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06IS764/06CS764

## Seventh Semester B.E. Degree Examination, May/June 2010
## Artificial Intelligence

Time: 3 hrs.
Max. Marks:100

**Note:** *Answer any FIVE full questions, selecting*
*at least TWO questions from each part.*

### PART – A

1  a. Define artificial intelligence. Explain the interaction between an agent and its environment.
      **(05 Marks)**
   b. Explain different properties of task environment. **(07 Marks)**
   c. What is meant by uninformed search? Explain breadth-first-strategy (BFS). **(08 Marks)**

2  a. What is informed strategy? Explain A* search strategy. **(10 Marks)**
   b. Write backtracking algorithm for constraint satisfaction problem and explain it. **(10 Marks)**

3  a. Write the syntax and semantic of propositional logic. Write BNF grammar for sentences in
      propositional logic. **(12 Marks)**
   b. Write forward-chaining algorithm for propositional logic. Explain it. **(08 Marks)**

4  a. What is knowledge engineering? Explain the steps involved in knowledge engineering
      process. **(10 Marks)**
   b. Write the unification algorithm. Explain. **(10 Marks)**

### PART – B

5  a. Write backward chaining algorithm. **(05 Marks)**
   b. What is conjunctive normal form? Write the CNF for the problem given below.
      - Everyone who loves all animals is loved by someone.
      - Anyone who kills an animal is loved by no one.
      - Jack loves all animals.
      - Either Jack or curiosity killed the cat, who is named Tuna.
      - Did curiosity kill the cat? **(15 Marks)**

6  a. Explain the ontology of situation calculus. **(10 Marks)**
   b. Explain the truth maintenance system. **(10 Marks)**

7  a. Explain the process of planning graph for heuristic estimation. Write GRAPHPLAN
      algorithm. **(10 Marks)**
   b. What is the Bayesian network? Explain how it is used to represent knowledge. **(10 Marks)**

8  a. Write the decision tree algorithm and explain it. **(10 Marks)**
   b. Explain the agent components. **(10 Marks)**

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