Total No. of Questions : 4]

SEAT No. : ____

P-5056

[Total No. of Pages : 2

[6187]-459
T.E. (IT) (Insem.)
MACHINE LEARNING
(2019 Pattern) (Semester - I) (314443)

Time : 1 Hour] ***[Max. Marks : 30***

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Compare supervised, unsupervised, and semi-supervised learning with examples (CO1). **[6]**

b) Explain k-fold Cross Validation technique with example (CO1). **[5]**

c) Why dataset splitting is required? State importance of each split in a machine learning model (CO1). **[4]**

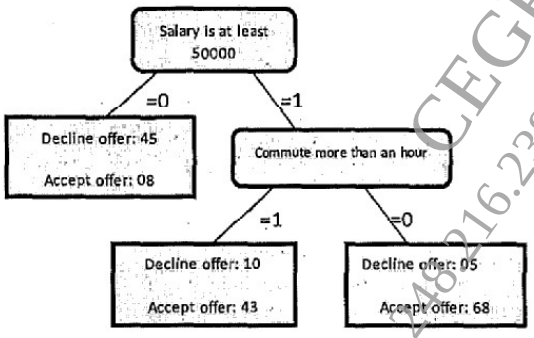
OR

Q2) a) Why size of training dataset is more compare to testing dataset? What should be ratio of Training & testing dataset? Explain any one dataset validation techniques. (CO1). **[6]**

b) What is the need for dimensionality reduction? Explain the concept of the Curse of Dimensionality (CO1). **[5]**

c) State and justify Real life applications of supervised and unsupervised learning. (CO1). **[4]**

Q3) a) Consider the following feature tree. (Positive Class: Decline offer)



P.T.O.

Find : **[6]**

i) Contingency table ii) Recall

iii) Precision iv) Accuracy

v) False positive rate. (CO2)

b) What is multiclass classification? Explain One-Vs-one construction method of multi class classifier with suitable example (CO2). **[5]**

c) What are advantages and limitations of the Logistic Regression (CO2)? **[4]**

OR

Q4) a) Consider the following three class confusion matrix :

		Predicated			
		A	B	C	
	A	14	3	3	20
	B	5	15	10	30
Actual	C	2	5	43	50
		21	23	56	100

Calculate per class precision, per class recall, weighted average precision, weighted average recall and accuracy (CO2). **[6]**

b) What is Support Vector Machine (SVM)? How does the SVM work (CO2)? **[5]**

c) Why do we use Logistic Regression? Explain with suitable example (CO2). **[4]**

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