

III B. TECH II SEMESTER REGULAR EXAMINATIONS APRIL - 2023
ARTIFICIALINTELLIGENCE
(ARTIFICIAL INTELLIGENCE AND DATA SCIENCE)

Time: 3 hours

Max. Marks: 70

Note: Answer **ONE** question from each unit (**5 × 14 = 70 Marks**)

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UNIT-I

1. a) Outline various fields in foundations of AI. [6M]  
 b) Define Artificial Intelligence. Explain the techniques & characteristics of AI. [8M]

(OR)

2. a) Explain briefly about history of AI? [6M]  
 b) Illustrate the Tic-Tac-Toe problem with different approaches. [8M]

UNIT-II

3. a) Solve the water-jug problem by writing the production rules. [7M]  
 b) Illustrate Crypt Arithmetic Puzzle with an example. [7M]

(OR)

4. a) Define Heuristic search? What are the advantages of Heuristic search? [7M]  
 b) Write the algorithm for steepest ascent hill climbing. [7M]

UNIT-III

5. a) Consider the following sentences: [7M]  
 1. John likes all kinds of food  
 2. Apples are food  
 3. Chicken is food  
 4. Anything anyone eat and isn't killed by is food  
 5. Bill eats peanuts and is still alive  
 6. Sue eats everything bill eats  
 A) Translate these sentences into formulas in prediacte logic.  
 B) Convert the formulas into clause form.  
 b) Give semantic nets to describe the following: [7M]  
 Narayan is a writer  
 Narayan lives in Bombay  
 Ishwar is a teacher Ishwar lives in Bangalore.  
 Narayan sent a copy of his book to Ishwar  
 Ishwar sent his thanks to Narayan.

(OR)

6. a) Explain resolution in predicate logic with example. [7M]  
 b) Explain the Forward and Backward Reasoning strategies. [7M]

**UNIT-IV**

7. a) Explain the Issues in black board systems for problem solving. [7M]  
b) Explain the expert system architectures : a) Rule-based. system [7M]  
architecture. ii) Associative or Semantic Network Architecture.

(OR)

8. a) Explain the following expert systems : i) MYCIN. ii) DART. [7M]  
b) Explain the phases in building expert system. [7M]

**UNIT-V**

9. a) Explain about certainty factor theory. [7M]  
b) Describe in detail about Dempster-Shafer theory [7M]

(OR)

10. a) Give different types of fuzzy membership functions and explain. [7M]  
b) Compare Fuzzy logic with traditional logic. [7M]

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