

Computer Science & Engineering AI & ML
BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - IV CS&E-A&M : WINTER: 2025
SUBJECT: FOUNDATIONS OF ARTIFICIAL INTELLIGENCE

Day : Monday
Date : 01/12/2025

W-23950-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non programmable **CALCULATOR** is allowed.

Q.1 How we formulate any AI problem? Explain it with formulation of Tic-Tac-Toe problem. (10)

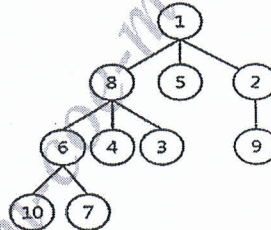
OR

Q.1 What are various Agent environments? Explain in short. (10)

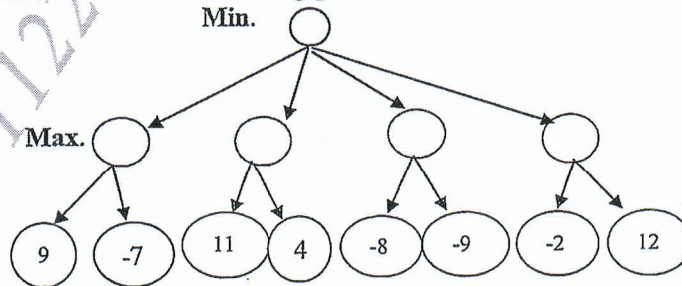
Q.2 With a suitable example explain Simulated Annealing algorithm. (10)

OR

Q.2 Apply BFS on following tree with 1 is start node and 7 as goal node. List the BFS disadvantages. (10)



Q.3 Apply min-max search to solve following game tree. (10)



OR

Q.3 What do you mean by Constraint Satisfaction Problems? Explain it with Map coloring problem. (10)

Q.4 What is FOPL? Represent following sentences using FOPL. (10)

- a. One's mother is one's female parent.
- b. One's husband is one's male spouse.
- c. Parent and child are inverse relations
- d. A grandparent is a parent of one's parent.

P.T.O.

OR

- Q.4 What do you mean by Propositional logic? Explain it with (10)
- a) Conjunction
 - b) Disjunction
 - c) Negation
 - d) Implication
 - e) Biconditional
 - f) Modus Ponens

- Q.5 Explain Goal Stack Planning using Blocks World problem. (10)

OR

- Q.5 Why uncertainty occurs in AI system? How to represent knowledge in an uncertain domain. (10)

- Q.6 What do you mean by expert systems? With a neat diagram explain components of an expert systems. (10)

OR

- Q.6 What do you mean by Learning in AI? Explain various types of learning. (10)

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