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OR

(b) Write short notes on the following :

(CO1, CO2)

(i) Variable

(ii) Vector and Scalar

(iii) Average Deviation and Range

(iv) Command Line Argument

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M. C. A. (THIRD SEMESTER)
MID SEMESTER EXAMINATION, 2022
MACHINE LEARNING USING PYTHON

Time : 1½ Hours

Maximum Marks : 50

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

(ii) Each question carries 10 marks.

1. (a) What is Machine Learning ? Explain its various approaches. What are the differences between machine learning and traditional programming ? (CO1, CO2)

OR

- (b) Give a comparison between lists, tuples, dictionaries, and sets with code snippets. (CO1, CO2)

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2. (a) Consider a tuple with values Hindi, English, Mathematics, Science, EVS and Drawing. Convert tuple into string and list.

Write a program to make a list by extracting first letter of each word from the above given words. (CO1, CO2)

OR

- (b) Explain the properties of matrix multiplication. Find out the inverse of the given matrix : (CO1, CO2)

$$A = \begin{bmatrix} 1 & -1 & 2 \\ 4 & 0 & 6 \\ 0 & 1 & -1 \end{bmatrix}$$

3. (a) List and explain different arithmetic operators supported by Python. Discuss about their precedence and associativity. (CO1, CO2)

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OR

- (b) What do you understand by standard deviation ? Explain its usefulness. Highlight its important properties.

Find the Variance and Standard Deviation of the following data : (CO1, CO2)

1, 3, 5, 5, 6, 7, 9, 10

4. (a) What are the different loop control statements available in Python ? Explain with suitable examples. (CO1, CO2)

OR

- (b) Define Outliers. Discuss the IQR method of Outlier Detection. Find the outliers for the following data set : (CO1, CO2)

3, 10, 14, 22, 19, 29, 70, 49, 36, 32.

5. (a) Write a Python program to read a word and print the number of letters, vowels, and percentage of vowels in the word using a dictionary. (CO1, CO2)

P. T. O.