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**Roll No. ....**

**TCS-706**

**B. TECH. (CSE) (SEVENTH SEMESTER)**

**MID SEMESTER**

**EXAMINATION, Oct., 2023**

**ARTIFICIAL INTELLIGENCE**

**Time : 1½ Hours**

**Maximum Marks : 50**

**Note :** (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each sub-question carries 10 marks.

1. (a) Explain the following : (CO1)  
agent, agent function, agent program,  
rational agent, reflex agent and goal based  
agents.

**OR**

- (b) Explain the relative merits of depts.-first  
and breadth-first searching methods with  
example of each. Suggest some  
application to which each is best suited.

(CO1)

**P. T. O.**

2. (a) Write short notes on the following : (CO1)

(i) Problems in the development of AI applications

(ii) State Space Representation

OR

(b) Define the term Problem Solving in Artificial Intelligence. Explain how Artificial Intelligence approach to solve the problem is different from procedural techniques for solving problem. (CO1)

3. (a) What is Parsing ? Define top down and bottom to top parsing by a search problem.

(CO2)

OR

(b) Explain the following with the help of example : (CO2)

(i) Fillmore's Grammar

(ii) Recursive Transition network

(iii) Augmented Transition network

(3)

4. (a) Explain the difference between Context Free Grammar and Transformational Grammar. Give examples of each. (CO2)

OR

- (b) Write short notes on the following : (CO2)
- (i) Grammar Free Analyzer
  - (ii) Sentence Generation
5. (a) What do you mean by Heuristic Search ? Explain how Heuristic Algorithms are different from solution guaranteed algorithms. (CO1/CO2)

OR

- (b) What do you mean by Shanks Conceptual dependency ? Explain briefly with the help of an example. (CO1/CO2)