Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Programming with Python **Semester: III**
Program: B.Tech CS- OSS **Time : 03 hrs.**
Course Code: CSAI 101 **Max. Marks: 100**

SECTION A

S. No.		Marks	CO

Q 1	Describe the output of the code snippet given below:
	`result = 0`
	`for index in range(40, 10, -2):`
	`  if(index % 5 == 0):`
	`  result = result + index`
	`  print(result)`
		4	CO1,2

Q 2	Give one line description of the following functions and give the correct output for the following functions (Assume math module is already imported): a. print(math.ceil(4.34)) b. print(math.fabs(-4.34)) c. print(math.floor(4.34) d. print(math.pi)	4	CO1,2

Q 3	In the following snippet, what does *re* stands for? Also, write the output of the following code:
	`1. import re`
	`2. cust_details="Alen's customer id is cust141"`
	`3. print(re.sub(r"cust(\d{3})", r"CUST\1", cust_details))`
	`4. print(re.sub(r"customer", r"CUSTOMER", cust_details))`
		4	CO1,2

Q 4	Assume, string1 = "Python is fun" , string2 = "Really". What will be the output of the following snippet a. print(string1[:4]) b. print(string1[-1]) c. print(string1*2) d. print(string1[:-1] + string2 + string1[:-1])	4	CO1,2

Q 5	Consider a file test.txt in D Drive with the following contents *I Love Python* Discuss the output for the above Python code: i. try: ii. print ("In try block") iii. with open("d://test.txt") as f: iv. print(f.read()) v. for line in f: vi. token = line.split(' ') vii. print(len(token)) viii. print("Completed try block") ix. except: x. print ("In exception block")	**4**	**CO1, CO2**
	SECTION B		
Q 6	Write a program (using function) to add natural numbers up to n where n is taken as an input from user. Print the sum. **OR** Write a program (using function) to print Fibonacci series till nth term (Take input from user).	**10**	**CO1**
Q 7	Consider the price list of various items in the Retail Store: item_price = [1050, 2200, 8575, 485, 234, 150, 399] Customer John wants to know the: 1. Price of costliest item sold in retail store 2. Number of items in the Retail store 3. Prices of items in increasing order 4. Prices of items in descending order Implement the above mentioned business requirements using built-in List functions	**10**	**CO2**
Q 8	Consider the sets fruits = {"apple", "orange", "banana", "apple", "pear", "papaya", "papaya"} fruit_basket = {"apple", "banana", "grapes", "mango", "kiwi"}	**10**	**CO1**

	For the above sets, write the output of the following code Q1: print(fruits) Q2: print(fruits & fruit_basket) Q3: print(fruits | fruit_basket) Q4: print(fruits - fruit_basket) Q5: print(fruits ^ fruit_basket) Q6: print(len(fruit_basket)) Q7: print("pear" in fruits) Q8: print("pear" not in fruit_basket) Q9: print(fruits.issubset(fruit_basket)) Q10: print(fruits.issuperset(fruit_basket))		
Q 9	a. Create a file student.txt and insert details of 5 students in given format (student_name Roll_no Marks) Example: Ram 10 72 Shyam 20 55 …… [5] b. Open file student.txt and find average marks of 5 students stored in the file. [5]	**10**	**CO1,2**
	SECTION-C		

Q 10	a.) Write a python lambda expression for calculating sum of two numbers and find out whether the sum is divisible by 10 or not.
	Sample Input: num1 = 5 num2 = 10 — Expected Output: Not Divisible by 10
	[10]
	
	b.) Refer the code and find the output:
	`a = np.array( [20,30,40,50] )`
	`b = np.arange( 1,5)`
	`print(a)`
	`print(b)`
	a. Find a & b from the above code. [2]
	b. Perform a+b, a-b, a*b and find the output. [2]
	c. Find output of a<35 [2]
	d. Which method is used to perform matrix multiplication using numpy? [2]
	e. If a= [[0, 1, 2, 3],
	[4, 5, 6, 7],
	[8, 9, 10, 11]]
	Find a.min(axis=1)
		20	**CO3**

OR

Refer given csv file and answer given questions:

	EST	Temperature	DewPoint	Humidity	Sea Level PressureIn	VisibilityMiles	WindSpeedMPH	PrecipitationIn	CloudCover	Events	WindDirDegrees
0	1/1/2016	38	23	52	30.03	10	8.0	0	5	NaN	281
1	1/2/2016	36	18	46	30.02	10	7.0	0	3	NaN	275
2	1/3/2016	40	21	47	29.86	10	8.0	0	1	NaN	277
3	1/4/2016	25	9	44	30.05	10	9.0	0	3	NaN	345
4	1/5/2016	20	-3	41	30.57	10	5.0	0	0	NaN	333
5	1/6/2016	33	4	35	30.50	10	4.0	0	0	NaN	259
6	1/7/2016	39	11	33	30.28	10	2.0	0	3	NaN	293
7	1/8/2016	39	29	64	30.20	10	4.0	0	8	NaN	79
8	1/9/2016	44	38	77	30.16	9	8.0	T	8	Rain	76
9	1/10/2016	50	46	71	29.59	4	NaN	1.8	7	Rain	109
10	1/11/2016	33	8	37	29.92	10	NaN	0	1	NaN	289

a. Import the given csv file using pandas. (File name is weather.csv)
b. Find maximum temperature.
c. Find average WindSpeed.
d. Retrieve Date when the **Events** was "**rain**"
e. Find number of rows and columns present in the file.
f. Print **Humidity** and **Events** columns from the file.
g. Find all the rows where temperature is greater than 32.
h. Change the index to date on which temperature recorded.
i. Print the **temperature** and **day** on which the temperature was **maximum.**

Fill NAN values present in the **temperature** column with **0** and fill NAN value present in **Events** column with "**no event**".

Q 11	Given below is a dictionary 'customer_details' representing customer details from a Retail Application. Customer Id is the key and Customer Name is the value. **customer_details = { 1001 : "John", 1004 : "Jill", 1005: "Joe", 1003 : "Jack" }** Write Python code to perform the operations mentioned below: a) Print details of customers. [3] b) Print number of customers. [3] c) Print customer names in ascending order. [4] d) Delete the details of customer with customer id = 1005 and print updated dictionary. [5] e) Update the name of customer with customer id = 1003 to "Mary" and print updated dictionary. [5]	**20**	**CO2, CO3**