

CBCS SCHEME



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15CS562

Fifth Semester B.E. Degree Examination, June/July 2019 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 AI technique? List less desirable properties and representation of knowledge. (08 Marks)
b. Explain production system with components and characteristics. List the requirement of good control strategies. (08 Marks)

OR

- 2 a. List and explain the AI problem characteristics. (08 Marks)
b. Explain constraint satisfaction and solve the cryptarithmic problem :
CROSS + ROADS = DANGER. (08 Marks)

Module-2

- 3 a. List and explain the issues in knowledge Representation. (08 Marks)
b. State and explain the algorithm to convert predicates to clausal form. (08 Marks)

OR

- 4 a. Consider the following predicates
i) Man (Marcus)
ii) Pompeian (Marcus)
iii) born (Marcus, 40)
iv) $\forall x ; \text{man}(x) \rightarrow \text{mortal}(x)$
v) $\forall x : \text{Pompeian}(x) \rightarrow \text{died}(x, 79)$
vi) erupted (volcano, 79)
vii) $\forall x : \forall t_1 : \forall t_2 : \text{mortal}(x) \wedge \text{born}(x, t_1) \wedge \text{gt}(t_2 - t_1, 150) \rightarrow \text{dead}(x, t_2)$
viii) now = 1991
ix) $\forall x : \forall t : [\text{alive}(x, t) \rightarrow \sim \text{dead}(x, t)] \wedge [\sim \text{dead}(x, t) \rightarrow \text{alive}(x, t)$
x) $\forall x : \forall t_1 : \forall t_2 : \text{died}(x, t_1) \wedge \text{gt}(t_2, t_1) \rightarrow \text{dead}(x, t_2)$
Prove that : $\sim \text{alive}(\text{Marcus}, \text{now})$ (10 Marks)
b. What is matching in rule based system? briefly explain the different proposals for matching. (06 Marks)

Module-3

- 5 a. What is non monotonic reasoning? Explain the logics and approaches for non monotonic reasoning. (08 Marks)
b. Why truth maintenance systems are required? Explain different types truth maintenance systems. (08 Marks)

OR

- 6 a. Explain Dempster-Shafer theory with example. (08 Marks)
b. Define semantic net. Represent the following sentence using partitioned semantic net :
i) Every dog in town has bitten the constable
ii) Every dog has bitten every mail carrier. (08 Marks)

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-4

- 7 a. Define conceptual dependency. List goals and primitive acts with meaning. (08 Marks)
- b. Explain the scripts with components. Write the script for the Restaurant. (08 Marks)

OR

- 8 a. State and explain the MINIMAX algorithm with example. (08 Marks)
- b. Explain iterative deepening. Write algorithms for Depth First iterative deepening and Iterative deepening A. (08 Marks)

Module-5

- 9 a. What is Natural language processing? Explain the steps in process. (08 Marks)
- b. Explain the spell checking with different techniques. (08 Marks)

OR

- 10 a. What is learning? Explain the Winston's learning program with example. (08 Marks)
- b. Explain the expert system and knowledge acquisition process, with example. (08 Marks)

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