**Question Bank on UNIT-I**

Theoretical Questions

1. What are applications of AI
2. Define AI. What are characteristics of A
3. Give the state space representation for
   1. 8-puzzle, missionary –cannibals problem, water jug problem,tic-tac-toe
4. What is production system ? What are its components?f
5. Explain DFS and BFS with their time and space complexity.
6. Differentiate between Depth first search and breadth first search techniques.
7. What are Hill Climbing Algorithms? What are its drawback and how it can be resolved
8. Explain working of Uniform Cost Method(UCM)/Best First Search(BFS)
9. What are constraint satisfaction algorithm?
10. Short notes on
    1. State Space representation
    2. Problem Characteristics
    3. Branch and bound

Problem based on Unit-1

1. You have an 8 litre jug full of water and two smaller jugs, one that contains 5 litres and the other 3 litres. None of the jugs have markings on them, nor do you have any additional measuring device.You have to divide the 8 litres of water equally between your two best friends, so that each gets 4 litres of water. How can you do this?
2. Solve the following puzzle using criptairthmetc puzzle

CROSS+ROADS=DANGER EAT+THAT=APPLE TAKE+THAT=SHEET SEND+MORE=MONEY

1. Give a 8 puzzle problem with following as initial and final state

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 6 | 4 |
| 7 |  | 5 |

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
| 8 |  | 4 |
| 7 | 6 | 5 |

Initial final

Apply heuristic as” number of displaced titles “ and solve the puzzle using BFS

3 Trace Best First algorithm for following state space and give the solution path

8

6

5

1

1 4 6

11

5

3

8

2

7

3

5 2 3 8

2 4 5

2 3 6 10