B.Tech. 8th Semester

(Computer Science and Engineering)

(G-Scheme), Examination, December-2022

MACHINE LEARNING

Paper -PCC-CSE-402-G

Time allowed : 3 hours]   [Maximum marks : 75

Note: *Attempt five questions in all, selecting at least one from each section.* **Question no.1 is compulsory.** *All question carry equal marks.*

1.   Explain the following : $2.5 \times 6 = 15$

(a)   Consistent Hypothesis

(b)   Mean of Data Matrix

(c)   Reinforcement Learning

(d)   Logistic Regression

(e)   Bagging

(f)   AUC

Section-A

2.   Define Machine Learning. Describe the steps used in designing a learning system.   15

3.   (i)   Explain different types of Machine learning with the help of examples.   8

(ii)   Discuss any five example of Machine learning applications.   7

Section-B

4. Explain the concept of Data preprocessing in Machine Learning.   15

5. What is PCA? Explain various steps involved in PCA algorithm.   15

Section-C

6. List the issues in Decision Tree Learning. Interpret the algorithm with respect to over-fitting the data.   15

7. Define the following terms with respect to K-Nearest Neighbour Learning: 15

   (i) Regression

   (ii) Residual

   (iii) Kernel Function

Section-D

8. (a) Describe the concept on density-based clustering and write the steps involved in DBSCAN algorithm.   10

   (b) Explain various evaluation metrics in machine learning   5

9. Explain the following: 15

   (i) Boosting and Bagging

   (ii) Confusion Matrix