BENNETT UNIVERSITY
THE TIMES GROUP

Enrolment No: _____

Name of Student: _____

Department/ School: _____

END TERM MAKEUP EXAMINATION ODD SEMESTER 2022-23

COURSE CODE: CSET211 **MAX. DURATION** 2 Hours

COURSE TITLE: STATISTICAL MACHINE LEARNING

COURSE CREDIT: 4(3-0-2) **TOTAL MARKS** 30

GENERAL INSTRUCTIONS: -

1. Do not write anything on the question paper except **name, enrolment number** and **department/school.**
2. Carrying mobile phone, smart watch and any other non-permissible materials in the examination hall is an act of **UFM.**
3. All Questions are Compulsory.

Note: If require any missing data; then choose suitably

Attempt all questions in brief.

1) Describe the steps involved in the Principle Component Analysis (PCA) algorithm, including how the principal components are computed and how the data is transformed onto the new subspace defined by the principal components. 6 Marks
2) Evaluate the use of Bayes' Theorem in the context of a real-world application (spam filtering). Evaluate the benefits and limitations of using Bayes' Theorem in the spam filtering context and compare it to alternative methods. 6 Marks
3) Define the k-NN algorithm and explain how it works, including the concept of distance metric and the process of choosing the k nearest neighbours. 6 Marks
4) Define the kernel trick and explain how it can be used to solve non-linear classification problems in SVM. Create a report summarizing your findings on the implementation of non-linear SVM classifier. 6 Marks
5) Interpret the K-means clustering algorithm and explain its process and objectives, including the role of centroids and the distance metric used. 6 Marks