explain any two -
 - a) General Parallel file System.
 - b) Andrew and Coda file systems.
 - c) Sun network file system.

6E7138	Roll No. _____	[Total No. of Pages : 2]
	6E7138	
B.Tech. VI-Sem. (Main/Back) Examination, April/May - 2026 Computer Science and Engineering (Regional Language) 6CSR5-13 Ecommerce and ERP CS, IT, CSD, CSR		

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Attempt all Ten questions from Part A, Five questions out of seven questions from Part B and three questions out of five questions from Part C

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/Calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No.205)

PART - A

(Answer should be given up to 25 words only)

All questions are compulsory.

(10×2=20)

1. Define E-Business Models.
2. What are the Main Activities of Electronic Commerce?
3. List two Benefits of E-Commerce for a customer.
4. What is a Shopping Cart in an online store?
5. Define Internet Protocol (IP).
6. What is the role of an ISP?
7. Define Metadata in the context of a homepage.
8. What is XML?
9. Define E-Marketing.
10. What are Data Marts?

PART - B

(Analytical / Problem-Solving Questions)

Attempt any Five questions.

(5×4=20)

1. ✓ Explain the Functions of E-Commerce such as Process and Service Management.
2. ✓ Describe the Modes of Operation associated with E-Commerce.
3. ✓ What are the Strategic Capabilities of the Internet for a business?
4. ✓ Explain the steps to build a basic Homepage.
5. ✓ Compare HTML and XML based on their usage.
6. ✓ Discuss the Advantages of Online Marketing over traditional methods.
7. ✓ Describe the different Networking Categories used on the Internet.

PART - C

(Descriptive / Analytical / Problem-Solving / Design Questions)

Attempt any Three questions.

(3×10=30)

1. ✓ Explain the detailed steps required to design and develop an E-Commerce website.
2. ✓ Discuss the role of XML and Data Warehousing in managing business data.
3. ✓ Explain Online Publishing and the various approaches to online advertising.
4. ✓ "The Internet is the backbone of E-Commerce." Justify this statement by explaining its components and services.
5. Explain the factors and components involved in developing a Business Case for an E-commerce venture.

6E7110	Roll No. _____	[Total No. of Pages : 2]
	6E7110	
	B.Tech. VI-Sem. (Main/Back) Examination, April/May - 2026 Computer Sc. and Engg. (Artificial Intelligence) 6CAI5-13 Predictive Modeling and Analytics	

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Attempt All ten questions from Part A, Five questions out of Seven questions from Part B and Three questions out of five questions in Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated Clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

PART - A

(Answer should be given up to 25 words only)

All questions are compulsory.

(10×2=20)

1. Define Predictive Analytics.
2. What is a Data Matrix?
3. What is the “K” in K-means clustering?
4. Define a Decision Tree.
5. What is the purpose of a Support Vector Machine (SVM)?
6. Explain the Naïve Bayes “Independence Assumption.” Why is it called “naïve”?
7. What is Dimensionality Reduction?
8. Define Ensemble Methods. How do they help in boosting prediction accuracy?
9. What is an Outlier in Data Visualization?
10. Define Deep Learning. How does it differ from traditional Neural Networks in terms of structure?

PART - B

(Analytical / Problem Solving Questions)

Attempt any Five questions.

(5×4=20)

1. Given five data points on a 1D line (2,4,10,12,3), manually perform one iteration of K-means with K = 2 and initial centroids at 2 and 10.

2. If a dataset has 10 “Yes” and 10 “No” labels, calculate the initial entropy. How does entropy change if a split results in 10 “Yes” and 0 “No”?
3. A model is defined as $y = 3x + 5$. If the input variable x (advertising spend) is 10, what is the predicted y (sales)?
4. Given $P(\text{Rain}) = 0.2$, $P(\text{Cloudy} / \text{Rain}) = 0.8$, and $P(\text{Cloudy}) = 0.4$, calculate the probability it is raining given it is cloudy using Bayes’ Theorem.
5. In a simple neuron with inputs $x_1 = 1$, $x_2 = 0$, weights $w_1 = 0.5$, $w_2 = 0.8$, and a bias of -0.2 , calculate the weighted sum before the activation function.
6. You 20% of the “Age” column is missing. Describe a mathematical approach to “impute” these values rather than deleting the rows.
7. A confusion matrix of a model applied to a set of 200 observations is given in table below. Determine Accuracy, Recall, Precision, Specificity and F1 score of model.

	Predicted C_1	Predicted C_2
Actual C_1	55	25
Actual C_2	35	85

PART - C

(Descriptive / Analytical / Problem Solving / Design Questions)

Attempt any Three questions.

(3×10=30)

1. Analyze how Markov Models use the “current state” to predict future outcomes. Provide an example related to weather or text prediction.
2. Compare and contrast Support Vector Machines and Neural Networks. In what scenarios would you choose a “shallow” SVM over a “Deep Learning” model?
3. Detail the steps required to take raw, “unstructured” data and move it through cleaning and dimensionality reduction to build a testable predictive model.
4. Analytically explain how combining multiple “weak” learners (like individual decision trees) results in a “strong” ensemble model with higher accuracy.
5. Discuss how novel visualization techniques help data scientists identify “hidden groupings” and “model analytical results” that are not obvious through raw statistics alone.