P3127

SEAT No. :

[Total No. of Pages : 2

[5154]-693
BE (IT)
MACHINE LEARNING
(2012 Pattern) (414455) (Semester-I) (End Sem.)

Time : 2½ 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)   Write Mathematical form of the following: **[5]**

      i)   Classification

      ii)   Class probability estimation

      iii)   Regression.

      Which one out of these three is more precise? Which one leads to overfitting?

    b)   Prove with an example FP=Neg-TN.   **[5]**

<div align="center">OR</div>

Q2) a)   Write output code matrix for one-versus-one symmetric case. Assume three classes.   **[5]**

    b)   Justify use of Machine Learning to solve following task: "Prediction of sale value of a car based on the locality of the property".   **[5]**

Q3) a)   Explain VC dimension.   **[5]**

    b)   Explain kernel methods for non-linearity.   **[5]**

<div align="center">OR</div>

Q4) a)   What is Machine Learning? Explain any one application where Machine Learning can be used.   **[5]**

    b)   Explain Support Vector Machine.   **[5]**

Q5) a) Find all 3 -item itemsets from this set with minimum support=2. **[9]**

Trans_id	Itemlist
T1	{K, A, D, B}
T2	{D, A, C, E, B}
T3	{C, A, B, E}
T4	{B, A, D}

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

OR

Q6) a) Explain silhouettes. **[9]**

b) Discuss various distance measures. **[9]**

Q7) a) Write a note on compression based models. **[8]**

b) Explain Naive Bayes Classification Algorithm. **[8]**

OR

Q8) a) Define the terms: **[8]**

   i) Bernoulli distribution

   ii) Binomial distribution

   iii) Multinomial distribution

   iv) Gaussian distribution

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

Q9) a) Explain on-line learning. **[8]**

b) Explain multi task learning **[8]**

OR

Q10) a) Explain the concept of penalty and award in reinforcement learning. **[8]**

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

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