Total No. of Questions:4

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PRN No.	

PAPER CODE	U124-363

MAY 2024 (ENDSEM) EXAM

F.Y.B. TECH. (SEMESTER - II)

COURSE NAME: PROBLEM SOLVING AND PROGRAMMING **BRANCH: CSE (DATA SCIENCE)** **COURSE CODE: CD12233**

(PATTERN 2023)

Time: [1Hr. 30 Min] **[Max. Marks: 40]**

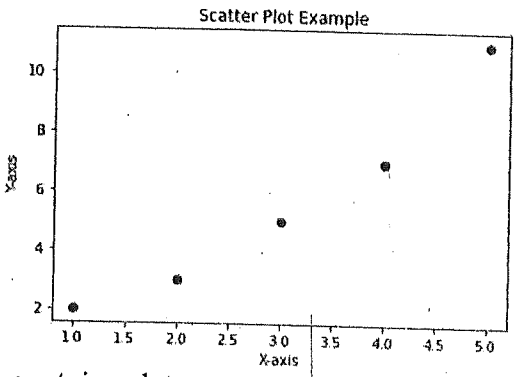
Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data wherever required**
4) **All questions are compulsory. Solve any one sub question from each Question 1 and 2 and any three sub questions each from Questions 3 and 4.**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Discuss flowchart and draw any 3 symbols of the same.	[5]	CO1	Understand
	b) Discuss the difference between Pseudocode and Algorithm	[5]	CO1	Understand
Q2	a) Demonstrate the use of nested loop by developing a python script that will count the number of integers and floats in this nested list: [3,4.0,2,8.4,6] [0,2,0.2,4,6] [9,3.5,0.32,5,4]	[5]	CO2	Apply
	b) Use Nested loop and develop a python script to draw the following pattern 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5	[5]	CO2	Apply

Q.3	a) Interpret the following code and calculate the output
	`import numpy as np`
	`matrix1 = np.array([[12, 2],[3, 4],])`
	`matrix2 = np.array([[5, 9],[7, 8],])`
	`result_matrix = np.dot(matrix1, matrix2)`
	`# Print the result`
	`print("Result is:")`
	`print(result_matrix)`
		[5]	CO3	Apply

	b) Illustrate the use of Pandas in python through an appropriate developed python program with its output (State the objective of program clearly)	[5]	CO3	Apply

	c) Develop a python program to plot the following diagram  	[5]	CO3	Apply
	d) A file contains data: voters name, voters age and a decision need to printed to know if the voter is eligible to vote. The following output is expected. Develop a python script using pandas to print the output Voter_name Voter_age Voter 0 Person1 15 No 1 Person 23 Yes 2 Person3 25 Yes	[5]	CO3	Apply

Q.4	a) Calculate the output of the following python script and discuss the same
	`import threading`
	`import time`
	
	`def square(n):`
	`  print("Square of number is:", n)`
	`  for i in n:`
	`  time.sleep(0.5)`
	`  print("The square:", i*i)`
	`def cube(n):`
	`  print("Cube of number is:", n)`
	`  for i in n:`
	`  time.sleep(0.5)`
	`  print("The cube:", i*i*i)`
	`r = time.time()`
	`l = [1, 2, 3, 4, 5]  # List of numbers`
	`t = threading.Thread(target=square_and_cube, args=(l,))  # Thread module`
	`# Start Execution`
	`t.start()`
	`t.join()`
	`print("Time taken to execute function", time.time() - r)`
		[5]	CO4	Apply

	b) Demonstrate the use of thread by developing a python script that creates two threads to find and print even and odd numbers from 30 to 50.	[5]	CO4	Apply
	c) Develop a sample python code of your choice demonstrating the use of findall and search in Regular expression and explain the code.	[5]	CO4	Apply
	d) Develop a sample python code of your choice demonstrating the use of split and sub in Regular expression	[5]	CO4	Apply