PRN:		Course Code:	MCA203

Second Year **MCA** . End Semester Examination Summer 2023

Machine Learning

Day and Date: Wednesday, 14/06/2023 Max Marks: **100**

Time: 2.00 to 5.00 PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Explain Machine Learning Life cycle with diagram	08	2	CO1
	b)	Illustrate Feature Selection and Extraction.	08	2	CO1
		OR			
	b)	Explain supervised learning with the help of example.	08	2	CO1
Q.2		**Attempt the following**			
	a)	Explain in detail Bias and Variance in Supervised Learning.	08	2	CO2
	b)	Explain K-nearest neighbor algorithm with example.	08	2	CO2
		OR			
	b)	Compare Linear and Logistic Regression.	08	2	CO2
Q.3		**Attempt any two from the following**			
	a)	What is Naïve Bayes Classifier. Consider following Dataset and solve the problem – "If the weather is sunny, then the Player should play or not?"	08	3	CO2

	0	1	2	3	4	5	6	7	8	9	10	11	12	13
Outlook	Raining	Sunny	Overcast	Overcast	Sunny	Raining	Sunny	Overcast	Raining	Sunny	Sunny	Raining	Overcast	Overcast
Play	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes

	b)	Illustrate Super vector machine with example.	08	2	CO2
	c)	Define Ensembled Method and Explain in detail various types of ensembled methods (Bagging & Boosting).	08	2	CO2
Q.4		**Attempt any two from the following.**			
	a)	Explain the Clustering in Machine Learning. Explain various types of clustering.	08	2	CO3
	b)	Illustrate Agglomerative Hierarchical clustering	08	2	CO3
	c)	Explain the K-mean algorithm with an example	08	2	CO3
Q.5		**Attempt any Two of the following**			
	a)	Explain in detail how to perform hypothesis test.	09	2	CO4
	b)	Explain Learning Curves? Explain different types of Learning Curves	09	2	CO4
	c)	Define hypothesis testing and determine important parameter of hypothesis testing.	09	5	CO4
Q.6		**Attempt any Two of the following**			
	a)	Explain Perceptron and components of Perceptron in detail.	09	5	CO3
	b)	Define Artificial Neural Networks? Explain architecture of Artificial Neural Networks.	09	5	CO3
	c)	Discuss Deep Learning and following deep learning algorithm in detail. 1. Convolutional Neural Networks (CNNs 2. Long Short-Term Memory Networks (LSTMs) 3. Recurrent Neural Networks (RNNs)	09	6	CO4

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