

**BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)**  
**B. Tech. Sem - IV COMPUTER SCIENCE & ENGINEERING AI & ML : SUMMER : 2024**  
**SUBJECT: FOUNDATIONS OF ARTIFICIAL INTELLIGENCE**

Day : Friday

Date : 31/05/2024

S-23950-2024

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) Draw well labelled diagrams **WHEREVER** necessary.

Q.1 What is the importance of PEAS? Give PEAS of Self driving cars. (10)

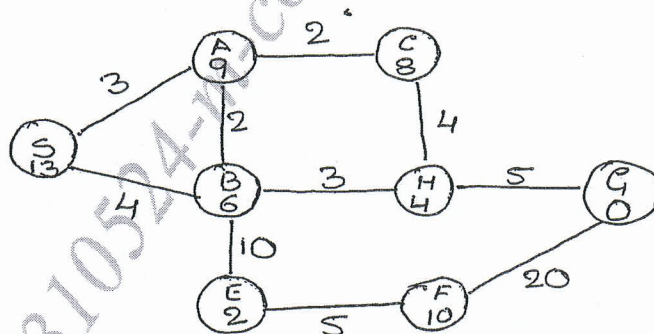
OR

Q.1 Define Intelligent Agent. What are the characteristics of Intelligent Agent? (10)

Q.2 What is AO\* algorithm explain how AO\* algorithm can be used for problem reduction? (10)

OR

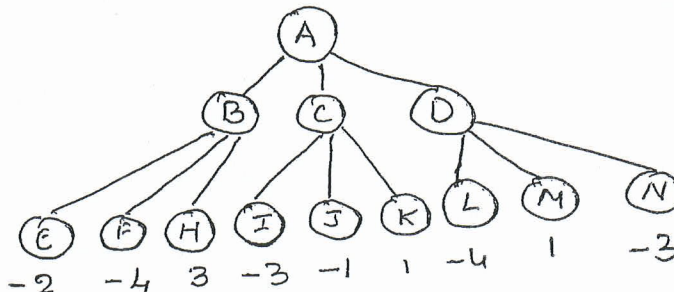
Q.2 Apply A\* algorithm on the following graph where S is the start node and G is goal Node, all values given in the oval are the nodes heuristic values. Also give A\* algorithm. (10)



Q.3 Using Constraint satisfaction problem procedure solve the crypto arithmetic problem CROSS + ROADS = DANGER. (10)

OR

Q.3 What is alpha beta pruning? Apply alpha beta pruning in the following. (10)



P.T.O.

- Q.4 Consider the following axioms: Prove by resolution. (10)
- a) Anyone whom Mary loves is a football star.
  - b) Any student who does not pass does not play.
  - c) John is a student.
  - d) Any student who does not study does not pass.
  - e) Anyone who does not play is not a football star.
  - d) (Conclusion) If John does not study, then Mary does not love John.

OR

Q.4 Explain forward and backward chaining with help of example. (10)

Q.5 Explain Dempster-Shafer theory in detail. (10)

OR

Q.5 How can we represent knowledge in uncertain domain? Explain Bayesian belief network using example? (10)

Q.6 Discuss Expert system in field on medicine using suitable example. Explain its architecture and different components. (10)

OR

Q.6 What is difference between supervised and unsupervised learning explain in detail? (10)

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