Oct-22/TE/Insem-559
T.E. (IT)
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) Show how machine learning differs from traditional programming. Elaborate with suitable diagram. **[6]**

b) Explain K-fold Cross Validation technique with suitable example. **[5]**

c) What is Dataset? Differentiate between Training dataset and Testing dataset. **[4]**

OR

Q2) a) Compare Supervised, Unsupervised and Semi-supervised Learning with examples. **[6]**

b) What is the need of dimensionality reduction? Explain subset selection method. **[5]**

c) What is feature? Explain types of feature selection technique. **[4]**

Q3) a) Consider the following three-class confusion matrix. Calculate Per-Class-Precision, Per-Class-Recall, weighted average precision, weighted average recall and accuracy. **[6]**

		Predicted Values		
		A	**B**	**C**
	A	45	10	05
Actual Values	**B**	08	30	07
	C	06	04	40

P.T.O.

b) Explain One-Vs-One construction method of multiclass classifier with suitable example. **[5]**

c) Explain linear Support vector machine with suitable diagram. **[4]**

OR

Q4) a) What is multiclass classification? Explain One-Vs-Rest and One-vs-One multiclass classifier construction method with suitable example. **[6]**

b) Write a short note on : **[5]**

Various SVM kernel functions used to handle non-linear data.

c) Define the following terms : **[4]**

   i) Accuracy.

   ii) Precision.

   iii) Recall.

   iv) F1-score.