

Name:

Enrolment No:



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

**Course: Programming with Python**

**Program: B.Tech. CSE AI+ML**

**Course Code: CSAI1001**

**Semester: I**

**Time: 03 hrs.**

**Max. Marks: 100**

**Instructions:**

**SECTION A**

| S. No. |  | Marks | CO  |
|--------|--|-------|-----|
| Q 1    | Define dictionary in python. Write a python code to add any element in empty dictionary.       | 2+2   | CO3 |
| Q 2    | Define Lambda function. Write a lambda function to find volume of cuboid.                      | 2+2   | CO2 |
| Q 3    | Differentiate mutable & immutable datatypes with example.                                      | 4     | CO1 |
| Q 4    | Write an algorithm and draw flowchart for finding sum of digits of a given number.             | 4     | CO1 |
| Q 5    | Differentiate list and numpy arrays. Write a python script to find maximum number in an array. | 2+2   | CO4 |

**SECTION B**

|     |  |       |     |
|-----|--|-------|-----|
| Q 6 | Create a list of students with details (rno, name, cgpa, sem) for each student. Write a function, which takes a list of students as input and:<br>a) Print details of all students who have secured less than 5.0 cgpa.<br>b) Count number of students studying in semester 4.                     | 5+5   | CO1 |
| Q 7 | Predict output with proper justification:<br>a)<br>a = ("UPES")<br>for i in range(2):<br>a = (a,<br>print(a)<br>b)<br>a = [1,2,0,3,1]<br>for i in a:<br>print(a[i+1]+ a[i-2])<br>c)<br>def myfunc(n):<br>if n<=1:<br>return 1<br>else:<br>return (myfunc(n-1)+ myfunc(n-2)+ n)<br>print(myfunc(4)) | 4*2.5 | CO1 |

|                  |  |        |     |
|------------------|--|--------|-----|
|                  | <p>d)</p> <pre>list=[[10,"Hello"],["30","India"]] print(list[:-1]) list[1][0]="D" print(list[:::-1])</pre>   |        |     |
| Q 8              | <p>a) Define sets in python.<br/> b) Set of players registered for two different games are:</p> <pre>cricket={"Rahul","Mahesh","Rohit","Mohan","Tarun"} hockey={"Tarun","Aman","Sachin","Rohit","Rahul"}</pre> <p>Write python script to find:</p> <ol style="list-style-type: none"> <li>List of all players registered in either cricket or hockey.</li> <li>List of all players registered in both games.</li> <li>List of players registered in hockey but not in cricket.</li> <li>List of players playing either hockey or cricket but not both.</li> </ol>  | 2 + 8  | CO2 |
| Q 9              | <p>Take a text paragraph as input and write python script to:</p> <ol style="list-style-type: none"> <li>Generate new string by replacing all vowels with "#".</li> <li>Display and count no. of words, which contain at least one vowel.</li> </ol>   | 5+5    | CO2 |
| OR               |  |        |     |
|                  | <p>Scan a sentence from user and write a python script to:</p> <ol style="list-style-type: none"> <li>Count number of characters in the last word of the sentence.</li> <li>Count and display number of words in the sentence.</li> </ol>  | 5+5    | CO2 |
| <b>SECTION-C</b> |  |        |     |
| Q 10             | <ol style="list-style-type: none"> <li>Discuss any five object-oriented concepts with example.</li> <li>Create a class <i>State</i> with given data members:<br/> Instance variables: state_name, capital, population, language<br/> Instance method: display_details()</li> </ol> <p>Write python script to:</p> <ol style="list-style-type: none"> <li>Create 5 objects and initialize values using parameterized constructor.</li> <li>Display details of all states using display_details() method.</li> <li>Find state with maximum population.</li> <li>Display state name along with their capital.</li> <li>Display states where major language is "Hindi".</li> </ol> | 10+10  | CO4 |
| Q 11             | <p>a. Write a python script to create a file "weather.txt" which stores the average rainfall (in mm) of each month of year 2018 in Dehradun &amp; Ahmedabad in the given format. (First integer value represents avg. rainfall in the month of January and last value in December). Take inputs from the user and store in the file.</p>   | 10 +10 | CO3 |

|           |   |              |            |
|-----------|---|--------------|------------|
|           | <p>e.g.<br/>Dehradun 250 120 100 105 95 90 450 540 280 180 150 200<br/>Ahmedabad 120 90 75 80 40 102 340 280 150 90 30 60</p> <p>b. For above given data, write python script to read content from file and :</p> <ol style="list-style-type: none"> <li>1) Display rainfall recorded in each city for all months.</li> <li>2) Compute average rainfall in year 2018 for both cities</li> <li>3) For Dehradun city, find the month in which maximum rainfall is recorded.</li> <li>4) Display rainfall recorded in the month of March in both cities.</li> </ol>  |              |            |
| <b>OR</b> |   |              |            |
|           | <ol style="list-style-type: none"> <li>a) Discuss any five file handling functions with example.</li> <li>b) Assume a file “student.txt” which store information of all students studying in school in the given format:<br/><br/>rollno first_name last_name class age<br/><br/>e.g.<br/>25 Rohan Tiwari 8 13<br/>45 Rajeev Sharma 12 17<br/>.....</li> </ol> <p>Read the content from file and store it in a suitable structure. Write python script to :</p> <ol style="list-style-type: none"> <li>i) Display first 5 student details.</li> <li>ii) Display all student names studying in school.</li> <li>iii) Find number of students studying in school</li> <li>iv) Display student details of class 8.</li> <li>v) Count number of students in class 8.</li> </ol> | <b>10+10</b> | <b>CO3</b> |