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**Question Paper Code : 50437**

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Sixth/Seventh/Eighth Semester

Computer Science and Engineering

CS 8691 – ARTIFICIAL INTELLIGENCE

(Common to : Mechatronics Engineering/Computer Science and  
Business Systems)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the characteristics of Intelligent Agents?
2. There is a coffee machine which can prepare coffee on your voice command. Is it an intelligent agent? Justify.
3. List the different types of Uniformed searches?
4. What is your understanding on stochastic games?
5. What is the relation of Ontology with artificial Intelligence?
6. Identify a real time example for proving an judgement by “conflict of resolution” method.
7. How agent communication language is helpful for multiple agents working in a car manufacturing sector?
8. How trust among the agents can be developed in case of multi-agent system?
9. What are the steps needed to perform a simple machine translation?
10. How does a robot perceive its environment and take actions?

PART B — (5 × 13 = 65 marks)

11. (a) What are the different types of environment identified by the intelligent agents? Explain with example. (13)

Or

- (b) Robochef is an robot which can handle simple salad making with precision and accuracy of ingredients. Compare the system with the existing AI and a future AI. Use your imagination skills for improving robochef. (13)

12. (a) Consider a travelling salesman problem who wants to deliver online products to atleast ten cities in and around your hometown. Apply any three uniformed searches and prove one of them is a best search technique to make a quick delivery. (13)

Or

- (b) What is a constraint satisfaction problem? Explain with an example other than graph coloring. (13)

13. (a) Rule 1 : If the patient has infection in lungs and suffering from fever then it seems like the patient is having pneumonia.

Rule 2 : If the patient loses the sense of taste and having cold then patient has infection in lungs

Rule 3: If temperature of the patient is greater than 100 degree then patient have fever

Facts :

- (i) Patient have no sense of taste  
(ii) Temperature of the patient is 102° degree

Apply forward chaining and backward chaining, find out whether the patient is suffering from pneumonia. (13)

Or

- (b) What does reasoning means in terms of categories and default information? Explain with real time examples for each type of reasoning. (13)

14. (a) Explain the Architecture for Intelligent agents with a neat diagram. (13)

Or

- (b) Compare and contrast Negotiation and Bargaining of Software agents (atleast six points for each). Justify with examples. (13)

15. (a) Explain in detail about any two language models. (13)

Or

- (b) How Google identifies the speech recognition of the user in mobile phone and does the search? Explain the techniques involved. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Five friends have access to a chat room. Is it possible to determine who is chatting if the following information is known:

(i) Either Kevin or Heather or both are chatting. (3)

(ii) Either Randy or Paul but not both are chatting. (3)

(iii) If Abby is chatting, so is Randy. (3)

(iv) Paul and Kevin are either both chatting, or neither is. (3)

(v) If Heather is chatting than so are Abby and Kevin. (3)

Or

- (b) For a 5×5 matrix of a tic-tac-toe game, apply a heuristic search method with exploration of two evaluation function. Justify the best evaluation function used. A player wins as soon as he has five of his pieces in a horizontal or vertical or diagonal line. (15)