

BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)
 Computer Science & Engineering
 B.Tech.Sem - V :SUMMER : 2023
 SUBJECT : ITC-III: ARTIFICIAL INTELLIGENCE

Day : Tuesday

Time : 10:00 AM-01:00 PM

Date : 16-05-2023

S-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 Define Agent and Intelligent Agent. Also explain Agent and environment in detail with suitable example. (10)

OR

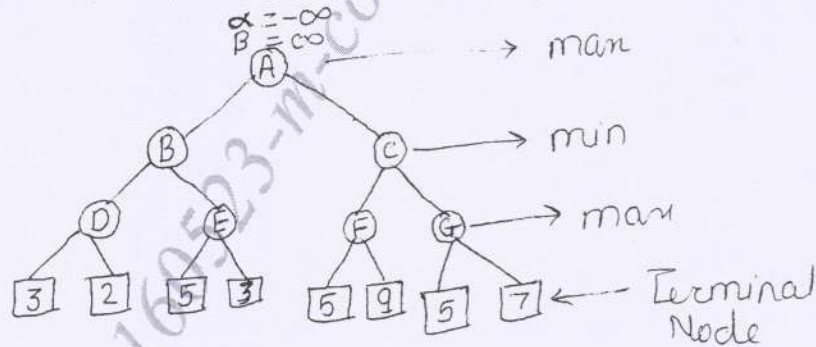
Describe in detail Application and Techniques of AI. (10)

Q.2 Define heuristic search? How it is calculate. Explain best first search technique using example. (10)

OR

Define memory bound search? Write algorithm of SMA* search using suitable example. (10)

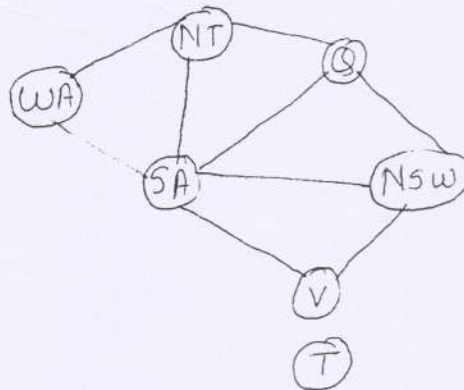
Q.3 Discuss concept of Alpha-beta pruning with below example. (10)



OR

Define constraint satisfaction problem.to solve map coloring problem using forward checking. (10)

Domain - Red, green, blue.



P.T.O.

Q.4 Here are two sentences in the language of first order logic. (10)

- i) $\forall x \exists y (x \geq y)$
- ii) $\exists y \forall x (x \geq y)$
- a) Assume that the variables range over all the natural numbers 0, 1, 2 ... and that the '>' predicates means "greater than or equal to". Under this interpretation, translate the sentences into English.
- b) Is (A) true under this interpretation?
- c) Is (B) true under this interpretation?
- d) Does (A) logically entail (B)?
- e) Does (B) logically entail (A)?

OR

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) She eats everything Bill eats.

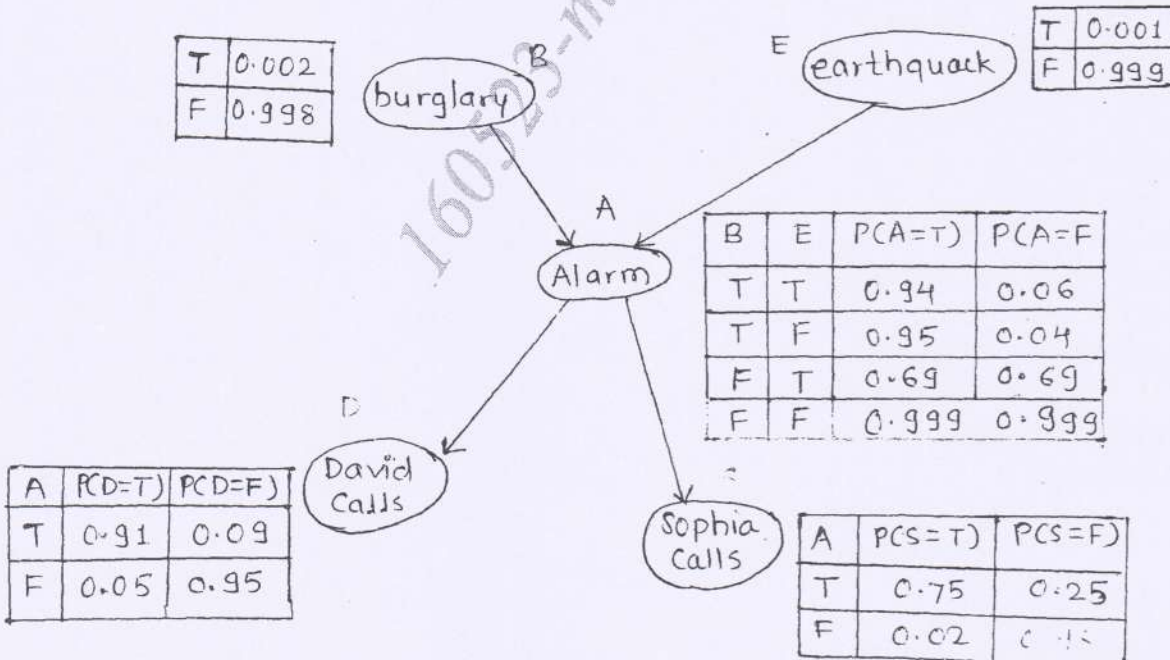
Calculate:-

- a) convert the sentences into predicate logic
- b) Prove that John like peanut using backward chaining.

Q.5 Define fuzzy logic? Also draw and explain Architecture of fuzzy system. (10)

OR

Calculate the probability that alarm has sounded but there is neither a burglary, nor and earth quake occurred and David and Sophia called the Harry. (10)



Q.6 Describe the structure of rule based expert system in detail. (10)

OR

Define expert system? Discuss in detail any five applications of expert system. (10)

* * * *