PRN:		Course Code :	AMT1504

Third Year **B. Tech (AIML)** End Semester Examination
Winter 2022

Machine Learning

Day and Date: Tuesday, 20.12.22 Max Marks: **100**
Time : 10.30am - 1.30pm Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Review the applications of Machine Learning	08	2	1
	b)	Explain Feature Extraction Method along with example	08	2	1
		OR			
	b)	Explain Supervised and Unsupervised Machine Learning Algorithms	08	2	1
Q.2		**Attempt the following**			
	a)	Relate Classification and Regression along with example	08	1	1
	b)	Demonstrate how Gradient Descent algorithm is used to reduce Cost Function error in Logistic Regression	08	3	2
		OR			
	b)	Illustrate K Nearest Neighbor Algorithm	08	3	2
Q.3		**Attempt any Two from the following**			
	a)	Recall the concept of Linear Support Vector Machine	08	1	2
	b)	Apply Classification and Regression Tree (CART) algorithm to find root node	08	3	3

Day	Outlook	Temp	Humidity	Wind	Decision
1	Sunny	Hot	High	Weak	No
2	Sunny	Hot	High	Strong	No
3	Overcast	Hot	High	Weak	Yes
4	Rain	Mild	High	Weak	Yes
5	Rain	Cool	Normal	Weak	Yes
6	Rain	Cool	Normal	Strong	No
7	Overcast	Cool	Normal	Strong	Yes
8	Sunny	Mild	High	Weak	No
9	Sunny	Cool	Normal	Weak	Yes
10	Rain	Mild	Normal	Weak	Yes
11	Sunny	Mild	Normal	Strong	Yes
12	Overcast	Mild	High	Strong	Yes
13	Overcast	Hot	Normal	Weak	Yes
14	Rain	Mild	High	Strong	No

	c)	Demonstrate Bayesian Learning Along with Example	08	3	3
Q.4		**Attempt any Two from the following**			
	a)	Illustrate K Means algorithm in detail	08	3	3
	b)	Compare clustering and association in detail	08	4	4
	c)	Explain Expected Maximatization algorithm in detail	08	4	2

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Q.5	**Attempt any Two of the following**				
	a)	Discuss Learning Curves and Hypothesis testing in Machine Learning	09	2	4
	b)	Clarify the role of Training ,Testing and Validation in model building	09	2	4
	c)	Employees at a construction and mining company claim that the mean salary of the company's mechanical engineers is less than that of one of its competitors, which is $68,000. A random sample of 30 of the company's mechanical engineers has a mean salary of $66,900 with a standard deviation of $5500. At α=0.05 test the employees' claim. Formulate problem for given scenario and conclude the inference	09	5	3
Q.6	**Attempt any Two of the following**				
	a)	Describe the concept of Single and Multilayer Perceptron with neat labeled diagrams	09	1	2
	b)	Discuss the Long Short Term Memory (LSTM) in detail	09	2	2
	c)	Illustrate Back-propagation in detail	09	3	3



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