Name:

**Enrolment No:** 



## **UPES**

## **End Semester Examination, December 2023**

Course: Programming in petroleum Engineering Semester: I

Program: M. Tech (Petroleum Engineering)

Course Code: PEGI7023

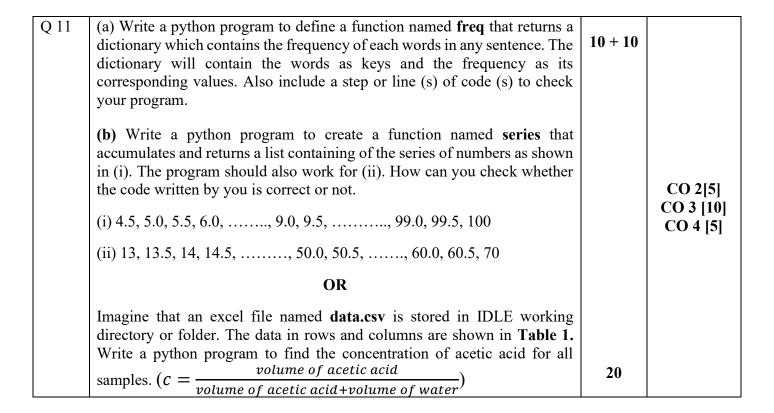
Time : 03 hrs

Max. Marks: 100

**Instructions:** (a) This is a closed book exam. Possessing a mobile phone and any other communication devices during the exam is strictly prohibited.

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	SECTION A (5Q x 4M = 20 Marks)		
S. No.	Statement (s) of the question (s)	Marks	CO
Q 1	Write a python code to (a) define a list with named lst containing the following four elements below:  90 3.14 crude oil sour water  (b) define or create an object named sec that belongs to the class time	2 + 2	CO1
Q 2	Write a python code to (a) define a dictionary named <b>water</b> that can store the following properties of water with density (1000), viscosity (0.01) and specific heat (4.186).  (b) Modify the viscosity to 0.05	2 + 2	CO1
Q 3	<ul> <li>(a) Write a python code to create a complex number with 2 and 5 as the real part and imaginary part, respectively</li> <li>(b) Create a set data type that contains the three elements 4 9.8 random</li> </ul>		CO2 [2 M] CO3 [2 M]
Q 4	Write a python program to (a) define a user define function named <b>sqr</b> that returns the square of an input number.  (b) print the following words in its exact form as output containing all alphabets and special characters.  "python's \n code"		CO1
Q 5	Write a python code to create (a) identity matrix (100 rows, 100 columns), and (b) a matrix (1 row, 100 columns) that contains only zero.		CO1[2] CO2[1] CO3[1]
	SECTION B $(4Q \times 10M = 40 \text{ Marks})$		
Q 6	<ul> <li>(a) Show all the necessary steps and determine the binary representation of the number 41</li> <li>(b) print(~9)</li> <li>For the python code above, the output was found to be -10. Use all detailed necessary steps to explain the reason.</li> </ul>	4+6	CO2

Q 7	(a) Write a python program to create a ma 1 <b>2</b> 3 (elements of 1 <sup>st</sup> row), 4 <b>5</b> 6 7 <b>8</b> 9 (elements of 3 <sup>rd</sup> row). (b) Use slicing, to create a variable named elements of mat1 that are bold and italics.	(elements of 2 <sup>nd</sup> row) and	10	CO2 [5 M] CO3 [5 M]
Q 8	Write a python program to create three numbers of classes, named as A, B, and C.  B contains a method to find the sum of number series (such as 1, 2, 3, 4, 5, 6, and many more). While, A contains method to find the factorial of numbers. The class C do not have any methods defined.  \[ \frac{1+2+3+4+5+6+7+8+9+10}{10!} \]  Write a python program to evaluate the above expression only using the object that belongs to class C. Use appropriate names of your choice.			CO2 [5 M] CO3 [5 M]
Q 9	Write a python code to print the following pattern of <b>cone</b> exactly as shown in <b>Fig. 1</b> .  OR  Define a function named sorting that takes a list as input parameter and returns two lists as an output parameter. One list containing only even numbers and other list only contains odd numbers.		10	CO 3 [6] CO 4 [4]
	SECTION C (2	$Q \times 20M = 40 \text{ Marks})$		
Q 10	Analyze the python codes below to predic (i) print(5 // 3) (ii) print(5 % 3) (iii) str1 = "python's code"     print(str1[6]) (iv) print(str1[1:4]) (v) water = []     water.append("boil")     print(water) (vi) word = "ab"     for i in word:         print("welcome {}".format(i)) (vii) print(len("python")) (vii) a, b, c, d = 1, 2, 3, 4         print(d > c**b) (viii) print(c > b or a > d) (ix) print(5 in [7.675, "float", 5]) (x) print(type({1, 2, "hello"}))	t the outputs: (2 marks each) Output:	20	CO 2[5] CO 3 [10] CO 4 [5]



**Table 1:** Sample of acetic acid and water mixed at different volume ratios.

Sample	acetic acid (ml)	water (ml)
A	1	5
В	2	4
С	3	3
D	4	2
Е	5	1

Fig. 1: Triangular pattern

CO

con

cone