

Roll No: -----



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2018

Program: BTech CSE + Big Data
Subject (Course): Functional Thinking
Course Code : CSBD1002
No. of page/s: 2

Semester – II
Max. Marks : 100
Duration : 3 Hrs

This paper consists of 3 sections as Section A, Section B and Section C having 20, 40 and 40

Section A (Marks: 20)

Attempt ALL questions. Each question are of marks FOUR.

1. Define the meaning of **generator** without a yield and show with a suitable example?
2. How memory is managed in Python and discuss the Python's garbage collection mechanism?
3. Demonstrate partial function in Python with suitable code?
4. Distinguish between functional and procedural programming.
5. Assuming num = 20, determine the value of each of the following Python expressions:
 - a. num / 12
 - b. 123 % 100
 - c. 8 + 3 * 7
 - d. (0 == 1) and (2 < 3)
 - e. not ((4.5 < 12.9) and (6 * 2 <= 13))
 - f. (0 == 1) or (2 < 3)
 - g. (0 == 1) or (2 < 3) and (7 < 6)
 - h. (2 < 3) or (0 == 1) and (7 < 6)

Section B (Marks: 40)

Attempt ALL questions. Each question are of marks TEN.

6. Differentiate generators from the normal functions with the suitable examples.
7. What is module and package in Python? Illustrate the rules for local and global variables in Python? How can you share global variables across modules? Explain with example.

8. What's the list comprehension and dictionary comprehension? Construct x^3 from a list of integers, $L = [0,1,2,3,4,5]$ for list and dictionary comprehension.
9. Define the following:
- Referential transparency
 - Pure functions
 - Iterators
 - Coroutines

Section C (Marks: 40)

The marks for each question are written alongside with the question.

10. a) Write a Python program to find the longest words from the given *myfile.txt* file.
b) A function price that returns the amount with tax added is given below. We want to prefix the amount with a dollar(\$) using decorator:

```
@dollar
def price(amount, tax_rate):
    return amount + amount*tax_rate
```

Write a Python program to implement the decorator function, dollar(). [10+10 Marks]

11. a) What is the output of the below code snippet written in Python language. Mention atleast two factors that produce the result:

```
L = range(10)

newL = L
copiedL = L[:]
newL.append(10)

print('original L = %s' %L)
print('newL = %s' %newL)
print('copiedL = %s' %copiedL)
```

- b) We have a count of 35 heads and 94 legs among the chickens and pigs in a farm. How many pigs and how many chickens do we have? Develop a Python program for it.
c) Write a Python program to find out the number of integer pairs whose difference is K from the given list.

a = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

[6 + 7 + 7 Marks]