Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1. What is Artificial Intelligence? What are the possible goals to pursue in Artificial Intelligence?  
2. Define state and explain how the state of problem changes.  
3. Write the syntax rule for propositional logic.  
4. What is an Expert system? What are the main components of an expert system?  
5. State the Bayes rule. Explain its uses.  
7. Differentiate between supervised and unsupervised learning.  
8. Define perception.  
10. Explain phrase structure grammar in brief.

PART – B (50 Marks)

11. Describe the behavior of A* search in terms of optimality, completeness and complexity.  
12. a) Write the steps of resolution refutation for proving an arbitrary WFF from a set of wffs.  
   b) What are frames? Explain.  
13. a) Explain Dempster Shafer theory.  
   b) Draw and explain the architecture of expert systems.  
14. a) Differentiate between single layer and multi layer feed forward networks.  
   b) Explain back propagation algorithm in detail.  
15. Write the Decision tree learning algorithm. Explain its working using an example.  
16. a) Explain semantic analysis in natural language processing.  
   b) Explain phrase structured grammar.  
17. Write short notes on any Two of the following:  
   a) Support Vector Machines  
   b) Common Sense Knowledge  
   c) Bayesian Belief Networks

*****