

VI- SEMESTER

COMPUTER SCIENCE AND ENGINEERING  
CS8601 – ARTIFICIAL INTELLIGENCE

(REGULATIONS 2012)

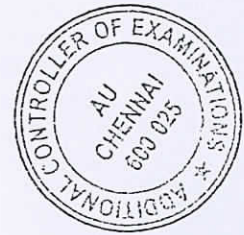
Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. What is Problem formulation?
2. What are the five components in defining the problem?
3. What is Minimum Remaining Values (MRV) heuristic?
4. Define backtracking search
5. Define Satisfiability
6. Represent the “Two sets are equal if and only if each is a subset of the other” in FOL
7. State the advantages of Inductive learning
8. Differentiate supervised and unsupervised learning
9. What are the meta knowledge required in Expert Systems?
10. How to overcome the ambiguity in natural language?

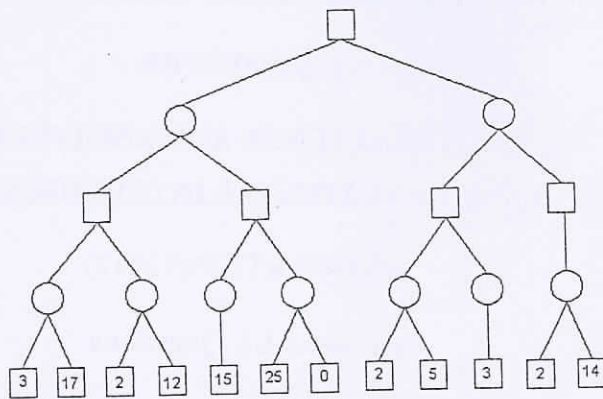


Part – B (5 x 16 = 80 marks)

11. Explain in detail about the intelligent agents: (4\*4=16)

- i) Simple reflex agent
- ii) Model based agent
- iii) Utility based agent
- iv) Goal based agent

12. (a) (i) Draw the complete game tree by marking each node with minimax value and Explain the step-by- step process of alpha-beta pruning with pruned tree. (8)



Max nodes:

Min nodes:

(ii) Write short notes on

- a. Hill-climbing search
- b. Simulated annealing

(8)

(OR)

12. (b) (i) Describe backtracking search for the constraint satisfaction problem

(8)

(ii) Explain alpha-beta pruning with an example

(8)

13. (a) Consider the following sentences

(16)

- John likes all kinds of food
- Apples are food
- Chicken is food
- Anything anyone eats and isn't killed by is food
- Bill eats peanuts and is still alive
- Sue eats everything Bill eats

(i) Translate these sentences into formulas in predicate logic

(ii) Convert the formulas of part into clause form

(OR)

13. (b) Explain about forward and backward chaining with algorithm in detail

(16)

14. (a) Explain the following in passive reinforcement learning:

(16)

- (a) Direct utility estimation
- (b) Adaptive dynamic programming
- (c) Temporal-difference learning



(OR)

14. (b) (i) Brief about decision tree algorithm (8)

(ii) Write short notes on Bayesian network and hidden Markov model (8)

15. (a) (i) Explain Localization and mapping in Robotic perception (10)

(ii) Discuss the Lexical, syntactical and semantical Ambiguity (6)

(OR)

15. (b) (i) Explain in detail about cell decomposition and Skeletonization under robot navigation and motion planning methods (10)

(ii) Write short notes on Information Extraction (6)

