B.E. / B.Tech. Computer Science & Engineering (Model Curriculum) Semester-VI
TEE2033CS / MACHINE1 - Machine Learning

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Notes :   1.   All questions are compulsory.
          2.   All questions carry equal marks.
          3.   Due credit will be given to neatness and adequate dimensions.
          4.   Assume suitable data wherever necessary.

1.   a)   Define Machine learning? Explain the different applications of ML.   **8**

   b)   Distinguish between supervised learning and Reinforcement learning. Illustrate with an example.   **8**

OR

2.   a)   Compare Classification with Regression with an example.   **8**

   b)   What is Bias and Variance in a Machine Learning Model?   **8**

3.   a)   Explain KNN Algorithm with suitable example.   **8**

   b)   What is Entropy and Information Gain in Decision Tree? Explain with suitable example.   **8**

OR

4.   a)   What is Hyperplane and Support Vectors in SVM? Explain.   **8**

   b)   What is a Neural Network? Explain with suitable diagram.   **8**

5.   a)   What is the goal of the support vector machine (SVM)? How to compute the margin?   **8**

   b)   What is Regularization? What kind of problems does regularization solve?   **8**

OR

6.   a)   Describe the significance of Kernal functions in SVM. List any two kernel functions.   **8**

   b)   Explain any two regularization techniques in detail.   **8**

7.   a)   What is Clustering? Explain K-means clustering with suitable example.   **8**

   b)   Differentiate between clustering and classification.   **8**

OR

8. a) Write the steps to perform Agglomerative Hierarchical Clustering (AHC) technique with suitable example in support for the above steps. **8**

b) Use K-means clustering to cluster the following data into two groups. {2, 4, 10, 12, 3, 20, 30, 11, 25}. Assume cluster centroid are m1=2 and m2=4. The distance function used is Euclidean distance. **8**

9. a) Explain the procedure for the computation of the principal components of the data. **8**

b) Compare Feature Extraction and Feature Selection techniques. **8**

OR

10. a) Explain how dimensionality can be reduced using subset selection procedure. **8**

b) Explain feature selection and feature extraction method for dimensionality reduction. **8**

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