SOMAIYA VIDYAVIHAR UNIVERSITY

Semester: January 2023 – May 2023 Maximum Marks: 30 Examination: In-Semester Examination Duration :1hr 15 min		
Programme code: Programme:	Class: TY	Semester: IV (SVU 2020)
Name of the Constituent College: K. J. Somaiya College of Engineering	Name of the department: COMP	
Course Code:	Name of the Course: Artificial Intelligence	

Question No.		Max. Marks	CO Mapped	BT Level
Q1	Consider the two-block vacuum-cleaner world agent. (i) State and explain the 5 components needed for problem formulation. (3M) (ii) Draw the transition model/state space graph for the same.(3M) (iii) Write the PEAS for the above scenario (4M)	10M	CO1	1,3
Q2 A	Sketch the architecture of a Goal-Based Agent. (2M) With an example, explain the blocks 'State' and 'Goal'. (3M)	5M	CO1	1.3.
	OR			
Q2 A	Sketch the architecture of a Model Based Reflex Agent. (2M) With an example, explain the blocks 'State' and 'Condition Action rules'. (3M)	5M	CO1	1,3
Q2 B	What is artificial intelligence? (1M) Give four examples of its application. (4M)	5M	CO1	1,2
Q3	Consider 8-puzzle problem given in figure 1. Draw state space tree. (3M) Illustrate uninformed algorithms BFS, DFS. (5M) Calculate cost for traversed path. (2M) Initial State: 2 8 3 / 1 6 4 / 7 _ 5 Goal State: 1 2 3 / 8 _ 4 / 7 6 5 **Figure 1**	10M	CO2	3,4
	OR			
Q3	For Figure 2, explain AO* step by step (6M) to find the lowest cost path and the corresponding lowest cost (2M **each**) from the starting node A to the goal node. **Note:** all numbers in brackets are the heuristic values i.e.,	10M	CO2	3,4

h(n). Consider each edge to have a value of 1.

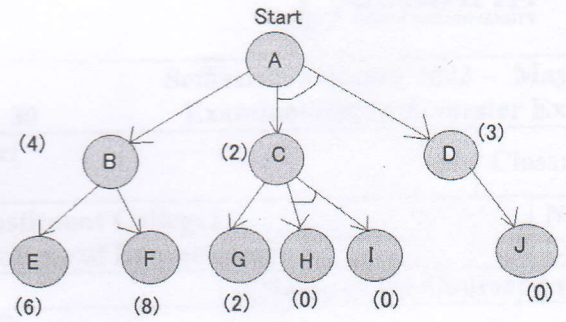

Figure 2

Option : 15-20 marks

Questions may be of 10 marks /5 marks

Details for your reference

RE (Remember), UN (Understand), AP (Apply), AN (Analysis), EV (Evaluate) and CR (Create)

According to revised Bloom's taxonomy, the levels in cognitive domain are as follows:

Level	Descriptor	Level of attainment
1	Remembering	Recalling from memory of previously learned material
2	Understanding	Explaining ideas or concepts
3	Applying	Using information in another familiar situation
4	Analysing	Breaking information into part to explore understandings and relationships
5	Evaluating	Justifying a decision or course of action
6	Creating	Generating new ideas, products or new ways of viewing things