Total No. of Questions : 6] **SEAT No. :**

P4909 **[Total No. of Pages : 2**

B.E./Insem. - 62
B.E. (IT)
MACHINE LEARNING
(2012 Pattern) (Semester - I)

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

Instructions to the candidates:-

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6.***
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) What is machine learning? Give an overview of machine learning with suitable diagram. **[5]**

b) Explain geometric models and probabilistic models of machine learning in detail. **[5]**

OR

Q2) a) Explain in detail : **[4]**

i) Supervised Learning vs Unsupervised learning

ii) Training dataset vs testing dataset

b) Explain features with suitable example. Give two uses of features. Explain the term discretization of features. **[6]**

Q3) a) Define following terms with suitable example : **[6]**

i) Confusion matrix

ii) False positive rate

iii) True positive rate

b) What is overfitting? Specify the reasons for overfitting. **[4]**

OR

Q4) a) What is a contingency table/Confusion Matrix? What is the use of it? **[4]**

b) Derive and explain output code matrix for One Vs One and One Vs Rest Scheme for construction of Multi class classifier (for 3 classes) **[6]**

P.T.O.

Q5) a) Explain regression using least square method. **[6]**

b) What are support vectors and margins? Also explain Soft margin SVM. **[4]**

OR

Q6) a) Explain Perceptron training algorithm for linear classification. **[6]**

b) What is multivariate regression? Explain its equation using homogeneous coordinates. **[4]**

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