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B.M.S. College of Engineering, Bengaluru-560019

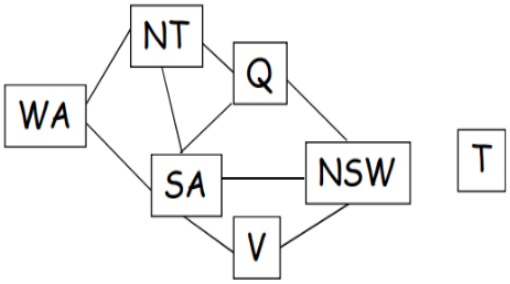
Autonomous Institute Affiliated to VTU

July 2023 Semester End Main Examinations

Programme: B.E. **Semester: VI**
Branch: Artificial Intelligence And Machine Learning **Duration: 3 hrs.**
Course Code: 22AM6PCAAI **Max Marks: 100**
Course: Advanced Artificial Intelligence **Date: 10.07.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

		UNIT - I	CO	PO	Marks
1	a)	Compare Partially Observable games and Fully Observable games	CO2	PO2	**05**
	b)	Illustrate a horizon affect considering Chess Game. Provide a suitable analysis with an example using Expectimax technique.	CO2	PO2	**05**
	c)	Alpha-Beta Pruning technique is much better than Minimax Algorithm. However, it still suffers from finding the best estimate for pruning the tree. Provide a solution for the same.	CO2	PO2	**10**
		UNIT - II			
2	a)	Apply cryptarithmetic constraint-based problem to solve EAT + EAT + EAT = BEET if T = 0 then what will the value of TEE + TEE?	CO2	PO1	**10**
	b)	Detail classical planning and apply the same for block world problem (A B C as individual blocks on a table). Assume and define the start state and reach the goal state as block B to be on block C and then block A.	CO3	PO1	**10**
		OR			
3	a)	Analyze Map Coloring problem using forward checking technique for the graph shown in 3. (b). The initial state is WA=R. WA NT Q NSW V SA T RGB RGB RGB RGB RGB RGB RGB	CO2	PO2	**10**
	b)	Apply Tree composition techniques to the following graph coloring problem. The initial variable as {WA=blue, NT=green, SA=red}. Show complete sub problems and variables.	CO3	PO1	**10**

						
			UNIT - III			
	4	a)	Illustrate the working principle of STRIPS algorithm and demonstrate with a suitable example.	*CO3*	*PO2*	**10**
		b)	Justify with a suitable example how planning graphs are efficient way to create and solve a planning problem.	*CO3*	*PO2*	**10**
			OR			
	5	a)	Apply planning problem to solve blocks world problem. The initial sate of blocks can be assumed.	*CO3*	*PO1*	**10**
		b)	In what way time, schedules and resources help to achieve classical planning to solve constrain based problems effectively.	*CO3*	*PO1*	**10**
			UNIT - IV			
	6	a)	Define and formalize Marko decision process. Apply for a 4x3 stochastic grid with +1 and -1 as a terminal states.	*CO2*	*PO1*	**05**
		b)	Compare policy iteration and value iteration.	*CO3*	*PO2*	**07**
		c)	Analyze how Ellsberg paradox is different from Allais Paradox?	*CO2*	*PO2*	**08**
			UNIT - V			
	7	a)	How edges are detected in an image with Gaussian probability distribution.	*CO2*	*PO1*	**06**
		b)	Illustrate Lambert's cosine law for reflections in diffusion.	*CO1*	*PO2*	**06**
		c)	Illustrate in what way AI robot can achieve perception using localization and mapping?	*CO3*	*PO2*	**08**

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