

BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)
B.Tech.Sem - V COMPUTER SCIENCE & ENGINEERING : WINTER : 2023
SUBJECT : ITC-III: ARTIFICIAL INTELLIGENCE

Day : Tuesday

Time : 02:30 PM-05:30 PM

Date : 12-12-2023

W-24319-2023

Max. Marks : 60

N.B. :

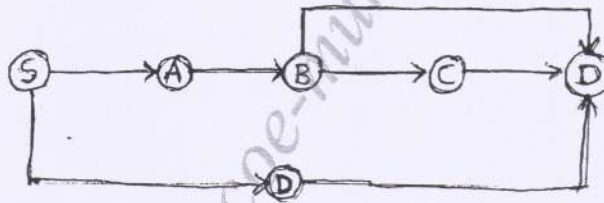
- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of **CALCULATOR** is allowed.
- 4) Draw neat and labeled diagrams **WHEREVER** necessary.

Q.1 Compare and contrast AI, ML, DL and DS in detail. (10)

OR

How Tic-Tac-Toe game will be solved using tree structure. Also explain which agent can solve this problem. Justify. (10)

Q.2 Define uniform search strategy. Write algorithm for Breadth first search for following example. (10)



OR

Explain concept of hill climbing algorithm. Also list and explain types and problems of hill climbing algorithm. (10)

Q.3 Describe constraint satisfaction problem in AI and give precise formulation for following constraint satisfaction problem. (10)

Class scheduling – there is fixed number of professors and classrooms. A list of classes to be offered and list of possible time slots and classes. Each professor has a set of classes that he or she can teach.

OR

Describe concept of min-max algorithm with suitable example in AI. (10)

Q.4 Consider following sentences: (10)

- i) John likes all kind of food
- ii) Apples are food
- iii) Chickens is food
- iv) Anything anyone eats and is not killed by is a food.
- v) Bill eats peanuts and is still alive
- vi) Sue eats everything Bill eats.

Prove : John likes peanut. Using Resolution steps

OR

P.T.O.

Differentiate between forward chaining and backward chaining. Apply forward chaining on following Rules:- (10)

Rules:-

- i) If A and C then F
- ii) If A and E then G
- iii) If B then E
- iv) If G then D

Prove – prove if A & B true then D is true.

Facts :- A, B

Q.5 Describe Demster Shafer theory using suitable example. (10)

OR

Write formula to calculate certainty factor for multiple hypothesis & multiple evidences. Also solve below example. (10)

$$M.B[h_1, e_1] = 0.4 \quad M.B[h_1, e_2] = 0.3$$

$$M.D[h_1, e_1] = ? \quad M.D[h_1, e_2] = 0.4$$

calculate C.F ?

Q.6 Discuss the expert system in domain of medicine using suitable case study. (10)

OR

Describe Role based expert system? Also elaborate the typical expert system – DART and XOON (10)

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