Machine Learning

Module-1 :- Introduction to Machine Learning

1) Define Machine Learning & explain with example importance of Machine Learning.

2) What are the key tasks of Machine Learning ?

3) Explain how supervised learning is different from unsupervised learning.

4) What are the issues in Machine Learning ?

5) What are the steps required to select the right machine learning algorithm ?

6) Explain the steps for developing Machine learning applications

7) Write a short note on : Machine Learning Applications

8) Define Underfitting, Overfitting, Bias, Variance Trade off

Module-2 :- Mathematical Foundation of ML

* All Sums about Eigen Values, Vectors, Diagonalization *

1) Explain SVD with its applications

2)

Module-3 :- Linear Models

1) Explain Regression & its Types

2) What is SVM? Explain the following terms : Seperating hyperplane, margin & Support Vectors with Suitable example

3) Quadratic Programming Solution for finding maximum margin Seperation in Support Vector Machine.

Module - 4 :- Clustering

1) Explain Hebbian Clustering

2) Explain Expectation Maximization Clustering in Brief

3) Define K-means & DBSCAN

Module - 5 :- Classification Models

1) Explain the operations of Dendrite, Soma & axon in the biological neuron.

2) Differentiate Biological Neural Network & Artificial Neural Network.

3) Draw & Explain McCulloch Pitts neuron architecture.

4) What are the performance measures to see whether training of neural network is Successful? Explain.

5) Explain Common activation functions used in Neural Network

6) Write a short Note on : logistic Regression

Module - 6 :- Dimensionality Reduction

1) Explain Feature Selection & Feature Extraction

2) Why Dimensionality Reduction is very important Step in Machine Learning ?

3) Explain Principal Component Analysis for Dimension Reduction in detail.

* Principal Component Analysis Sums *