

III B. Tech I Semester Supplementary Examinations, June/July-2022
ARTIFICIAL INTELLIGENCE
 (Common to CSE, IT)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions **ONE** Question from **Each unit**
 All Questions Carry Equal Marks

UNIT-I

1. a) What are the characteristics of AI? Define Intelligence and Outline the property of intelligence encompasses many mental abilities. [8M]
 b) Illustrate the approach-2 of Tic-Tac-Toe problem with an example. [7M]

(OR)

2. a) Explain three dimensional Tic-Tac-Toe problem. [8M]
 b) List and explain various AI languages. [7M]

UNIT-II

3. a) Illustrate the heuristic Hill climbing algorithm with an example. [8M]
 b) Explain Iterative-Deepening A* algorithm with example. [7M]

(OR)

4. a) Explain Constraint satisfaction problem (CSP) and solve a Cryptarithmic puzzle (BASE+BALL=GAMES), show the steps involved in finding solution. [8M]
 b) Explain Nim game problem with a game tree in which MIN plays first. [7M]

UNIT-III

5. a) Explain different equivalence laws (at least four). Verify the absorption law $A \vee (A \wedge B) \cong A$ using truth table. [8M]
 b) Compare and contrast the two variants of logic-predicate and propositional. [7M]

(OR)

6. a) Prove the following in axiomatic system: [8M]
 $\{A, (A \rightarrow B)\} \vdash (B \rightarrow C) \rightarrow C$ and $\{A, (B \rightarrow (A \rightarrow C))\} \vdash B \rightarrow C$
 b) Define satisfiability and unsatisfiability in FOL for a given formula a. Explain the three logical notations in predicate calculus. [7M]



UNIT-IV

7. a) Explain the issues in Knowledge Representation. Define Inheritance in Semantic Net. [8M]
b) Explain extended semantic networks for Knowledge Representation. [7M]

(OR)

8. a) Explain different links used in frames in a network of frames. Define a hospital frame along with Facet values. [8M]
b) Find the grouping of primitives grouped to different primitive acts. [7M]

UNIT-V

9. a) List the characteristics of expert systems. Classify various Expert System shells and tools. [8M]
b) Outline the Bayesian method of reasoning. [7M]

(OR)

10. a) Relate Modus ponens and Tollen rules w.r.t. fuzzy logic. [8M]
b) List and explain inference rules for fuzzy propositions. [7M]

