JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- MARCH-2023

COURSE CODE(CREDITS): 21M11EC212 (3) MAX. MARKS: 15

COURSE NAME: ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

COURSE INSTRUCTORS: DR. NISHANT JAIN MAX. TIME: 1 Hour

Note: *All questions are compulsory. Marks are indicated against each question in square brackets.*

Q1. (a) Explain the architecture of AI agents with the help of suitable diagram.

(b) Differentiate the following environments with respect to AI agent:

i. Deterministic vs Stochastic

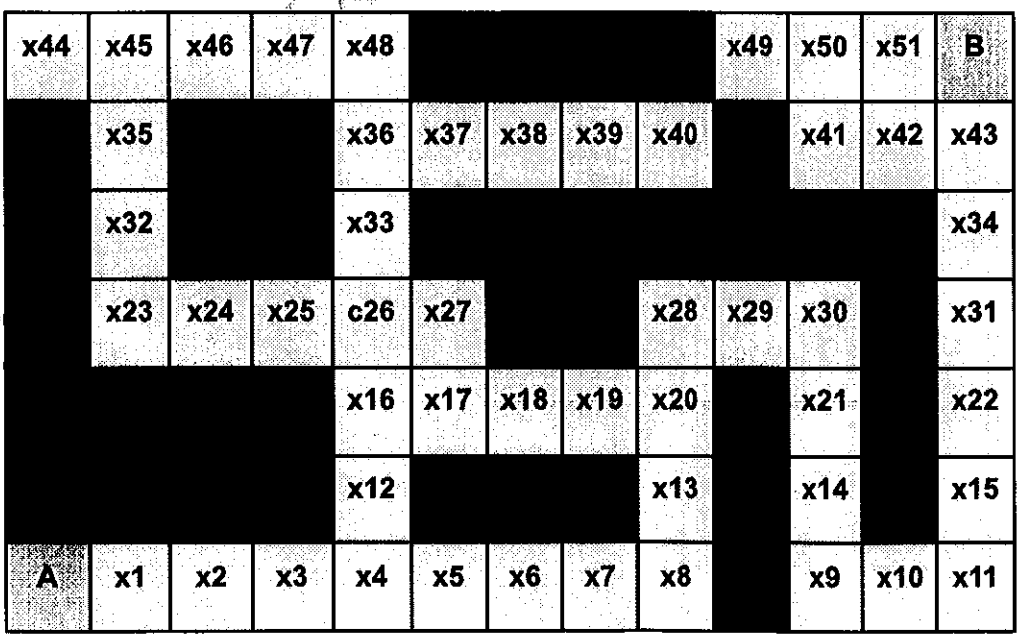
ii. Single-agent vs Multi-agent

iii. Episodic vs sequential

(c) What do you understand by PEAS description? List and explain PEAS description for the AI agent designed to clean the floor.

[2+3+3=8]CO1& CO2

Q2. In the following maze black color indicates the obstacle in the path.



Considering the maze given above, determine the sequence in which the squares of the maze will be visited in traveling from Square A to Square B using the algorithms listed in the table below: (In the table below mention name of the squares x1, x2, x3, ... x51 visited corresponding to step number)

Step Number	Worst case DFS	Best Case BFS	Greedy Best-First Search	A* Search
1				
2				
3				
4				
: : :				

[1 X 4=4]CO3

Q3. State the difference between Informed and uninformed search algorithms.

[1]CO2

Q4. Design an AI agent to play a tic-tac-toe game. Explain all the functionalities required to be present in AI agent.

[2]CO4