KUET CCC Digital Skills for Students Training
Mid-Term Examination
Course Title: Machine Learning with Python (ML-4)
Batch No. KUETEDGEE33

Time: 01 Hour Full Marks: 50

(i) Answer **All the** questions below.
(ii) Figures in the right margin indicate full marks.
(iii) Students need to save the answers files and finally email the files to edgeexam@kuet.ac.bd mentioning **student ID** in the subject line.
(iv) Students also need to send the ipnyb file in the abovementioned email.

Q1 Create a list of 5 real numbers. Define a function to compute the sum of those squared numbers. Print the summation output. 07

Q2 Generate an array of 2000 random numbers using numpy. Create a histogram with 30 bins. Plot the histogram mentioning the axis label and appropriate title. 08

Q3 Create a sample dataset with the following information. 20
dataframe =
Gender: [Male, Female, Male, Female, Male, Female, Male, Female, Female, Male, Male, Female],
Country: [USA, USA, Germany, USA, UK, UK, Germany, UK, UK, Germany, USA, UK],
Income: [50000, , 55000, 72000, , 68000, 52000, 75000, 76000, 58000, 65000, 43000],
Car_Purchase_Possibility: [no, yes, no, yes, yes, yes, no, yes, yes, no, yes, no]
Load this dataframe using numpy or pandas. Apply preprocessing by handing missing values. Also apply encoding on the categorical feature. Finally scale the features for standarization.

Q4 Use the dataframe mentioned in Q3 for performing a classification task using kNN. You are asked to use 80-20 data splitting for the model. All needed hyperparameters can be assumed to perform better classification. 15