[6004]-699

B.E. (Honors) (Artificial Inteligence)
MACHINE LEARNING
(2019 Pattern) (Semester-VII) (410301)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates:

    1)   *Answer Q. 1 or Q. 2, Q. 3 or Q. 4 , Q. 5 or Q. 6, Q.7 or Q.8*

    2)   *Neat diagrams must be drawn wherever necessary*

    3)   *Use of logarithmic tables slide rule mollier charts, electronic pocket calculator and steam tables is allowed.*

    4)   *Assume suitable data, if necessary*

Q1) a)   Define random forest and explain out of bag samples in random forest in detail. **[8]**

    b)   What is Support Vector Machine? Explain how it works. **[9]**

OR

Q2) a)   Define SVM and explain SVM as a Penalization Method in detail. **[9]**

    b)   What is random Forest? Explain following w.r.t random forest **[8]**

        i)   Bias

        ii)   Variance

Q3) a)   How to train a perceptron? State the reasons while perceptron training why instances are given one by one instead of whole samples. **[9]**

    b)   Explain regularization in Neural Networks in detail. **[9]**

OR

Q4) a)   Draw and explain, Bayesian network with suitable Example. **[9]**

    b)   What is multilayer perceptron? Explain multilayer perceptron as a Universal Approximator in detail. **[9]**

Q5) a) Write short note on: **[9]**

    i) Unsupervised as Supervised Learning

    ii) Generalized Association Rules

  b) What is hierarchical clustering? Explain two strategies for hierarchical clustering in detail. **[8]**

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

Q6) a) Write short note on: **[8]**

    i) Self-Organizing Maps

    ii) PCA-Spectral Clustering

  b) Write and explain K-medoids Clustering algorithm with example. **[9]**

Q7) a) Explain finding state sequence and model selection in HMM detail. **[9]**

  b) Define Bayes Theorem. Elaborate Naïve Bayes Classifier working with example. **[9]**

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

Q8) a) What is HMM? Explain three Basic Problems of HMMs in detail. **[9]**

  b) What is regression? Explain Linear regression with example. **[9]**

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