National University of Computer and Emerging Sciences, Lahore Campus

Course:	Artificial Intelligence	Course Code:	CS401
Program:	BS(Computer Science)	Semester:	Fall 2016
Duration:	30 min	Total Marks:	
Paper Date:	09-02-17	Weight	%
Section:	D	Page(s):	
Exam:	Quiz 1	Reg. No	

Instruction/Notes:

Question 1: (5 marks)
Consider a maze puzzle of figure 1, in which you have to find a way from start to end
What are properties of the environment of this puzzle?

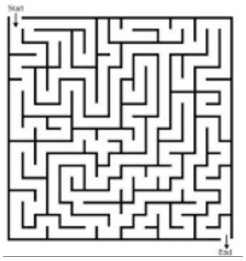


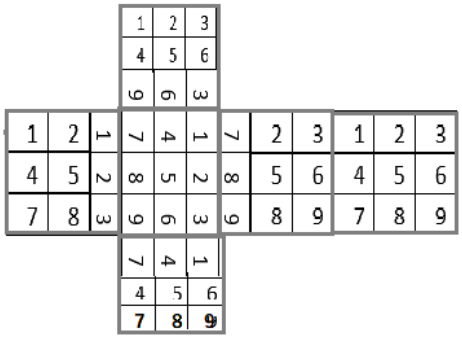
Figure 1: Maze Puzzle

- Full-observable *or* partially observable we can see the whole maze from top
- Deterministic *or* Stochastic Every move will have a definite pre known result.
- Episodic *or* Sequential Move is only determined by current state
- Static *or* Dynamic Maze is not changing
- Discrete *or* Continuous There are only finite moves (left right up down), and discrete number of finite states

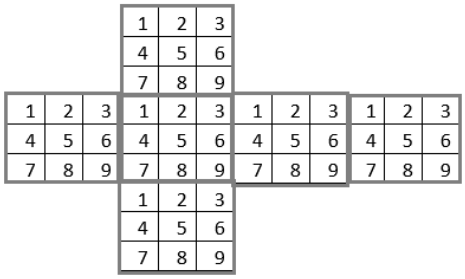
Underline the options and give one line reason

Question 2: (10 marks)
A man owns a wolf, a goat, and a cabbage: He is on a river bank with a boat that can carry him with only one of his goodies at a time to other side of bank. The man wants to reach the other bank with his wolf, goat and cabbage, but he knows that wolves eat goats, and goats eat cabbages, so he cannot leave them alone on a bank.
Create a complete state space (in form of graph showing actions on edges) for this problem. But first you have to identify initial state, goal state and actions. Then identify the path from initial to final state in your state space.

Question 3: (5 marks)
Consider the following state n of Sudoku cube, what is the h(n), according to the heuristic you have used in your assignment. Goal state is also given. Give brief description of your heuristic first, in 2 lines. Is your heuristic admissible?



State n



Goal State

S