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06IS764/06CS764

Seventh Semester B.E. Degree Examination, Dec.09/Jan.10

**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. With examples, explain different types of task environments. (12 Marks)  
b. Explain Breadth-First-Search (BFS) strategy. (08 Marks)
  
- 2 a. Explain A\* search strategy. Prove :  
i) A\* using TREE-SEARCH is optimal if  $h(n)$  is admissible. (12 Marks)  
ii) A\* using GRAPH-SEARCH is optimal if  $h(n)$  is consistent. (12 Marks)  
b. Write the algorithm for online search agent that uses depth first exploration. (08 Marks)
  
- 3 a. Write the syntax of propositional logic. Write BNF grammar for sentences in propositional logic. (10 Marks)  
b. Write the algorithm for Wumpus - world agent to find pits, wupuses and safe squares. (10 Marks)
  
- 4 a. Write the syntax of first order logic using BNF. (10 Marks)  
b. List and explain the steps involved in knowledge engineering projects. (10 Marks)

**PART – B**

- 5 a. Write toward chaining algorithm. (10 Marks)  
b. Explain aspects of prolog that fall outside standard logical inference. (10 Marks)
  
- 6 a. Explain with examples, how first order logic expresses facts about categories. (10 Marks)  
b. Explain the ontology of situation calculus. (10 Marks)
  
- 7 a. Compare how STRIPS and ADL programming languages represent planning problems. (10 Marks)  
b. What is Bayesian network? Explain how it is used to represent knowledge? (10 Marks)
  
- 8 a. Write the decision tree learning algorithm. (10 Marks)  
b. Explain how the applicability of decision trees is broadened. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg.  $42+8 = 50$ , will be treated as malpractice.