DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Summer Examination – 2023

Course: B. Tech. **Branch : Computer Engineering** **Semester: V**

Subject Code & Name: Machine Learning [BTCOC503]

Max. Marks: 60 **Date: 11/08/2023** **Duration:03:00 Hrs.**

Instructions to the Students:

1 *All the questions are compulsory.*
2 *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3 *Use of non-programmable scientific calculators is allowed.*
4 *Assume suitable data wherever necessary and mention it clearly.*

		(Level / CO)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	a) Explain Linear Regression algorithm. b) Explain following terms with respect to linear regression: 1. Cost function 2. Gradient Decent	**1**	
B)	Explain different splitting techniques of decision tree. Explain the basic terminologies of decision tree.	**1**	
C)	What do you mean of under fitting? What are the different reasons of under fitting? How under fitting in model can be reduced.	**1**	

Q. 2 **Solve Any Two of the following.** **12**

A) Solve the following problem to find out whether car is stolen or not using the Naive Baye's algorithm. **2**

Example No.	Color	Type	Origin	Stolen?
1	Red	Sports	Domestic	Yes
2	Red	Sports	Domestic	No
3	Red	Sports	Domestic	Yes
4	Yellow	Sports	Domestic	No
5	Yellow	Sports	Imported	Yes
6	Yellow	SUV	Imported	No
7	Yellow	SUV	Imported	Yes
8	Yellow	SUV	Domestic	No
9	Red	SUV	Imported	No
10	Red	Sports	Imported	Yes

B) Explain the features and types of Logistic Regression. **2**

C) Explain the working of the Support Vector Machine algorithm. **2**

Q. 3 Solve Any Two of the following. **12**

A) Explain the working of Perceptron with suitable diagram. **4**

B) What is backpropagation? Explain in brief. Also, discussed what are the needs of backpropagation. **4**

C) Explain working of the multilayer network. **4**

Q. 4 Solve Any Two of the following. **12**

A) What is ensemble learning? Describe in detail the types of ensemble learning. **3**

B) Explain any one ensemble learning algorithm. **3**

C) Write note on Computational Learning Theory. **3**

Q. 5 Solve Any Two of the following. **12**

A) Explain the how K-Means Clustering Algorithm works? Explain the elbow method. **2**

B) What is unsupervised machine learning? Explain with suitable example. What is clustering? **1**

C) Explain Hierarchical Clustering Technique and its types in detail. **2**

***** End *****