Indian Institute of Technology Delhi
Department of Mathematics
II Semester 2023-2024
Assignment-II
Weightage 18% Due Date 14th April 2024

You need to maintain the same group of 3/4 members as in Assignment I and jointly complete the assignment using Python Jupyter Notebook.

Q1.   Use MNIST Handwritten digits DATASET

(a) Implement (1) Decision Tree, (2) Random Forest, (3) Naïve Bayes Classifier, (4) KNN classifier, and (5) Neural Network classifier and compare the performances using k-fold cross validation and other tuning techniques **to** do multi-class classification where the idea is to classify the image to one of the ten digits (0-9).   [12.5]

(b) Exploration of Different Evaluation Metrics
Evaluate your methods using different evaluation metrics.   [3.75]

(C) Parameter Tuning through Grid Search/Cross Validation
 Tune the parameters using two powerful techniques of grid search and parameter search.   [1.75]