

Time: 3 Hours

Total Marks: 80

- N.B.:** 1) Question No.1 is compulsory.
2) Attempt any **THREE** of the remaining questions.
3) Figures to the right indicate full marks.

- Q.1** A Discuss Means-Ends Analysis 05
B Explain PEAS representation for an Agent 05
C Define SVM 05
D Explain Logistic regression 05
- Q.2** A Discuss Bagging Algorithm in detail. 10
B Discuss Best-First Search algorithm with an example. 10
- Q.3** A Describe the steps involved in classifying a new data point using k- Nearest Neighbor. Also explain the advantages and limitations of k-NN classifier in pattern recognition and machine learning. 10
B Explain propositional logic with its syntax and semantics. Give examples of atomic and compound propositions. 10
- Q.4** A Define AdaBoost and explain how it combines multiple weak classifiers to create a strong classifier. 10
B Explain hierarchical clustering and its types. Discuss agglomerative with examples. 10
- Q.5** A Explain the Naïve Bayes classifier. Include its basic assumptions and working principle. 10
B Define Hill climbing Search and explain how it differs from other search algorithms like Breadth-First Search or Depth-First Search. 10
- Q.6** A Explain the concept of feature selection in machine learning and its importance in improving model performance. 10
B Explain algorithm and architecture of a perceptron network. 10
