PRN:		Course Code :	PCA 302

Second Year **MCA** End Semester Examination Winter 2023

Machine Learning using Python

Day and Date: Friday, 01/12/2023 Max Marks: **100**

Time : 10-30 am to 1-30 PM Duration: **03** hrs

Instructions: All questions are compulsory.

		Marks	Bloom's Level	CO
Q.1	**Attempt the following**			
a)	For the given set of points identify clusters using single linkage using agglomerative clustering.	08	L3	CLO3

Food Item	Protein	Fat
F1	1.1	60
F2	8.2	20
F3	4.2	35
F4	1.5	21
F5	7.6	15
F6	2.0	55
F7	3.9	39

b)	Define the concept of Machine Learning and explain different types of machine learning.	08	L2	CLO1
	OR			
b)	List the different applications of clustering.	08	L4	CLO1
Q.2	**Attempt the following**			
a)	What is a support vector machine? How does support vector machine works?	08	L2	CLO2
b)	Discuss Linear regression. How it handles the outliers? Explain with an Example .	08	L4	CLO3
	OR			
b)	Compare classification and regression models .	08	L5	CLO4
Q.3	**Attempt any two from the following**			
a)	Explain various regression metrics used in machine learning algorithms.	08		
b)	Distinguish between bagging and boosting .	08	L4	CLO4
c)	Explain Time series in machine learning and also explain its components with an example.	08	L3	CLO3
Q.4	**Attempt any two from the following**			
a)	Explain the concept of Bayesian theorem with an example.	08	L2	CLO3
b)	Demonstrate the following terms .	08	L2	CLO2

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1) Semi Supervised Learning 2) Active Learning

	c)	Discuss about Bayesian interference.	08	L6	CLO3
Q.5		**Attempt any Two of the following**			
	a)	Explain IoT and its features in detail.	09	L2	CLO2
	b)	Design an architecture of IoT and explain.	09	L6	CLO3
	c)	Illustrate the various characteristics and components of Expert System.	09	L2	CLO2
Q.6		**Attempt any Two of the following**			
	a)	Explain application of ANN and list the challenges of ANN. Also mention advantages and disadvantages of ANN.	09	L2	CLO3
	b)	Explain Back propagation Metric in detail.	09	L2	CLO4
	c)	With reference to Deep Learning, elaborate the concept of Deep Architectures?	09	L6	CLO2

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