U.S.N.										

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

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary 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: 21.09.2023**

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

1	a)	In what way general games are different from adversarial games?	**05**
	b)	Identify the disadvantages of minimax algorithm. How can it be overcome?	**07**
	c)	Illustrate Heuristic Alpha-Beta Tree Search algorithm and justify why evaluation function is necessary for estimating the expected utility.	**08**

UNIT - II

2	a)	Illustrate ExpectiMax Search algorithm with a suitable example.	**07**
	b)	Differentiate Variations in Constraint Satisfaction Problem (CSP) formalizations and Varieties of Constraints.	**07**
	c)	Using first order logic represent the following sentences i. Everyone who studies at BMS is smart ii. "Everyone in the world is loved by at least one person.	**06**

OR

3	a)	Define K-Consistency. Provide the list for different consistencies for k=1, k=2 and k=3.	**05**
	b)	If E A T + T H A T = A P P L E, what is the value of A + T + L? Solve using Crypt arithmetic technique.	**05**
	c)	For the defined 4-queen problem, construct a constraint network and reduce the domain values using AC3 technique.	**10**

UNIT - III

4	a)	Considering job-shop scheduling problem, in what way critical path technique helps to achieve the goal state sooner?	**10**
	b)	Demonstrate STRIPS technique with a suitable example.	**10**

OR

5	a)	Represent Planning Domain Definition Language (PPDL) approach for air cargo transportation in detail.	**10**
	b)	"Planning problem can be solved through forward state-space search and backward search". Justify the statement with your views.	**10**

UNIT - IV

6.	a)	Provide the significance of value of perfect information with a detailed example using decision networks. Also define decision theory.	**12**
	b)	Justify how Markovian decision process will help AI agent in handling sequential decision problems in a fully observable environment.	**08**

UNIT - V

7	a)	Illustrate the concept of diffusion reflections with suitable examples for pixel shadowing	**10**
	b)	Detail how robotic software architecture help in building an efficient robotic car.	**10**

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