UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: **Programming with Python**   Semester: I
Programme: **B.Tech. CSE AI+ML**   **CSAI1001**
Time: **03 hrs.**   **Max. Marks: 100**
Instructions:

SECTION A

S. No.		Marks	CO
Q 1	Define class & object with the help of an example.	4	CO3
Q 2	Define Lambda function. Write a lambda function to find area of circle.	4	CO4
Q 3	List out uses of regular expression. Write python script to check whether given string starts with "Hello".	4	CO2
Q 4	Write an algorithm and draw flowchart for finding number of digits in a given number.	4	CO1
Q 5	Define arrays in python. Find maximum number in a given array of 10 elements.	4	CO4
	SECTION B		

Q 6	Write a function which takes a dictionary with values of all students (values of each student: sapid, name, sem, cgpa) as input and:
	    a) Print details of all students who have secured more than 7.5 cgpa
	    b) Find average cgpa of all students
		5+5	CO3, CO1

Q 7	Predict output with proper justification:
	a)
	def mystery(my):
	    my = my + [10,11]
	    print(my)
	    return()
	mylist = [3,4]
	mystery(mylist)
	print(mylist)
	
	b)
	D = dict()
	for i in range (3):
	    for j in range(2):
	        D[i] = j
	print(D)
	
	c)
		4*2.5	CO1, CO2

```
def myfunc(n):
  return lambda a : a * n
mydoubler = myfunc(2)
print(type(mydoubler))
print(mydoubler(10))

d)
list=[10,"Hello",30]
print(list[:-1])
list[1][0]='D'
print(list)
```

Q 8	Write a recursive function to print given series(first two terms are 1 and 2 and other terms are product of previous two terms): 1 2 2 4 8 32 256 …..	**10**	**CO1, CO3**

Q 9	Take a text paragraph as input and write function to:
	   a) Find count of each vowel (a,e,i,o,u), lower or upper case
	   b) Store this paragraph in a file "end.txt" and print first two lines only.
		5+5	**CO1, CO3**

	OR		

	Write a python script which takes a sentence as input and:
	   a) Convert all lower case characters into upper case
	   b) Print last word in the sentence
		5+5	**CO1,CO3**

	SECTION-C		
Q 10	a.Write a script to create a file "rain.txt" which stores the average rainfall (in mm) of each month of year 2017 in Dehradun & Delhi in the given format. (First integer value represents avg. rainfall in the month of Jan). User must enter all values. Dehradun 250 120 100 105 95 90 450 540 280 180 150 200 Delhi 120 90 75 80 40 102 340 280 150 90 30 60 b. For above given data, write script to find 1)Month with maximum rainfall for both cities 2) Average rainfall in a year for both cities	**10+10**	**CO2,CO4**

Q 11	Define class book with given data members: bookname, price, author, year. Write script to
	   a) Create 5 objects and initialize values using constructor.
	   b) Print all details of books published after 2010.
	   c) Find costliest book with its price.
	   d) Find sum of prices of all books
	   e) Find count of books published by author "Chetan Bhagat"
		5*4	**CO3, CO1**

	OR		
	Assume that new e-store has started in Dehradun. Take classes for customer and administrator with suitable data members and write methods :	**5*4**	**CO3, CO1**

	For customer: a) Buy Product b) edit profile For administrator: a) edit product details b) Add product c) update inventory		

Name: Enrolment No:	

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SECTION A

S. No.		Marks	CO
Q 1	Define following terms with example: a) module b) id() method	4	CO3,CO1
Q 2	What is the significance of Numpy & Pandas library in python?	4	CO4
Q 3	Write an algorithm and draw flowchart for finding whether number is prime or not.	4	CO1
Q 4	Explain pass, break and continue with example.	4	CO2
Q 5	Explain range function with proper examples.	4	CO1

SECTION B

Q 6	Series objects T1,T2,T3,T4 store the temperatures of days of week1, week2, week3, week4 respectively. Write a script to
	   a) Print the average temperature per week
	   b) Print average temperature of entire month
		5+5	CO4

Q 7	How lists are different from tuples? Write a script, which finds second maximum element in a given list.	5+5	CO1

Q 8	Define class student with 3 data members: stu_name, sapid, cgpa. Write script to
	   a) Create 3 objects and initialize values using constructor.
	   b) Print average marks of all three students.
		5+5	CO2

Q 9	Write a function to print sum of square of first n natural numbers.	10	CO3
	OR		
	Explain different types of function with example.		CO3

SECTION-C

Q 10	Assume a company DeoOps with some employees. Take list of tuples for all employees, where each tuple consists of (name, empid, experience in years,salary).	5*4	CO1,CO3

	Write functions for:
	   1) Incrementing salary of all employees by 10%
	   2) Display details of all employees
	   3) Count employees with experience more than 5 Years
	   4) Find sum of all salaries
	   5) Add a new employee in a list.		

Q 11	a) Explain various file handling operations with example. b) Write 10 integer values taken as input from user in a file "n.txt", increment all values by 20% and print the final details of file.	**10+10**	**CO4, CO1**
	OR		

	a. Explain various modes in which file can be opened with example.
	
	 Assume file "cap.txt" with details of states as per given format:
	       Statename capital population area
	       e.g.
	       Uttrakhand Dehradun 15572577 25005
	
	b. Write script to:
	    i) display all state names.
	    ii) Find total population of all states
	    iii) count total states in the file
		10+10	**CO4, CO1**