

CBCS SCHEME

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17CS562

Fifth Semester B.E. Degree Examination, June/July 2024 Artificial Intelligence

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Solve the following cryptarithmic problem DONALD + GERALD = ROBERT. (10 Marks)
b. Develop AO* algorithm for AI applications. (10 Marks)

OR

- 2 a. Solve water jug problem using production rule system. (10 Marks)
b. Explain problem characteristics with respect to heuristic search. (10 Marks)

Module-2

- 3 a. Consider the following sentences:
• John likes all kinds of food.
• Apples are food.
• Anything anyone eats and isn't killed by is food.
• Bill eats peanuts and is still alive.
• Sue eats everything Bill eats.
i) Translate all the sentences into formulas in predicate logic.
ii) Convert formulas from previous step into clause form.
iii) Prove that John likes peanuts using resolution. (12 Marks)
b. Differentiate between forward and backward reasoning and list the factors that influences the choice between them. (08 Marks)

OR

- 4 a. Define CNF. Give an algorithm for converting given propositions to CNF. (10 Marks)
b. Explain the different approaches used for knowledge representation and list the qualities a good knowledge representation system should possess. (10 Marks)

Module-3

- 5 a. Propose implementation of DFS and BFS in the context of reasoning. (10 Marks)
b. Explain Bayesian Networks. (10 Marks)

OR

- 6 a. Explain certainty factors and rule based system in statistical reasoning. (10 Marks)
b. Explain property inheritance algorithm for frames. (10 Marks)

Module-4

- 7 a. Explain Conceptual dependency. (08 Marks)
b. What is global ontology? Explain. (06 Marks)
c. Write about iterative deepening. (06 Marks)

OR

- 8 a. Explain CYC and its motivations. (10 Marks)
b. Explain Min Max search procedure. (10 Marks)

Module-5

- 9 a. Explain spell checking technique. (10 Marks)
b. Explain Winston's learning program. (10 Marks)

OR

- 10 a. Explain the Augmented Transition Network with an example. (10 Marks)
b. Explain three types of automated discovery systems in the context of learning. (10 Marks)

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