

(4)

TMC-403

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)

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

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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

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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

P. T. O.