U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

July 2023 Semester End Main Examinations

Programme: B.E. **Semester: VI**
Branch: Institutional Elective **Duration: 3 hrs.**
Course Code: 20ME6OEPYP **Max Marks: 100**
Course: Python Programming **Date: 07.07.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	*CO*	*PO*	Marks
1	a)	Bring out the differences between a list and tuple in python programming?	*CO1*	*PO1*	**04**
	b)	Use illustrations and explain the Python's implicit and explicit datatype conversion?	*CO1*	*PO1*	**06**
	c)	A pangram is a sentence that contains all the letters of the English alphabet at least once. Write a python program to check a sentence to see it is a pangram or not. (Example: "The quick brown fox jumps over the lazy dog")	*CO1*	*PO2*	**06**
	d)	Discuss the concept of exception handling using try and except in python programming with an example.	*CO2*	*PO1*	**04**
		UNIT - II			
2	a)	Using an example, discuss about the for-loop and the while loop with syntaxes used in python programming.	*CO3*	*PO1*	**06**
	b)	Write a python code to read a file and append with the following lines and output the updated file. Line1: 'Welcome to Bengaluru' Line2: 'You are in Majestic' Line3: 'This is K.R Circle' Line4: 'You have Cubbon park' Line5: 'Can see Big Bull Temple' Line6: 'Also Ganapathi Temple'	*CO2*	*PO2*	**06**
	c)	Write a program that asks the user to type in 10 numbers, and outputs the largest and the smallest of these numbers	*CO1*	*PO2*	**08**
		UNIT - III			
3	a)	What are string methods in python? With the help of examples discuss the following string methods: (i) capitalize() (ii) endswith() (iii) islower() (iv) strip()	*CO3*	*PO1*	**08**
	b)	Write a Python program that separate the integers and alphabets in a string using regular expressions.	*CO3*	*PO2*	**06**

		c)	Write a python code to read the email ids from a given text tile and print them. Later, segregate those ending with @gmail.com and print them separately.	*CO3*	*PO2*	**06**
			UNIT - IV			

	4	a)	Write the output of python code and discuss on the local and global variables,
			
			total = 0;
			def sum (arg1, arg2):
			  total = arg1 + arg2
			  print ("The total is: ", total)
			  return total;
			
			sum (10, 20);
			print ("The total is: ", total)
				CO3	*PO2*	**06**

		b)	Write a python function to find whether a given string is a Palindrome or not.	*CO2*	*PO2*	**06**
		c)	Write a python function to check whether a number falls in the given range. The code should be able to input the number and range from the terminal.	*CO2*	*PO2*	**08**
			OR			
	5	a)	What is a constructor in python? With the help of an example, explain the use of the constructor in Object Oriented Programming.	*CO5*	*PO1*	**08**
		b)	Define inheritance and multiple inheritance in python. Write a python code with four base classes named: Car, Bike, Bus, Truck and one derived class Transport holding all the data of the Car, Bike, Bus, Truck, Plane.	*CO5*	*PO2*	**06**
		c)	Write a python program to create a class and find the area and perimeter of the circle.	*CO5*	*PO2*	**06**
			UNIT - V			
	6	a)	Create a sequence of linearly increasing values in 5-step with NumPy arrange to get the below output. [1 6] [1 6 11 16] [1 6 11 16 21 26] [1 6 11 16 21 26 31 36] [1 6 11 16 21 26 31 36 41 46]	*CO4*	*PO2*	**06**
		b)	Write a Pandas python program to create and display a DataFrame from a specified dictionary data which has the index labels. exam_data = {'name': ['Anand', 'Diana', 'Kalam', 'James', 'Indira',	*CO4*	*PO2*	**08**

'Madan', 'Murari', 'Lavanya', 'Karan', 'James'],
'score': [12.5, 9, 16.5, np.nan, 9, 20, 14.5, np.nan, 8, 19],
'attempts': [1, 3, 2, 3, 2, 3, 1, 1, 2, 1],
'qualify': ['yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes']}
labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
(Expected output: 1 Anand yes 12.5)

c) The following table contains sales data of a company from 2013 to 2019. — *CO6* — *PO2* — **06**

Year	2013	2014	2015	2016	2017	2018	2019
Sales(Millions)	8	12	20	22	18	24	27

Make a plot of the Year V/S sales. The plot should show the data from the table above as points. Add a title, legend, label, grid and label the axes.

OR

7 a) Write a python code to read the data given below on the availability of the potable water for Kolar city in millions litres per day with the below data and plot the bar chart with all the necessary details. — *CO6* — *PO2* — **10**

Year	type	Value in million litres per day
2018	Domestic	241.3
2018	Non-Domestic	147.2
2019	Domestic	274.4
2019	Non-Domestic	186.5
2020	Domestic	201.5
2020	Non-Domestic	381.2
2021	Domestic	303.4
2021	Non-Domestic	217.4
2022	Domestic	204.5
2022	Non-Domestic	354.5

b) Plot a Pie chart as percentage for the expenses in the month of January 2023 as shown below. Colour each slide and explode at least two partitions and save the output as a png file. — *CO4* — *PO2* — **10**

Particulars	Rent	Food	Fuel	Clothes	Others
Expenses in Rs.	1400	600	300	410	250

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