CBCS SCHEME

USN | | | | | | | | 0 | 3 | 0 | BDS602

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025
Artificial Intelligence and Machine Learning

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain all four different approaches to AI in detail.	10	L2	CO1
	b.	Give PEAS specification for i) Part –picking robot ii) Satellite Image Analysis System.	10	L3	CO1
		OR			
Q.2	a.	Describe the different environments in which AI agents operate and explain their properties.	10	L2	CO1
	b.	Discuss the history of AI and its evolution.	10	L2	CO1
		Module – 2			
Q.3	a.	Write an algorithm for Breadth- first search and explain with an example.	10	L3	CO2
	b.	Discuss five components of well defined problem. Consider 8 – puzzle problem as an example and explain.	10	L2	CO2
		OR			
Q.4	a.	Explain the A* search to minimize the total estimated cost.	10	L3	CO2
	b.	Discuss in detail about Infrastructure for search algorithm.	10	L2	CO2
		Module – 3			
Q.5	a.	Define Machine Learning. Explain in detail different types of Machine Learning in detail.	10	L2	CO3
	b.	Outline Descriptive Statistics with respect of Categorical and Numerical data in Machine Learning.	10	L3	CO3
		OR			
Q.6	a.	Describe the Machine Learning Process in detail. What are the Challenges?	10	L2	CO3
	b.	Consider the mark list V = {10,20,30} convert the marks to z – score.	05	L2	CO3
	c.	For the patient's age list {12, 14,19,22,24,26,28,31,34} Find the IQR	05	L3	CO3
		Module – 4			
Q.7	a.	Write PCA Algorithm. How does it reduce dimensionality of data?	10	L3	CO4
	b.	Discuss steps in design of learning system.	05	L2	CO4
	c.	List the differences between Instance and Model based Learning.	05	L1	CO4
		OR			
Q.8	a.	Illustrate version space and candidate elimination algorithm by explaining the algorithm steps.	10	L3	CO4
	b.	Explain K – nearest –neighbor Algorithm with an example.	10	L2	CO4
		Module – 5			
Q.9	a.	Explain the different activation functions used in ANN.	10	L2	CO5
	b.	Describe the Radial Bais Function Nevral Network (RBFNN) along with Architecture.	10	L3	CO5
		OR			
Q.10	a.	Explain Perceptron Model and Perceptron Algorithm in detail.	10	L3	CO5
	b.	Illustrate various types of Artificial Neural Networks. Also Mention popular applications, limitations and challenges of ANN.	10	L2	CO5

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