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15CS562

## Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Artificial Intelligence

Time: 3 hrs.

Max. Marks: 80

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. What is Artificial Intelligence? List the task domains of Artificial Intelligence. (05 Marks)
- b. Explain Depth-First search algorithm with an example. (05 Marks)
- c. Explain Means-Ends analysis with an example. (06 Marks)

OR

- 2 a. A water jug problem states "you are provided with two jugs, first one with 4-gallon capacity and the second one with 3-gallon capacity. Neither have any measuring markers on it. How can you get exactly 2-gallons of water into 4-gallon jug?"
  - i) Write down the production rules for the above problem.
  - ii) Write any one solution to the above problem. (08 Marks)
- b. Explain problem characteristics with respect to heuristic search. (08 Marks)

### Module-2

- 3 a. Explain property inheritance algorithm with example. (06 Marks)
- b. Write the algorithm for conversion to clause form. (10 Marks)

OR

- 4 a. Explain forward versus Backward Reasoning with examples. (08 Marks)
- b. List the issues in knowledge representation. (04 Marks)
- c. Define Horn clause and give the syntactic difference between PROLOG and logic. (04 Marks)

### Module-3

- 5 a. Explain Dempster-Shafer theory with example. (06 Marks)
- b. Explain Partitioned Semantic Nets with example. (06 Marks)
- c. Briefly explain the motivation for fuzzy logic. (04 Marks)

OR

- 6 a. Explain Bayesian network in detail. (08 Marks)
- b. Write a note on Dependency-Directed Backtracking. (08 Marks)

### Module-4

- 7 a. Define Conceptual Dependency. List the rules of conceptual dependency. (08 Marks)
- b. Write the algorithm for minimax (position, depth, players) and explain. (08 Marks)

OR

- 8 a. What is a script? What are the components of a script? Write the Restaurant Script. (10 Marks)
- b. Write the algorithm for: (i) Depth first iterative deepening (ii) Iterative deepening – A\*. (06 Marks)

### Module-5

- 9 a. Explain the different steps in natural language understanding process. (08 Marks)
- b. Explain candidate elimination algorithm with example. (08 Marks)

OR

- 10 a. Explain knowledge acquisition. (10 Marks)
- b. Explain the classification of spell checking techniques. (06 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.