

B.E. Computer Science and Engineering (Model Curriculum) Semester-VI
TEE2033CS - Machine Learning

P. Pages : 2

Time : Three Hours



GUG/W/24/13825(S)

Max. Marks : 80

-
- Notes :
1. All questions carry equal marks.
 2. Assume suitable data wherever necessary.
 3. All questions are compulsory.

1. a) What do you mean by Overfitting and Underfitting? Explain the techniques to overcome it. **8**
- b) What is Association Rule? Explain Market Basket Analysis with suitable example. **8**

OR

2. a) Write note on: **8**
 - i) Hypothesis space
 - ii) Inductive Bias
- b) What is Bias and Variance in a machine learning model. **8**
3. a) Describe Back Propagation Algorithm? **8**
- b) Why do we need a KNN Algorithm? Explain with example. **8**

OR

4. a) Describe Neural Network algorithm with suitable example. **8**
- b) Write note on: **8**
 - i) Entropy
 - ii) Information Gain.
5. a) Write note on: **8**
 - i) Lasso Regression.
 - ii) Ridge Regression.
- b) Explain Multiclass kernel machine in detail with neat sketch. **8**

OR

6. a) Write note on: **8**
 - i) Support vectors.
 - ii) Optimal Hyperplane.
- b) Describe the significance of Kernel function in SVM. List any two kernel functions. **8**

7. a) Describe Divisive Hierarchical Clustering Algorithm with suitable example. 8
- b) Use K-means clustering to cluster the following data into two groups. 8
Assume cluster centroid are $m_1 = 4$ and $m_2 = 11$.
The distance function used is Euclidean distance.
{2, 4, 10, 12, 3, 20, 30, 11, 25}.

OR

8. a) Define clustering. What are the different types of clustering? Explain in detail. 8
- b) Explain Density based method. 8
9. a) Why feature selection is important in machine learning. 8
- b) Explain PCA and its process with their applications. 8

OR

10. a) Explain how dimensionality can be reduced using subset selection procedure. 8
- b) Why Dimensionality Reduction is important? Explain. 8
