

BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - IV Computer Science & Engineering AI & ML : WINTER : 2023
SUBJECT : FOUNDATIONS OF ARTIFICIAL INTELLIGENCE

Day : Friday

Time : 02:30 PM-05:30 PM

Date : 24-11-2023

W-23950-2023

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 What are shortcomings of Goal Based Agent? Explain Utility Based Agent (10) with neat block diagram.

OR

Q.1 What are PEAS descriptors? What are disadvantages of Simple Reflex (10) Agent? Give PEAS for Vacuum Cleaner World.

Q.2 You have given two jugs, one with capacity 4 liters and other with capacity (10) of 3 liters, none having measuring marks on it. There is a pump that can be used to fill water in jug. How can you get exactly 2 liters of water in 4 liters jug?

OR

Q.2 Apply BFS on following tree with 60 as start node and 32 as goal node. List (10) the BFS advantages and disadvantages.



Q.3 Explain Alpha-Beta pruning with suitable example. (10)

OR

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

Q.4 Consider following statements: (10)

1. If D barks and D eats bone, then D is a dog.
2. If V is cold and V is sweet, then V is ice-cream.
3. If D is a dog, then D is a black.
4. If V is ice-cream, then it is Vanilla.

Derive forward as well as backward chaining using the given known facts to prove "Amul is Vanilla flavor ice-cream"

1. Amul is cold.
2. Amul is sweet.

P.T.O.

OR

Q.4 Consider following axioms: (10)
1. All people who are graduating are happy.
2. All happy people smile.
3. Someone is graduating.
Prove "Someone is happy" using resolution technique.

Q.5 With a suitable example explain Hierarchical planning. (10)

OR

Q.5 What are disadvantages of Bayesian theory? Explain Dempster-Shafer theory? (10)

Q.6 Draw and describe architecture of Expert System in detail. (10)

OR

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

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