TE Sem V (C Scheme) R-2019 "AI & DS" Nov-Dec '2022

28/11/2022

[3 hrs] [80 Marks]

Note: 1. Question 1 is compulsory
2. Answer any three out of remaining question
3. Assume suitable data where required.

Q1

A. What is PEAS descriptor? Give PEAS descriptor for robot maid for cleaning the house. [5]

B. Discuss different applications of AI. [5]

C. Draw and explain architecture of Expert System. [5]

D. In a class, there are 80% of the students who like English and 30% of the students who likes English and Mathematics, and then what is the percentage of students those who like Math, also like English? Solve it using Conditional probability. [5]

Q2

A. Define chromosome, selection, fitness function, cross over and mutation as used in Genetic Algorithm. Explain how Genetic Algorithm in works. [10]

B. Draw and describe the architecture of Utility based agent. How is it different from Model based agent? [10]

Q3

A. Explain A* algorithm in detail. [10]

B. Define belief Network. Describe the steps of constructing belief network with an example. [10]

Q4

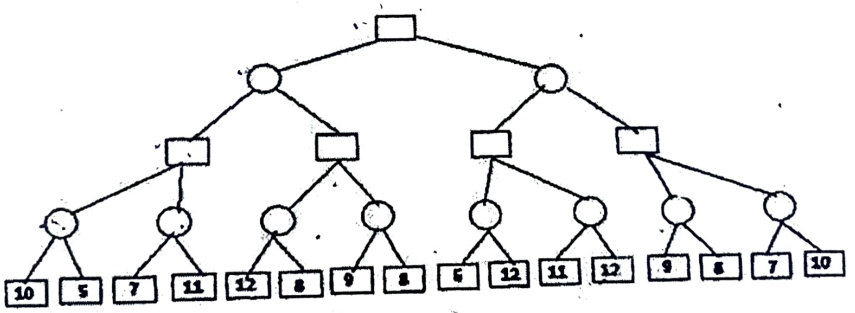
A. Illustrate forward chaining and backward chaining in propositional logic with example. [10]

B. Explain different types of learning in AI. [10]

Q5

A. Consider the following axioms [10]
All people who are graduating are happy.
All happy people smile.
Someone is graduating.
Prove that "Is someone Smiling?" using resolution technique. Draw resolution tree.

B. Explain Alpha-beta pruning algorithm. Apply alpha beta pruning on following example considering first node as MAX. [10]



Q.6

A. Explain hill climbing algorithm with example. Explain the problems faced by hill climbing algorithm. [10]

B. Explain total order planning and partial order planning in detail with example. [10]

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