Shiv Nadar Institute of Eminence
Mid Term Examination
Monsoon 2024

COURSE CODE: CCC634 **MAX. DURATION: 1.5 hr**

COURSE NAME: A Gentle Introduction to Python

COURSE CREDIT: 1.5 **MAX. MARKS: 50**

Roll No: _____ Name of Student: _____

Department/ School: _____

INSTRUCTIONS: -

- Do not write anything on the question paper except name, enrolment number and department/school.
- Carrying mobile phones, smartwatches and any other non-permissible materials in the examination hall is an act of UFM.
- All Questions are mandatory.
- Draw clear Diagrams, wherever it is required.
- Read the question carefully before attempting.

SECTION A (Max Marks = 20 Marks)

1. Illustrate various types of errors with example in python. (2 marks)
2. List five reasons for the popularity of Python. (1 mark)
3. How can we use C++ or Java libraries in a Python program? (1 mark)
4. Mark the given statement as true or false (1 mark)
    a. In python, type of variable is decided based on its usage.
    b. Python is a case-insensitive language
5. Define Identifier and illustrate the rules for creating identifier. (1.5 marks)
6. Python has many built-in functions. Illustrate the working of the following functions: (1.5 marks)
    a. fabs(x)
    b. modf(x)
    c. id(x)

7. Evaluate the following expression: (2 marks)

   5*200//2//3>>1&22|5

8. Illustrate the steps to perform the following operations (2 marks)
   a. Print imaginary part of the 4-9j
   b. Obtain hexadecimal equivalent of 4348

9. Illustrate the difference between trunc(), ceil(), and floor() functions for numbers -2.8, -0.5, 0.2, 1.5, and 2.7 in Python.
   (1.5 marks)

10. Write a program that swaps the value of variables a and b without using third variable and without performing arithmetic operations on a and b. (1 mark)

11. Evaluate the following expression (2 marks)

    41%15+9*5>>2//2//4<<2|25

12. Find the output of the following programs (2 marks)

(a)

```
a = 10
if a=30 or 40 or 60:
   print('Hello')
else:
   print('Hi')
```

(b)

```
x,y = 30,40
if x==y:
   print('x is equal to y')
elseif x>y:
   print('x is greater than y')
elseif x<y:
   print('x is less than y')
```

13. Match the following (1.5 marks)

a. range(5)	1. 1, 2, 3, 4
b. range(1, 10, 3)	2. 0, 1, 2, 3, 4
c. range(10, 1, -2)	3. Nothing
d. range(1, 5)	4. 10, 8, 6, 4, 2
e. range(-2)	5. 1, 4, 7

SECTION B (Max Marks = 30 Marks)

1. The Magical Fruit Basket in Pythonville has evolved. Now, it follows a predictable pattern. For every apple added, the basket magically adds three more apples. For every

banana added, it removes one banana (but never goes below zero). For every cherry added, it magically doubles the total number of cherries. Tim, with this knowledge, wants to calculate the final count of each fruit type after he and his two other friends add their fruits to the basket. Write a python program to help him finding the total number of fruits in the basket. (5 marks)

2. Rohit purchased the ball pens from three shops for the coming mid-term examination (MTE). He purchased x pens from the first shop, y pens from the second shop and is yet to buy pens from the third shop. Rohit is very superstitious and believes that if the sum of pens he buys from the three shops is a divisible by 5, he'll clear the MTE. Please help him by calculating for him the minimum number of pens that if purchased from the third shop will make the sum of pens as divisible 5.

   Note: At least one pen should be bought from the third shop. (5 marks)

3. Take the height of the user (in meters) and the weight of the user (in kilograms) as the input and calculate their BMI (weight/ (height^2)). Also, display which category they belong to base on the BMI. (5 marks)

Use the following table.

Category	BMI range - kg/m2
Mild Thinness	17 - 18.5
Normal	18.5 - 25
Overweight	> 25

If none of the condition matched, then print inhuman status.

4. At your fresher party your seniors want to form different teams for the team-based fun events. The team formation is based on the *sum* of the digits of your student-ID. You would be divided into following teams based on the below conditions,

   - Team A: Sum is divisible by 2
   - Team B: Sum is divisible by 9
   - Team C: Sum is divisible by 7
   - Team D: Sum is divisible by 11

Write a program that takes your student-ID as an input finds the sum of its digits and then outputs your team's name. (5 marks)

5. (5 marks)

a. If a = 10, b = 12, c = 0, find the values of the following expressions:

1. a != 6 and b > 5
2. a==10 or b<3
3. not(a>10)
4. not(a > 5 or c)

b. Print the output of the following statements.

i. a = input("Enter the value of a")
print(type(a))
ii. print(6//2)
iii. print(b=3%-2)
iv. print(-5//-3)
v. print(17/4%10**9)

6. The Looping Labyrinths of Luna: (5 marks)

The moonlit plains of Circularis hide a peculiar maze known as the Looping Labyrinths of Luna. Each path in this labyrinth is a loop that brings you back to where you started, but after a certain number of steps. Princess Lysta wants to explore every loop but without getting stuck in an infinite cycle. She decides to mark her starting point and count her steps. If she reaches the starting point again, she will exit that loop and move to another. Can you guide Princess Lysta through the Looping Labyrinths, ensuring she doesn't get trapped in any loop?