

(Please write your Exam Roll No.)

Exam Roll No.

END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JUNE 2024

Paper Code: ETCS-312/310

Subject: Artificial Intelligence

Time: 3 Hours

Maximum Marks: 75

**Note: Attempt five questions in all including Q.No.1 which is compulsory.
Select one question from each unit. Assume missing data, if any.**

- Q1
- a) Write short note on applications of AI. (5)
 - b) Write names of various informed and uninformed search strategies. (5)
 - c) How is unification used in resolution? (5)
 - d) Discuss expert systems in detail. (5)
 - e) Explain computational learning theory in detail. (5)

UNIT-I

- Q2
- a) Explain Missionary-Cannibal problem in detail. (6.5)
 - b) Discuss 8 puzzle problem using A* search algorithm. (6)
- Q3 Explain constraint satisfaction problem. Solve crypt-arithmetic Puzzles given below: (12.5)
- i)
$$\begin{array}{r} \text{SEND} \\ + \text{MORE} \\ \hline \text{MONEY} \end{array}$$
 - ii)
$$\begin{array}{r} \text{SOME} \\ + \text{TIME} \\ \hline \text{SPENT} \end{array}$$

UNIT-II

- Q4
- a) Discuss FOPL in detail. (6)
 - b) Compare forward chaining with backward chaining. (6.5)
- Q5
- a) Represent the following facts as predicates. (8)
 - i) Marcus was man.
 - ii) Marcus was a Pompeian
 - iii) All Pompeian were Roman
 - iv) Caesar was ruler
 - v) All romans were either loyal to Caesar or hated him.
 - vi) Everyone is loyal to someone.
 - vii) People only try to assassinate Caesar.
 - b) Was Marcus loyal to Caesar? If yes, construct the proof by backward chaining. (4.5)

UNIT-III

- Q6
- a) Write short note on Explanation based learning. (6.5)
 - b) Explain min-max search algorithm and discuss alpha beta cut-off briefly. (6)
- Q7
- a) Explain different methods of theorem proving. (6)
 - b) Explain different tasks that must be performed for Natural Language Understanding. (6.5)

UNIT-IV

- Q8 Explain different types of learning with examples. (12.5)
- Q9 Write short notes on:
- a) Robotics (6)
 - b) K means clustering (6.5)
