JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

B. Tech-III Semester (CSE)

COURSE CODE(CREDITS): 18B11CI314(3) MAX. MARKS: 35

COURSE NAME: Python Programming Essentials

COURSE INSTRUCTORS: Dr. Naveen Jaglan, Dr. Emjee Puthooran, Dr. Nishant Jain and Mr. Aayush Sharma MAX. TIME: 2 Hours

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Note: *(a) All questions are compulsory.*

(b)Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

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1. Write a Python program to design a simple calculator application using Tkinter with buttons for numbers and arithmetic operations. [CO-6; 5 Marks]

2. Write a Python program to extract year, month and date from an URL using regular expressions: URL= https://www.washingtonpost.com/news/football-insider/wp/2016/09/02/odell-beckhams-fame-rests-on-one-stupid-little-ball-josh-norman-tells-author/ [CO-6; 3 Marks]

3. What is the purpose of the try...except...else...raise...finally block in python exception handling? Write a python program that executes division and handles an ArithmeticError exception if there is an arithmetic error. [CO-4; 3+2=5 Marks]

4. Write a Python program to count total number of uppercase and lowercase characters in a text file. Count total number of lines and count the total number of lines starting with 'A', 'B', and 'C' in the same text file. [CO-4; 5 Marks]

5. Write a single program to: (a) Create a Rectangle class in Python language, allowing you to build a rectangle with length and width attributes, (b) Create a Perimeter() method to calculate the perimeter of the rectangle and a Area () method to calculate the area of the rectangle, (c) Create a method display() that display the length, width, perimeter and area of an object created using an instantiation on rectangle class, (d) Create a Parallelepipede child class inheriting from the Rectangle class and with a height attribute and another Volume() method to calculate the volume of the Parallelepiped. [CO-5; 4 Marks]

6. Explain the following concepts with the help of suitable python programs: (a) Super Method, (b) Duck Typing, (c) Keyword Variable Length Arguments, (d) Method Overloading, (e) Method Overriding, (f) Abstract Class and (g) Abstract Method. [CO-5; 7 Marks]

7. What will be the output of the following Python codes? [CO-5; 6 Marks]

(a)

```
class A:
    def __init__(self):
        self.multiply(4)
    def multiply(self, i):
        self.i = 4 * i
class B(A):
    def __init__(self):
        super().__init__()
        print(self.i)

    def multiply(self, i):
        self.i = 2 * i
obj = B()
```

(b)

```
class A:
    def __init__(self, x, y):
        self.x = x
        self.y = y
    def __hash__(self):
        return 1
    def __eq__(self,other):
        return self.x*2+self.y == other.x * 2 + other.y
obj1 = A(1, 2)
obj2 = A(2, 5)
print(obj1 == obj2)
```

(c)

```
def f(x):
    def f1(a, b):
        print("hello")
        if b==0:
            print("NO")
            return
        return f(a, b)
    return f1
@f
def f(a, b):
    return a%b
f(4,0)
```

(d)

```
class A:
    def test(self):
        print("test of A called")
class B(A):
    def test(self):
        print("test of B called")
        super().test()
class C(A):
    def test(self):
        print("test of C called")
        super().test()
class D(B,C):
    def test2(self):
        print("test of D called")
obj=D()
obj.test()
```

(e)

```
l=[1, 0, 2, 0, 'hello', '', []]
list(filter(bool, l))
```

(f)

```
def f(x):
    for i in range(9):
        yield i
g=f(8)
print(list(g))
```