SRI KRISHNA INSTITUTE OF TECHNOLOGY

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Department of Artificial Intelligence and Machine Learning

Subject Name: Machine Learning   **Subject Code: BAI602**

SEM: 6   **DIV: A**

Faculty: Prof. Nanda M B

Module-5 Question Bank

SL#	Question	CO	Level	Marks
1.	What is Clustering? What are its applications ?Difference between Clustering and Classification.	CO4	L2	6
2.	Describe the following, i) Euclidian distance ii) City Block Distance iii) Chebyshev Distance Iv) SMC v) Jaccard Coefficient	CO4	L2	10
3.	If the given vectors are x = (1, 0, 0) and y = (1, 1, 1) then **find** the **SMC and Jaccard coefficient?**	CO4	L2	4
4.	Suppose, if the coordinates of the objects are (0, 3) and (5, 8), then what is the **Chebyshev** distance?	CO4	L2	
5.	Explain Agglomerative Clustering	CO4	L2	6
6.	Explain single linkage algorithm	CO4		
7.	Consider the array of points as shown in the following Table. Apply **Single** 	Objects	X	Y	 	---	---	---	 	0	1	4	 	1	2	8	 	2	5	10	 	3	12	18	 	4	14	28	 **Linkage Algorithm.**	CO4	L2	10
8.	Explain **k-means Algorithm**.	CO4	L3	4
9.	Explain Density Based method and Grid based method.	CO4	L3	4
10.	Consider the following set of data given in table .Cluster it using k-means algorithm with the initial value of objects 2 and 5 with the coordinate values (4, 6) and (12, 4) as initial seeds. 	Objects	X-coordinate	Y-coordinate	 	---	---	---	 	1	2	4	 	2	4	6	 	3	6	8	 	4	10	4	 	5	12	4		CO4	L3	10
11.	What is artificial neural network? Explain.	CO4	L2	5
12.	Explain the following: Biological Neurons and Artificial Neurons.			

13.	Explain perceptron. Describe perceptron algorithm.	CO4	L2	6
14.	Explain different activation functions used in ANN.	CO4	L2	8
15.	Consider a perceptron to represent the Boolean function AND with the initial weights w1 = 0.3, w2 = -0.2, Consider a perceptron to represent the Boolean function AND with the initial weights w1 = 0.3, w2 = -0.2, learning rate $\propto$ = 0.2 and bias q = 0.4 as shown in Figure The activation function used here is the Step function f(x) which gives the output value as binary, i.e., 0 or 1. If value of f(x) is greater than or equal to 0, it outputs 1 or else it outputs 0. Design a perceptron that performs the Boolean function AND and update the weights until the Boolean function gives the desired output.	CO4	L3	10
16.	Explain types of artificial neural networks.	CO4	L2	8
17.	Explain applications of artificial neural networks.	CO4	L2	6
18.	Explain advantages and disadvantages of ANN.	CO4	L2	6
19.	Explain Challenges of artificial neural networks.	CO4	L2	6

Faculty Signature