BACHELOR OF TECHNOLOGY (CBCS) (2021-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-25592-2023** | Max. Marks : 60

N.B. :

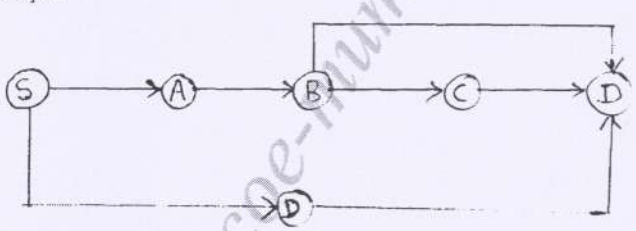
1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Use of **CALCULATOR** is allowed.
4) Draw neat and labeled diagrams **WHEREVER** necessary.

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 uninform 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[h1,e1] = 0.4 M.B[h1,e2] = 0.3

M.D[h1,e1] = ? M.D[h1,e2] = 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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