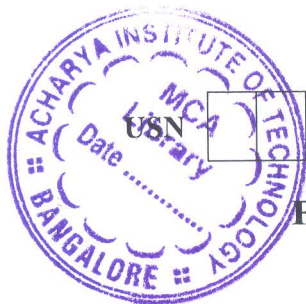


CBCS SCHEME

18AI55



Fifth Semester B.E. Degree Examination, June/July 2024 Principles of 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. What is Artificial Intelligence? List and discuss applications of AI. (10 Marks)
b. Define Intelligent systems. Explain the 4 categories on the design of Intelligent systems. (10 Marks)

OR

- 2 a. What is state-space search method of problem representation? Explain Eight-Puzzle problem with illustration. (10 Marks)
b. Discuss components of AI program. Explain control strategies. (10 Marks)

Module-2

- 3 a. Explain problem reduction with respect to AND-OR graphs to solve tower of Hanoi problem. (10 Marks)
b. Explain MINMAX procedure. Write the algorithm for MINIMAX. (10 Marks)

OR

- 4 a. What is iterative deepening? Explain Alpha-Beta pruning. (10 Marks)
b. Write short note on two-player perfect information games. (10 Marks)

Module-3

- 5 a. Write a note on : (i) Natural deduction system (ii) Axiomatic system (10 Marks)
b. Explain semantic tableau system in propositional logic. Construct a semantic tableau for a formula, $(A \wedge \sim B) \wedge (\sim B \rightarrow C)$. (10 Marks)

OR

- 6 a. With an illustration, explain the process of converting a formula into a set of clauses. (10 Marks)
b. Explain resolution of clauses, using resolution refutation principle show that CVD is logical consequence of $S = (A \vee B, \sim A \vee D, C \vee \sim B)$. (10 Marks)

Module-4

- 7 a. Explain goal stack planning with an example. (10 Marks)
b. What is blocks world problem? Explain the components of planning system. (10 Marks)

OR

- 8 a. Explain Means-Ends analysis technique. (10 Marks)
b. Explain non linear planning strategies. (10 Marks)

Module-5

- 9 a. Explain the knowledge representation using semantic network with the help of an example. (10 Marks)
b. How are frames used for knowledge representation? Explain using an example. (10 Marks)

OR

- 10 a. Write a note on Expert systems. (10 Marks)
b. Explain the general steps in the development of Expert systems. Also discuss the benefits of Expert systems. (10 Marks)

* * * * *