B.Tech/ M.Tech (Integrated) DEGREE EXAMINATION, MAY 2024
Fourth Semester

21ECE273T – PYTHON FOR DATA SCIENCES
(For the candidates admitted from the academic year 2022-2023 onwards)

Note:
(i)   **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
(ii)   **Part – B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours   Max. Marks: 75

PART – A (20 × 1 = 20Marks)
Answer ALL Questions

	Marks	BL	CO	PO

1. What is the output of the following program?   1   1   1   1
   C=40
   print (C= = 40)
   (A) C=40   (B) C== 40
   (C) False   (D) True

2. Which character is used in python to make a bit wise not?   1   1   1   1
   (A) ~   (B) /
   (C) #   (D) !

3. Which of the following is not a valid variable name?   1   2   1   1
   (A) WIN_3   (B) WIN.2
   (C) WIN2   (D) 2WIN00

4. What will be the output after the following statements area executed?   1   2   1   1
   X=250
   Y=15
   X%=Y
   Print (X)
   (A) 15   (B) 15.6
   (C) 250   (D) 10

5. What will be the output of the following python code snippet?   1   2   2   5
   D={"John":40, "Peter":45}
   D["John"]
   (A) "Peter"   (B) 45
   (C) "John"   (D) 40

6. What will be the output of the following python code?   1   2   2   5
   DEF Cube(X)
        Return X*X*X
   X=cube(3)
   Print (X)
   (A) 9   (B) 3
   (C) 27   (D) 30

7. Which method is used to remove a key-value pair from a dictionary?   1   2   2   5
   (A) Remove ( )   (B) Pop ( )
   (C) Delete ( )   (D) Discard ( )

8. What is the purpose of pass statement in python?   1   1   2   5
   (A) To stop the execution of the   (B) To skip a block of code without
        program   raising an error
   (C) To define a class method   (D) To exit a loop prematurely

9. What is the interval of the value generated by the function   1   2   3   5
   Random.Random ( ), assuming that the random module has already been
   imported?
   (A) [0,1)   (B) (0,1]
   (C) [0,1]   (D) (0,1)

10. Data wrangling is also known as   1   1   3   5
   (A) Data munging   (B) Dataset
   (C) Database   (D) Merging

11. Which type of elements are accepted by Random.shuffle ( )?   1   1   3   5
   (A) Strings   (B) Integers
   (C) Tuples   (D) Lists

12. What does Random.shuffle (X) do when X=[1,2,3]?   1   2   3   5
   (A) Error   (B) Do nothing, it is a placeholder
                                              for a function that is yet to be
                                              implemented
   (C) Shuffle the elements of the list (D) List error
        X in place

13. The plot which is used to give statistical summary is   1   1   4   5
   (A) Bar   (B) Line
   (C) Histogram   (D) Box plot

14. _____ plots are used to visually assess the uncertainity of a   1   1   4   5
    statistics.
   (A) Bootstrap   (B) Radviz
   (C) Lag   (D) Rug

15. The best way to analyze bivariate distribution in seaborn is by using the   1   1   4   5
    _____ function.
   (A) Pyplot( )   (B) Jointplot( )
   (C) Palplot ( )   (D) Current_palette( )

16. Which of the following does not visualize data?   1   1   4   5
   (A) Charts   (B) Shapes
   (C) Maps   (D) Graphs

17. Which of the following is an example of supervised learning?   1   1   5   5
   (A) Image classification   (B) Anomaly detection
   (C) Clustering   (D) Dimensionality reduction

16MA4/21ECE273T

18. Which algorithm is commonly used for regression tasks in supervised learning?
    (A) K-means
    (B) Decision trees
    (C) K-nearest neigbours
    (D) Linear regression

19. Which evaluation metric is commonly used for classification problems in supervised learning?
    (A) Mean squared error
    (B) Root mean squared error
    (C) Accuracy
    (D) R-squared

20. Which technique is used for visualizing high dimensional data in unsupervised learning?
    (A) Scatter plot
    (B) Histogram
    (C) Principal component analysis
    (D) Heatmap

PART – B (5 × 8 = 40 Marks)
Answer ALL Questions

		Marks	BL	CO	PO

21. a. Write a python program to create tuple with 10 elements and slice it with given indices, first element to specified index value, specified index value to last element, first to last element. Negative index values increment between the elements, jump every 3 items, negative increments. — 8, 3, 1, 5

(OR)

b. Explain sort lists in python using suitable examples. — 8, 3, 1, 5

22. a. Explain python file handling with suitable examples. — 8, 3, 2, 5

(OR)

b. Write a python function that takes a list of integers as input and returns the sum of all the even numbers in the list. — 8, 3, 2, 5

23. a. Write a python program to create a random password with a fixed count of letters, digits and symbols. — 8, 4, 3, 5

(OR)

b. Write a python program to create a random alphanumeric string with a fixed count of letters and digits. — 8, 4, 3, 5

24. a. Write a python program to plot random normal, binomial and poisson distribution of size 1000 using seaborn. — 8, 3, 4, 5

(OR)

b. Write a python program for randomly generated data and plot the graph using pandas series and matplotlib. — 8, 3, 4, 5

25. a. Develop a python code to build a Naive Bayes classifier model using the iris dataset and evaluate its performance on the testing set. — 8, 4, 5, 5

(OR)

b. Explain linear regression in detail. — 8, 4, 5, 5

16MA4/21ECE273T

26. Design a python program that simulates a simple shopping cart that allow the user to add items to the cart, remove items from the cart, view the items in the cart and calculate the total cost of the items.

    15   4   1   5

27. Create a python class named rectangle with attributes length and width. Implement methods to calculate the area and perimeter of the rectangle.

    15   4   2   5

* * * * *