H Roll No. 2192046

TBC–603

B. C. A. (SIXTH SEMESTER)
MID SEMESTER
EXAMINATION, March, 2024

FUNDAMENTALS OF MACHINE LEARNING

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any ***one*** of the sub-questions.

(ii) Each sub-question carries 10 marks.

1. (a) Describe the steps involved in the machine learning workflow with an explanation of the types of Machine Learning. (CO1)

OR

(b) Describe the purpose of the enumerate() function in Python and provide an example of its usage. (CO2)

P. T. O.

2. (a) Consider a dataset containing the following values : 10, 15, 18, 22, 25, 30, 35, 40 : (CO1)

   (i) Normalize the dataset using min-max normalization, where the normalized values will be scaled between 0 and 1.

   (ii) Suppose we have a new data point with a value of 28. Normalize this data point using the same min-max normalization technique.

   OR

   (b) Find the standard deviation for the following set of values : (CO1)

   [87, 88, 86, 85, 89, 82, 87, 88]

3. (a) Describe the applications of the machine learning approaches in context of supervised learning. (CO1)

   OR

   (b) Consider the following dataset representing the scores of 10 students in a quiz : (CO1)

   15, 18, 20, 22, 18, 20, 15, 17, 18, 22

   Calculate the mean and mode for this dataset.

4. (a) What is the difference between a list and a tuple in Python ? Provide examples to illustrate. (CO2)

OR

(b) Explain the concept of sets in Python. Provide an example to demonstrate the use of set operations. (CO2)

5. (a) Discuss the role of dictionaries in Python and provide an example of how dictionaries can be used to store and retrieve data. (CO2)

OR

(b) Explain the difference between len() and count() functions in Python with suitable examples. (CO2)