

COURSE CODE (CREDITS): 21M11EC212 (3)

MAX. MARKS: 35

COURSE NAME: ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

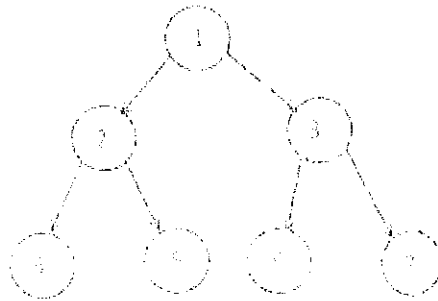
COURSE INSTRUCTORS: *Emjee Pulhooran*

MAX. TIME: 2 Hours

*Note: All questions are compulsory. Marks are indicated against each question in square brackets.*

Q1. What is an intelligent agent? What are the different types of intelligent agents? With a neat diagram, explain the different parts of an intelligent agent. [5]

Q2. If '5' is the goal node, give the steps to reach the goal node using breadth-first search method. Show the entries in the two lists 'queue' and 'visited' in each of the steps. [5]



Q3. Using the learning decision tree approach, formulate an expert system which can prompt the user for a vehicle service. The parameters to be taken are, total distance traveled after the previous service, total duration after previous service and noise produced from the vehicle. Assume thresholds for each of the parameters. [5]

Q4. What is propositional logic? Explain with example, the connectives: conjunction, disjunction, implication, biconditional and negation used in propositional logic. [5]

Q5. Explain how the 8-queens problem can be solved by using Genetic Algorithm. Illustrate one iteration of the genetic algorithm with initial population, fitness function, selection, crossover and mutation. [5]

[P. T. O.]

Q6. What are the differences between standard search problems and Constraint satisfaction problems? Explain Backtracking Search Algorithm used in Constraint Satisfaction Problems.

[5]

Q7. Design a Fuzzy Logic Expert System that can be used for room air conditioning. Use the input parameters of room temperature and humidity. Assume three fuzzy sets, 'Low', 'Medium' and 'High' each for the parameters room temperature and humidity.

[5]

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