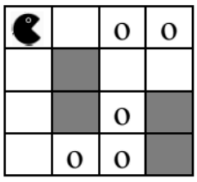
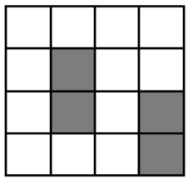
Name:_____ **Roll No:**_____ **Section:**_____

Quiz 01 (B)

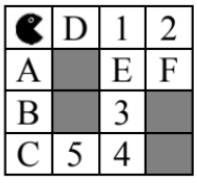
QUESTION 01: Given below the configurations of simplified Pacman game without ghosts. The objective of the game is to eat all of the dots placed in the maze. The Pacman can move in four directions (up, down, left, and right). Whenever Pacman enters a cell with the dot it immediately consumes it. The Grey cells in the maze are blocked.



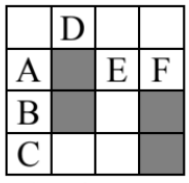
Initial State


Goal State

Execute the state space search algorithms on the following maze where numbers represent food cells and alphabets represent empty cells. You can build the tree with the current position of Pacman instead of drawing complete states. You should create the nodes from left to right in alphabetical order.



Initial State



Goal State

Apply Depth First Search (DFS). Clearly define the path, length and nodes.

QUESTION 02:

Scenario: A city implements an **AI-based traffic management system** to **optimize traffic flow** and **reduce congestion**. The system makes real-time decisions based on:

- Traffic density at intersections
- Pedestrian crossings
- Weather conditions (rain, fog, etc.)
- Accident reports
- Public transport schedules
- Emergency vehicle movement (ambulances, fire trucks, etc.)

The system can **adjust traffic signals, suggest alternate routes**, and **prioritize certain lanes** to ensure smooth traffic. It also **analyzes past traffic data** to predict congestion patterns.

Your Tasks:

1. Identify the type of agent this traffic management system is.
2. Determine the type of environment it operates in.
3. Create the state space for this