

U.S.N.

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

Autonomous Institute Affiliated to VTU

**January 2024 Semester End Main Examinations****Programme: B.E.****Branch: Medical Electronics Engineering****Course Code: 19ML7PCMCL****Course: Machine Learning****Semester: VII****Duration: 3 hrs.****Max Marks: 100**

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

<b>Important Note:</b> Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.			<b>UNIT - I</b>	<b>CO</b>	<b>PO</b>	<b>Marks</b>
	1	a)	With the help of a flowchart and an example, illustrate the lifecycle of data science.	CO1	PO1	10
		b)	Are functions and methods the same? Explain with an example.	CO1	PO1	10
			<b>UNIT - II</b>			
	2	a)	Why do we need Data Visualization? Explain with an example.	CO2	PO5	10
		b)	What is linear regression? Explain its implementation with pseudocode.	CO2	PO5	10
			<b>UNIT - III</b>			
	3	a)	What is cost and cost function? Derive residual from cost function.	CO3	PO3	10
		b)	Differentiate between Bagging and boosting in Ensemble learning?	CO3	PO3	10
			<b>UNIT - IV</b>			
	4	a)	What is a confusion matrix? derive different performance metrics from the confusion matrix of a binary classifier.	CO2	PO5	10
		b)	Explain the following feature selection methods used in machine learning. (i) Recursive feature elimination (RFE) (ii) LASSO Regularization L1	CO2	PO5	10
			<b>OR</b>			
	5	a)	Explain Naive Bayes Classifier with its advantage and disadvantages.	CO2	PO5	10
		b)	What is the curse of dimensionality and how can it be overcome?	CO2	PO5	10
			<b>UNIT - V</b>			
	6	a)	What is causing the transition from AI to XAI?	CO5	PO12	5

	b)	What are IaaS, PaaS, and SaaS? Explain with an example for each.	CO5	PO12	<b>5</b>
	c)	Discuss the Sequential Covering Algorithms.	CO5	PO12	<b>10</b>
		<b>OR</b>			
7	a)	The SHAP library offers different visualizations? Explain them.	CO5	PO5	<b>10</b>
	b)	Explain What if Tool for Model interpretability.	CO5	PO5	<b>10</b>

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