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

Autonomous Institute Affiliated to VTU

January 2024 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: Aerospace Engineering **Duration: 3 hrs.**
Course Code: 21AE7DEMLA **Max Marks: 100**
Course: Machine Learning in Aerospace Engineering

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

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

				CO	PO	Marks
			UNIT - I			
1	a)	Give examples of supervised, unsupervised and reinforcement learning.		CO1	PO1	**10**
	b)	Explain Machine learning with its limitations and when should you use Machine Learning along with the steps involved.		CO1	PO1	**10**
			UNIT - II			
2		What are Hard margins in support vector Machines and how are they represented mathematically? Explain with an example.		CO2	PO2	**20**
			OR			
3	a)	What is linear regression and explain how linear regression is advantageous over non-linear?		CO2	PO2	**10**
	b)	How SVM kernel is advantageous in non-linear SVM and explain with an example.		CO2	PO2	**5**
	c)	Describe the types of Kernels.		CO2	PO1	**5**
			UNIT - III			
4	a)	Explain briefly the decision tree learning algorithm.		CO3	PO1	**5**
	b)	List down the attribute selection measures used by the ID3 algorithm to construct a decision tree.		CO3	PO2	**10**
	c)	List down different types of nodes in decision trees.		CO3	PO1	**5**
			OR			
5	a)	What is the inductive bias of decision trees?		CO3	PO1	**10**
	b)	What are the issues in decision tree learning?		CO3	PO2	**10**
			UNIT - IV			
6	a)	What do you mean by perceptron and its types.		CO3	PO1	**10**

		b)	Explain briefly back propagation algorithm.	*CO3*	*PO2*	**10**
			UNIT - V			
	7	a)	It is observed that 50% of mails are spam. There is a software that filters spam mail before reaching the inbox. Its accuracy for detecting a spam mail is 99% and chances of tagging a non-spam mail as spam mail is 5%. If a certain mail is tagged as spam find the probability that it is not a spam mail.	*CO4*	*PO2*	**5**
		b)	Explain Naïve Bayes classifier with an illustrative example.	*CO4*	*PO1*	**15**

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