DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD -402 103

Winter Semester Examination - December - 2019

Branch: B. Tech.(COMPUTER ENGINEERING)

Sem.:- V

Subject with Subject Code: - MACHINE LEARNING (BTCOC503)

Marks: 60

Date: 13/12/2019

Time:-3 Hr.

Instructions to the Students

- 1. Each question carries 12 marks.
- 2. Attempt any five questions of the following.
- 3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
- 4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

(Marks)

- Q.1. a) Define Machine Learning and Enlist Applications of Machine Learning
- (4)

b) Differentiate between Supervised and Unsupervised Learning

(4)

c) List the issues in basic ID3 Decision Tree Algorithm.

Interpret the algorithm with respect to overfitting the data

- (4)
- Q.2. a) Classify Fruit={Yellow, Sweet, Long} using Bayes learning, Data as given in table (6)

Fruit	Yellow	Sweet	Long	Total
Orange	350	450	0	650
Banana	400	300	350	400
Other	50	100	50	150

OR

a) Predict the class of new data point x=1 and y=1 using K-NN algorithm assume k=3

(6)

	X	у	class
	-1	1	
	0	1	+
	0	2	
	1	- I	-
-	1	0	+
	1	2	+
	2 2	2 2	-
	2	3	+ .

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d) Discuss	Maxim	ıum Li	kelihoo	d and	Least	Square Error Hypothesis.	(6)
a) How does SVM works?b) What is logistic regression? Differentiate between Linear and Logistic Regression							
 4. a) Explain the concept of a Perceptron with a neat diagram b) What is back propagation? c) Explain how to learn Multilayer Networks 5. a) What is PAC learning model? Explain the sample complexity for Finite hypothesis spaces b) Define and explain "Shattering a set of Instances" with suitable example. 						(4) (4) (4)	
						(6) (6)	
							(6)
u v w x y	0 1 1 0 2 2 2 4 3 3	2 0 2 2 0 4 1 3 5	3 0			alustored in two clusters C1 and C2	
			rvation	s are a	iready	Clustered in two clusters C1 and C2	(6)
Cluster C1				Cluster C2			
Obs.	X1	X2	Obs.	X1	X2		
Α	2	4	C	9	3		
В	8	2	E	8.5	1		
	1	5	1				
	b) What is a) Explain b) What is c) Explain a) What is Explain b) Define a) What is I hierarch u v w x y b) Given as show	b) What is logistice a) Explain the corb) What is back rc) Explain how to a) What is PAC lee Explain the same by Define and explain the same hierarchical cluster of the correction of the corre	a) Explain the concept of b) What is back propaga c) Explain how to learn a) What is PAC learning Explain the sample county b) Define and explain "a) a) What is Hierarchical Chierarchical clustering with a learning b l	b) What is logistic regression? It a) Explain the concept of a Perceb) What is back propagation? c) Explain how to learn Multila a) What is PAC learning model Explain the sample complex b) Define and explain "Shatter a) What is Hierarchical Clustering hierarchical clustering to clustering to clustering to clustering to a learning to clustering to clustering to clustering to a learning to clustering to clu	b) What is logistic regression? Difference a) Explain the concept of a Perceptron b) What is back propagation? c) Explain how to learn Multilayer N a) What is PAC learning model? Explain the sample complexity for b) Define and explain "Shattering a sea a) What is Hierarchical Clustering? Consider the hierarchical clustering to cluster the hierarchical clustering the hierarchical clustering the hierarchic	b) What is logistic regression? Differentiate a) Explain the concept of a Perceptron with b) What is back propagation? c) Explain how to learn Multilayer Network a) What is PAC learning model? Explain the sample complexity for Finite b) Define and explain "Shattering a set of It a) What is Hierarchical Clustering? Consider hierarchical clustering to cluster the object	b) What is logistic regression? Differentiate between Linear and Logistic Regression a) Explain the concept of a Perceptron with a neat diagram b) What is back propagation? c) Explain how to learn Multilayer Networks a) What is PAC learning model? Explain the sample complexity for Finite hypothesis spaces b) Define and explain "Shattering a set of Instances" with suitable example. a) What is Hierarchical Clustering? Consider following distance matrix and apply hierarchical clustering to cluster the objects u,v,w,x,y \[\begin{array}{c ccccccccccccccccccccccccccccccccccc