PRN		QP Code	CM-211

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third Year B.Tech. (CS)	Day & Date	Wednesday,26/06/2019
Course Code	CSL303	Time	10 am To 1 pm
Course Title	Machine Learning	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearl*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowe*

Que No		Question	Marks	BL	CO
1	A	Identify two clusters in following data using K-mean clustering technique Data: 43,13, 17,37,9	5	3	3
		Attempt any one of B & C			
	B	Find the root node of the Decision Tree to classify fitness using following Data	10	3	3
	C	Use data in Q.1 B to predict fitness of person having attributes as age > 30 , Eat fastfood = No , and Do exercise = yes using Bayesian Classifier.	10	3	3
2		**Attempt any three of A, B, C & D**			
	A	Explain learning rate in regression.	5	2	1
	B	How centroid is calculated for multiple attribute data in clustering	5	2	1
	C	Write hypothesis function for logistic regression.	5	2	1
	D	What is gini index? How is it calculated.	5	2	1
3		**Attempt any three of A, B, C & D**			
	A	Explain collaborative filter based recommender system.	5	2	1
	B	How Similarity is measured in clustering Techniques?	5	2	1
	C	Explain the gradient decent learning algorithm for simple perceptron.	5	2	1
	D	Explain merits and demerits of Decision Tree Classifier	5	2	2
4	A	i) Determine class of iris flower having following attributes using K-nn classifier with K =3	15	3	3

Age	Eat fastfood	Do Exercise	Fitn
< 30	yes	No	Unfit
< 30	No	No	fit
< 30	No	Yes	fit
> 30	yes	No	Unfit
> 30	No	No	fit
> 30	No	Yes	fit

sepal length	sepal width	petal length	petal width
5	3.2	1.2	0.2

Que No		Question	Marks	BL	CO

Training Dataset

sepal length	sepal width	petal length	petal width	class
5.1	3.5	1.4	0.2	Iris-setosa
4.9	3	1.4	0.2	Iris-setosa
4.7	3.2	1.3	0.2	Iris-setosa
7	3.2	4.7	1.4	Iris-versicolor
6.4	3.2	4.5	1.5	Iris-versicolor
6.9	3.1	4.9	1.5	Iris-versicolor

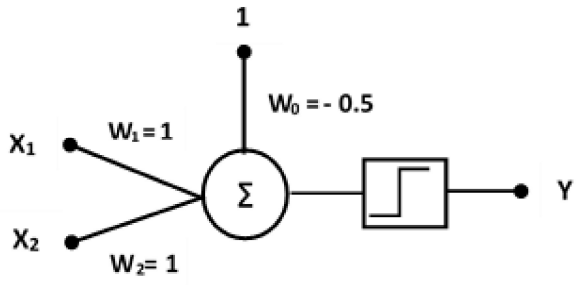
ii) Design an artificial neuron to recognize logical AND operation.

5 **Attempt any two of A, B & C**

A Calculate cost (MSE) of linear regression for following data when $W_0 = 1$, $W_1 = 4$ and $W_0 = -1$, $W_1 = 2$ Which parameter are more appropriate? Why? — 10 | 4 | 2

X	Y
5	21
10	38
15	62
20	83
25	101

B Analyze the following Artificial Neural with hardlimit Thresholding function and determine the logical operation it has implemented. — 10 | 4 | 2



C compare simple linear, multiple linear and polynomial regression. — 10 | 4 | 2

6 **Attempt any four of A, B, C, D & E**

A What is recommender system? Why is it needed? List applications of recommender system. — 5 | 2 | 1

B Explain performance parameters of classification techniques. — 5 | 2 | 1

C What the assumptions made for linear regression? — 5 | 2 | 1

D Explain Regularization in multiple linear regression. — 5 | 2 | 1

E Explain structure of a biological neuron. — 5 | 2 | 1

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