Reg. No.

M.E/ M. TECH.DEGREE EXAMINATIONS, MAY 2023
Second Semester
IR22205 – ARTIFICIAL INTELLIGENCE IN INDUSTRIAL AUTOMATION
(Regulation2022)

TIME:3 HOURS   **MAX. MARKS: 60**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Understand of the history of artificial intelligence (AI) and its foundations.	2
CO 2	Will apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.	3
CO 3	Be able to demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.	3
CO 4	Develop applications in an 'AI language', expert system shell, or data mining tool.	3
CO 5	Be able to demonstrate proficiency in applying scientific method to models of machine learning.	3

PART- A (10x2=20Marks)
(Answer all Questions)

		CO	RBT LEVEL
1.	Thinking humanly vs Acting humanly – Differentiate.	1	2
2.	Discuss the role of performance measures in the design of Agent.	1	2
3.	Compare informed and uninformed searches in AI	2	2
4.	Iterative deepening search is analogous to breadth-first search. How?	2	3
5.	Mention the three basic problems related to knowledge organization.	3	2
6.	Mention the difference between NLP and NLG.	3	2
7.	Compare monotonic and non-monotonic reasoning.	4	2
8.	How fuzzy set reduces the complexity of comprehension.	4	3
9.	Compare supervised and unsupervised learning.	5	2
10.	How does the KNN algorithm make the predictions on the unseen dataset.	5	3

PART- B (3x 10=30Marks)

|		Marks	CO	RBT LEVEL
11.(a)	How the agents can be classified based on their degree of perceived intelligence and capability. Distinguish their functionality.	(10)	1	4

(OR)

(b) Consider a water jug problem. you are given 2 jugs: a 4- liter and 3 - liter jugs. Neither has any measuring mark in it. There is a pump that can be used to fill the jugs with water. How can you get exactly 2 liters of water into a 4 liter jug? List the production rules for water jug problem and Solve it.

(10)   1   4

12.(a) Illustrate uniform cost search algorithm by applying it on Romania state space problem. Refer to the tree given below.
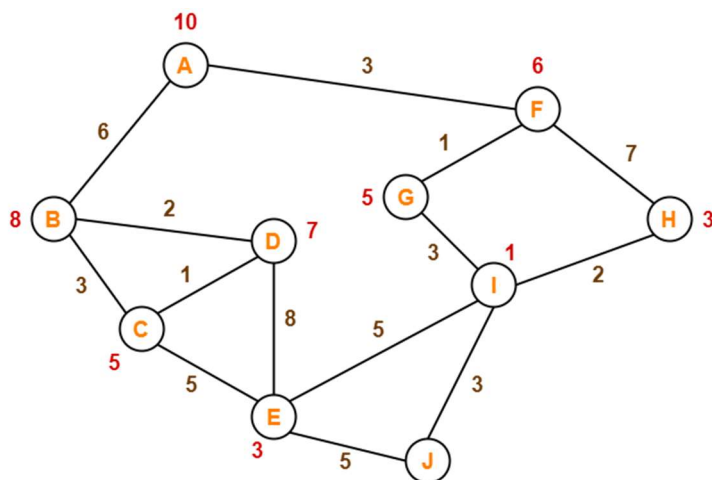
(10)   2   3
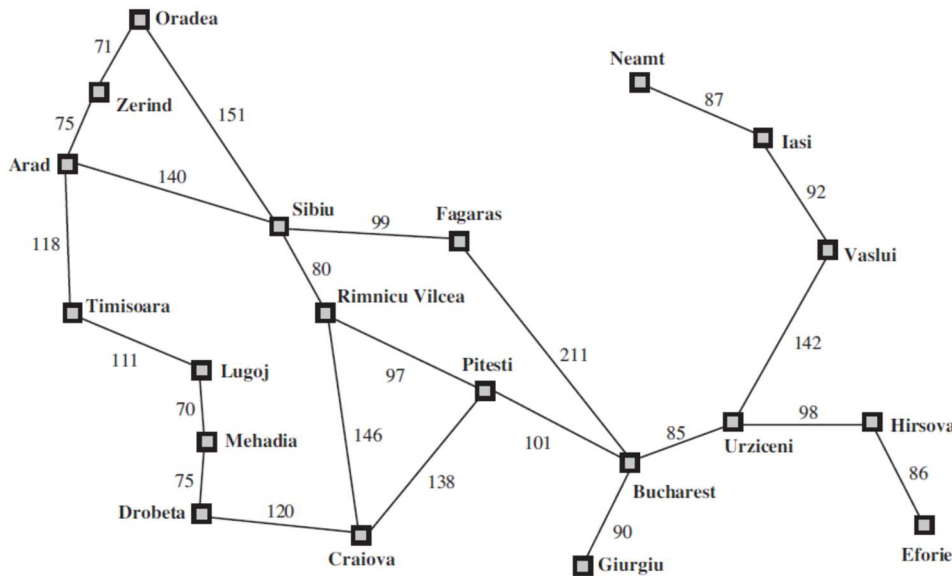
(OR)

(b) Discuss how best first search combines the advantages of Depth First Search and Breadth First Search. Present the A* algorithm and trace it to find the most cost-effective path to reach from start state A to final state J by considering the following graph-
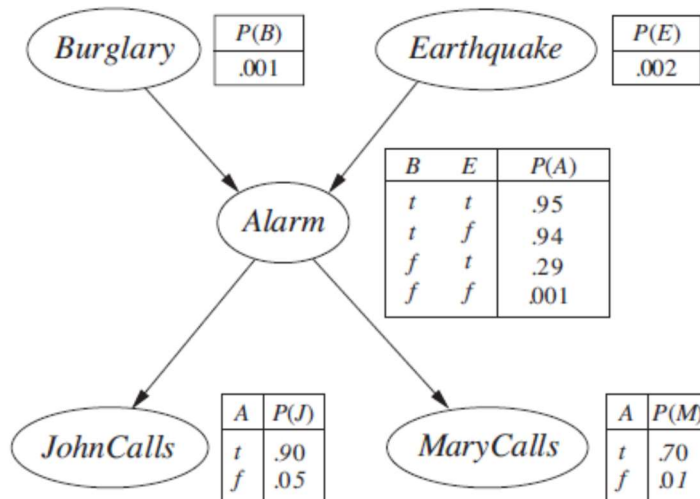
(10)   2   3

13.(a) Illustrate fuzzy matching with appropriate example and compare it with Rete matching   **(10)   3   3**

(OR)

(b)   (i) Consider the figure given below. Calculate the probability that alarm has sounded but there is neither burglary not an earthquake and both John and Marry called Harry.   **(7)   3   3**

(ii) Write short notes on representation structures and NLG   **(3)   3   3**

PART- C(1x 10=10Marks)

(Q.No.14 is compulsory)

		Marks	CO	RBT LEVEL

14. Consider the following sentences: **(10)   5   5**

1. Ramu like all kinds of food
2. Apples are food
3. Mutton is food
4. Anything anyone eats and is not killed by is food
5. Murugan eats peanuts and still alive
6. Kannan eats everything Murugan eats

Translate these sentences into formulae in predicate logic. And Prove the statement "peanut is food" using resolution, Add necessary facts if required.

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