Reg. No. :

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2023

Elective

Electronics and Communication Engineering

19UEC901- PRINCIPLES OF ARTIFICIAL INTELLIGENCE

(Regulation 2019)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. What is the other name of informed search strategy?   CO1- U

    (a) Simple search   (b) Heuristic search   (c) Online search   (d) None of the mentioned

2. Which makes the complexity of the entire algorithm quadratic in the size?   CO1- U

    (a) Clause   (b) Inference   (c) Resolution   (d) Occur check

3. The process by which the brain orders actions needed to complete a specific   CO1-U
    task is referred as _____

    (a) Planning problem   (b) Partial order planning

    (c)Total order planning   (d) Both Planning problem & Partial order planning

4. Uncertainty arises in the wumpus world because the agent's sensors   CO1- U
    give only _____

    (a) Full & Global information   (b) Partial & Global Information

    (c) Partial & local Information   (d)Full & local information

5. A perceptron is a _____.   CO1- U

    (a) Feed-forward neural network   (b) Back propagation algorithm

    (c) Backtracking algorithm   (d) Feed Forward-backward algorithm

PART – B (5 x 3= 15Marks)

6. Differentiate propositional logic with first order logic.   CO1- U

7. "Acting Humanly: The Turing Test Approach", Name few applications of this approach.   CO5 -App

8. Brief about searching for primitive solutions.   CO1- U

9. In a class, there are 70% of students who like mathematics and 40% of the students who like English and Mathematics. And then what is the percentage of students who like mathematics and also like English?   CO5- App

10. List some applications of machine learning.   CO1- U

<div align="center">PART – C (5 x 16= 80 Marks)</div>

11. (a) Give the names of different blind search strategies and explain in detail about depth-first search and Depth-limited search with an example   CO2- App   (16)

<div align="center">Or</div>

    (b) Consider a game with two players, called Max and Min. Max moves first, and then they take turns moving until the game is over. At the end of the game, points are awarded to the winning player and penalties are given to the loser. Formulate the game as a kind of search problem, name the elements. Give the game tree for the game of tic-tac-toe and explain.   CO2- App   (16)

12. (a) Apply the various steps of the knowledge engineering process in first order logic with an example.   CO4 -App   (16)

<div align="center">Or</div>

    (b) Apply the concept of forward chaining algorithm in logical reasoning applications with an appropriate example.   CO4- App   (16)

13. (a) Analyze various Bayesian networks syntax and semantics and show how it can be used to capture uncertain knowledge in a natural and efficient way.   CO3- Ana   (16)

<div align="center">Or</div>

    (b) Analyze the parameters of the efficient representation of conditional distributions using a simple example.   CO3- Ana   (16)

14. (a) Describe about inference by enumeration algorithms that are often applicable when exact inference is infeasible.   CO1- U   (16)

<div align="center">Or</div>

    (b) Explain about the variable elimination algorithm and how it eliminates repeated calculations of enumeration algorithms.   CO1- U   (16)

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15. (a) Elaborate on the most common Bayesian network model called   CO6 -App   (16)
Naïve Bayes used in machine learning.

Or

(b) Consider the following example of conductance measurement on   CO6 -App   (16)
material samples: Formulate an algorithm for finding a minimal
consistent determination

Sample	Mass	Temperature	Material	Size	Conductance
S1	12	26	Copper	3	0.59
S1	12	100	Copper	3	0.57
S2	24	26	Copper	6	0.59
S3	12	26	Lead	2	0.05
S3	12	100	Lead	2	0.04
S4	24	26	Lead	4	0.05

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