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**B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APR / MAY 2014**

**COMPUTER SCIENCE AND ENGINEERING**

**Fifth Semester**

**CS9304/CS481 Artificial Intelligence**

**(Regulation 2008)**

Time : 3 Hours

Answer ALL Questions

Max. Marks 100

**PART-A (10 x 2 = 20 Marks)**

1. Define: Agent
2. What are the key features and limitations of Depth First Search?
3. What is a constraint satisfaction problem?
4. How chance nodes are helpful?
5. Represent few properties of categories.
6. Give the axioms of probability.
7. What is inductive learning?
8. What is Okhams razor?
9. How to overcome the ambiguity in natural language?
10. What is localization? Give the techniques available for it.

**Part – B ( 5 x 16 = 80 marks)**

11. (i) Discuss about the various kinds of agents and their properties with neat diagram. (10)  
(ii) How to avoid repeated search? (6)
  12. a) i) Prove that A\* search technique is optimal and complete. (10)  
ii) Compare and contrast Hill climbing with simulated annealing search. (6)
- (OR)**
- b) i) Describe backtracking search for the constraint satisfaction problem? (8)  
ii) With a neat diagram, explain Alpha-beta pruning method. (8)
13. a) i) Represent the following sentences in First Order Logic. (10)  
a) Parent and child are inverse relations.  
b) Two sets are equal if and only if each is a subset of the other.

- c) Connected is a commutative predicate
  - d) Every student who takes French passes it.
  - e) No person buys an expensive policy
- ii) Write short notes on : Backward chaining. (6)

**OR**

- b) i) Discuss about Mental events and mental objects. (8)
- ii) Describe Truth Maintenance systems in detail. (8)

14. a) i) Present the importance of Decision tree learning and Construct decision tree for the given problem. (16)

Table 14.a.i) learning decision tree examples

Weekend (Example)	Weather	Parents	Money	Decision (Category)
W1	Sunny	Yes	Rich	Cinema
W2	Sunny	No	Rich	Tennis
W3	Windy	Yes	Rich	Cinema
W4	Rainy	Yes	Poor	Cinema
W5	Rainy	No	Rich	Stay in
W6	Rainy	Yes	Poor	Cinema
W7	Windy	No	Poor	Cinema
W8	Windy	No	Rich	Shopping
W9	Windy	Yes	Rich	Cinema
W10	Sunny	No	Rich	Tennis

**OR**

- b) i) With neat algorithms, explain Passive Reinforcement Learning in detail. (16)

15. a) i) Explain the component steps of communication in detail. (10)
- ii) write short notes on : Syntactic Analysis. (6)

**OR**

- b) Write short notes on:
  - i) Image Processing (8)
  - ii) Robotic Perception (8)

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