CBCS SCHEME

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21AI54

Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024
Principles of Artificial Intelligence

Time: 3 hrs. Max. Marks: 100

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

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.

Module-1

1 a. Define AI. Explain the foundation of AI in detail. **(10 Marks)**
b. Explain the history of AI in detail. **(10 Marks)**

OR

2 a. Briefly explain the properties of task environment. **(10 Marks)**
b. Explain the following with respect to structure of agents:
i) Simple reflex agents ii) Model-based reflex agents iii) Utility-based agents. **(10 Marks)**

Module-2

3 a. Explain Goal formulation and problem formulation with examples. **(10 Marks)**
b. Discuss problems that uses problem solving methods. **(10 Marks)**

OR

4 a. Explain BFS, DFS and Depth-limited search along with example. **(10 Marks)**
b. Discuss the different solutions and metrics for searching. **(10 Marks)**

Module-3

5 a. Explain A* search and Memory-bounded heuristic search with example. **(10 Marks)**
b. Discuss Heuristic functions in detail. **(10 Marks)**

OR

6 a. Explain the propositional logic syntax and semantics. **(10 Marks)**
b. Explain the following with examples :
i) Logical Equivalence ii) Inference rules iii) Horn clauses **(10 Marks)**

Module-4

7 a. Explain the syntax and semantics of first-order logic. **(10 Marks)**
b. Explain the following with respect to firs-order logic:
i) Assertions and queries ii) Numbers, Sets and Lists iii) Wumpus world **(10 Marks)**

OR

8 a. Explain Unification and Simple forward chaining along with the examples. **(10 Marks)**
b. Explain backward chaining algorithm with example. **(10 Marks)**

Module-5

9 a. Explain Basic Probability Notation in detail. **(10 Marks)**
b. Explain Inference using Full Joint distributions. **(10 Marks)**

OR

10 a. Explain Baye's rule and its use in detail. **(10 Marks)**
b. Explain Independence with respect to Quantifying uncertainty. **(10 Marks)**

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