

(3 Hours)

[Total Marks: 80]

- N.B.: (1) Question No. 1 is Compulsory.**  
**(2) Attempt any three out remaining five questions.**  
**(3) Each Question carries 20 marks.**

- Q1) Attempt any four questions. [20M]
- a) What are applications of Machine Learning? [5M]
  - b) Explain the algorithm for Support Vector Machines? [5M]
  - c) Write the characteristics of problems? [5M]
  - d) Explain Artificial Neural Network architecture in brief? [5M]
  - e) What are advantages of K-Nearest Neighbor? [5M]
- Q2)
- a) Explain what are steps for PCA algorithm in detail? [10M]
  - b) Write short note on “Clustering approaches”. [10M]
- Q3)
- a) Explain Heuristic Search Techniques in detail? [10M]
  - b) Explain the Expectation-Maximization algorithm in detail? [10M]
- Q4)
- a) Explain the types of Hill Climbing in heuristic search? [10M]
  - b) Write short note on “Random Forest”. [10M]
- Q5)
- a) Explain the types of Gradient Descent Optimization Algorithm in detail? [10M]
  - b) Explain the architecture of intelligent agents? [10M]
- Q6) Solve any two questions
- a) Explain the Gaussian Mixture Model in detail? [10M]
  - b) Explain the types of Reasoning In artificial intelligence in detail? [10M]
  - c) Explain what steps for implementing the Adaboost Algorithm in are detail? [10M]

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