

**6E7105****6E7105**

**B.Tech. VI-Sem. (Main/Back) Examination, April/May - 2026**  
**Artificial Intelligence and Data Science**  
**6AID4-05 Principles of Artificial Intelligence**  
**CS, IT, AID, CAI, CCS, CIT, CSD, CSR**

**Time : 3 Hours****Maximum Marks : 70****Instructions to Candidates:**

*Attempt all Ten questions from Part A, Five questions out of seven questions from Part B and Three questions out of five questions from Part C.*

*Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

*Use of following supporting material is permitted during examination. (Mentioned in form No. 205).*

**PART - A**

**(Answer should be given up to 25 words only)**

**(10×2=20)**

**All questions are compulsory**

1. What do you understand by Artificial Intelligence?
2. What is an Intelligent Agent? Name any two.
3. What do you mean by Searching?
4. What is Constraint Satisfaction Problem?
5. Define and write a heuristic function?
6. What is Partial Order Planning?
7. What is Propositional Logic?
8. What do you mean by Situation Calculus?
9. What are different forms of Learning?
10. What is Natural Language Processing (NLP)?

**[Contd....**

**PART - B**  
(Analytical/Problem solving questions)

(5×4=20)

Attempt any Five questions.

1. What do you understand by AI Intelligent Agents? Explain Rule of AI agents with Example.
2. Explain the Hill Climbing algorithm. Discuss its different variants and limitations.
3. Enumerate classical "Water Jug Problem". Describe the state space for this problem solve this problem by giving its operation sequence.
4. Explain Building a Knowledge Base using Propositional Logic and write the following sentence propositional logic.
  - "If the thief runs, the dog barks, else not"
  - Today is Sunday and nice weather, we go for walk
  - Ram eats orange Biscuits
  - If Raihan buys mobile then colour is pink
5. Explain the role of Probability Theory in handling uncertainty in Artificial Intelligence.
6. What is a Decision Tree? Explain the working of a Decision Tree.
7. Explain different Phases of Natural Language Processing with suitable examples.

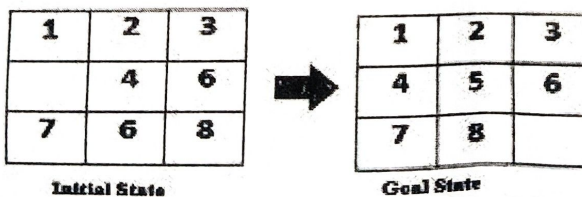
**PART - C**

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any Three questions.

(3×10=30)

1. Describe Uninformed Search techniques. Explain Breadth First Search (BFS) and Depth First Search (DFS) algorithms with examples. Compare BFS and DFS.
2. What do you mean by "Tile Problem"? Solve the given below - tile problem (8-puzzle problem).



3. What is Theorem Proving in First Order Logic? Explain resolution, unification proofs with a suitable example.
4. What is SVM? Explain its advantages. Describe the concept of SVM with diagram and real-life applications.
5. What do you understand by Robotics? Explain different Components of Expert System with example.