4. (a) Write a program to concatenate two dictionaries to create a new one. And also write a program to print a dictionary where the keys are numbers between 1 and 25 (both included) and the values are square of keys. 10 Marks (CO2)

OR

(b) Explain Machine learning with suitable example. Also compare supervised, unsupervised and reinforcement learning. 10 Marks (CO1)

5. (a) Write a Python program to get the Fibonacci series between 0 to 10. And also write a program to get a factorial of 10. 10 Marks (CO2)

OR

(b) What is standard deviation ? How does standard variation change in a given dataset {1, 4, 7, 2, 6} when we replace 7 by 12. 10 Marks (CO1)

H Roll No. .....

TMC–403

M. C. A. (FOURTH SEMESTER)
MID SEMESTER EXAMINATION, 2021
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) If $A^T = \begin{bmatrix} 1 & -1 & 2 \\ 4 & 3 & -2 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -3 \\ 1 & -4 \\ 2 & -2 \end{bmatrix}$, where T is transpose. Show that : 10 Marks (CO1)

(i) $(A+B)^T = A^T + B^T$

(ii) $(A-B)^T = A^T - B^T$

OR

(b) Make a list from the given string containing colors : Red, Green, Blue, Yellow, Orange in the same order. Then perform following operations :

10 Marks (CO2)

(i) Insert 'Violet' at the end of the list.

(ii) Insert 'Magenta' at second position.

(iii) Remove 'Orange' and 'Red' from the list using all possible methods of deletion.

(iv) Extract elements from 1st to 3rd position.

(v) Print the elements of the list in reverse order.

2. (a) Calculate the following in given dataset :

$\{25, 29, 3, 32, 3, 85, 3, 33, 27, 28\}$

10 Marks (CO1)

(i) Mean

(ii) Mode

(iii) Median

(iv) Range

(v) Outlier

OR

(b) Write a program using command line arguments to find out whether a given number is : 10 Marks (CO2)

(i) Armstrong number

(ii) Prim number

(iii) Perfect number

(iv) Odd and even numbers

3. (a) If : 10 Marks (CO1)

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

$$B = \begin{bmatrix} a & -1 \\ b & -1 \end{bmatrix}$$

and $(A + B)^2 = A^2 + B^2$, then the values of a and b are ?

OR

(b) Write a program to check whether a given string consists of vowels and consonants.

10 Marks (CO2)

4. (a) Write a program to concatenate two dictionaries to create a new one. And also