

Total No. of Questions : 4]

SEAT No. :

P8579

[Total No. of Pages : 2

**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  |    |
| Actual Values | A                | 45 | 10 | 05 |
|               | 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]
- Accuracy.
  - Precision.
  - Recall.
  - F1-score.