Total No. of Questions :10]

SEAT No. :

P3634

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[4959]-1123
B.E. (IT)
Machine Learning
(2012 Course) (Semester - I) (414455) (End Sem)

Time : 2.5 Hours ***[Max. Marks :70]***

Instructions to the candidates:

1) ***Draw neat diagrams wherever necessary.***
2) ***Assume suitable data, if necessary.***
3) ***Figures to the right indicate full marks.***

Q1) a) Explain least square method. **[5]**

b) For a given data having 100 examples, if squared errors SE_1, SE_2, and SE_3 are 13.33, 3.33 and 4.00 respectively, calculate Mean Squared Error (MSE). State the formula for MSE. **[5]**

OR

Q2) a) What is multivariate regression? How will it be different from univariate regression? **[5]**

b) Explain feature transformation. **[5]**

Q3) a) Explain True Positives, True Negatives False Positives, False Negatives and class ratio. **[5]**

b) What is a contingency table? What does it represent? **[5]**

OR

Q4) a) Write a note on class probability estimation. **[5]**

b) What are the ingredients of machine learning? **[5]**

P.T.O.

Q5) a) What is subgroup discovery? **[9]**

b) Write k-means algorithm. **[9]**

OR

Q6) a) Write the Grow Tree algorithm to generate feature tree. Explain the role of best split in this algorithm. **[9]**

b) What are neighbors? Why is it necessary to use nearest neighbor while classifying? **[9]**

Q7) a) Define. **[8]**

i) Bernoulli's distribution.

ii) Binomial distribution.

iii) MAP decision rule.

iv) Maximum likelihood function.

b) Explain probabilistic models. **[8]**

OR

Q8) a) Explain in brief logistic regression. **[8]**

b) Define. **[8]**

i) Frequent itemset.

ii) Support.

iii) Confidence.

iv) Market basket analysis.

Q9) a) Write a note on sequence prediction **[8]**

b) Explain multitask learning. **[8]**

OR

Q10)a) Explain deep learning. **[8]**

b) Explain active learning. **[8]**