[This question paper contains 12 printed pages.]

**Your Roll No.....**

**Sr. No. of Question Paper : 6143** **G**

Unique Paper Code : 62347502

Name of the Paper : Programming with Python (LOCF)

Name of the Course : **B.A. Programme LOCF**

Semester : V (Year of Admission 2019 onwards)

Duration : 3 Hours Maximum Marks : 75

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. **Section A** is compulsory.
3. Attempt any **5 (five)** questions from **Section B.**
4. All parts of a question must be answered together.

P.T.O.

## Section A

1. (a) Given is the list t1 = [3, 5, 6, 7]. Write the output of the following statements : (2)

(i) print (t1 [2])

(ii) print (t1 [–1])

(iii) print (t1 [2:])

(iv) print (t1 [:])

(b) Find the error (if any) in the given code : (2)

str= "Hello Python"

str[6]="S"

(c) If a = 4, b = 10, c = 15, d = 5, give step by step evaluation of the following expression : (3)

b + d **2 + a – c != 2 * a

(d) Write statements in Python to count the number of occurrences of a character 'i' in the string "Delhi University". (2)

(e) Give the output that will be produced on execution of the following code segment : (2)

```
a = True
b = False
c = False

if not a ox b:
    print ("1")
elif not a or not b and c:
    print ("2")
elif not a or b or not b and a:
    print ("3")
else:
    print ("4")
```

(f) Which of the following is an *invalid* name? (3)

(i) my_string_1

(ii) 2nd_string

(iii) foo

(iv) __init__

(v) in

(vi) it

(g) What is meant by slicing operation? Give two data types where slicing is used. (3)

(h) Differentiate between syntax errors and semantics errors with the help of an example. (4)

(i) Give the step-by-step execution of the following code segment : (4)

```
total=0
n=10
for i in range(1, n+1):
    if i%2==0:
     continue
    for j in range (1, i+1):
            total += 1
            if j == i/2.0: break
print(total)
```

## Section B

2. (a) Write a Python program to accept a four-digit number from the user and display its reverse. (4)

For example, if user enters 5698, the program should print 8965.

(b) Write a Python program to generate nth term of Fibonacci series. (4)

(c) Explain the purpose of_init_method in Python. (2)

3. (a) Write a function in Python to check a given string is palindrome or not. (2)

(b) Give the output that will be produced on execution of following code segment : (4)

```
a = 43          # 43 in binary: 00101011
b = 7           #  7 in binary: 00000111
```

(i)
```
b = a & b
print(b)
```

(ii)
```
a = a | b
print(a)
```

(iii) b = a ^ b

print(b)

(iv) a = ~b

print(a)

(c) Let str1 = "Python" and str2 = "python". Write the Python statements for the following : (4)

(i) Create a new string str3 that converts str1 to uppercase.

(ii) Create a new string str3 that trims whitespace characters on both the ends of str2.

(iii) Check whether str1 has a suffix 'XXX'.

(iv) Check whether str2 is alphanumeric.

4. (a) Write a Python program to create a dictionary named directory that has *name: telephone number* as *key: value* pairs, where name and telephone number are of string type and perform the following operations : (5)

(i) Insert the following records: "Amit Sharma": "8871934526", "Vidit Gujarati": "7990065781", "H. Gopal": "9900128933", "Dilip Tyagi": "9435299999"

(ii) Print all the keys of the dictionary directory.

(iii) Remove the *key: value* with the key "H.Gopal".

(iv) Print the value corresponding to the key "Dilip Tyagi".

(b) set1 = set (['A', 'B', 'C', 'D', 'E']) (5)

set2 = set (['A', 'Y', 'Z'])

Write the Python statements for each of the following operations:

(i) Adding an element "F" to the set1.

(ii) Compute union of set1 and set2.

(iii) Compute the common elements of set1 and set2.

(iv) Remove "Y" from set2.

(v) Check whether "T" is present in set2.

5. (a) Define a class Student, which has rollno, marks1, marks2 and marks3 as the data members. Describe the following methods : (6)

(i) Constructor to initialize the data members

(ii) average() method to return the average marks

(iii) percentage() method to return the percentage of marks, considering 300 as maximum marks

(iv) Create an object stud1 of class Student with values "Hitesh", 89, 75, 80.

(v) Calculate the average and percentage of stud1 and print them.

(b) If i=5, j=10 and k=15, give the output that will be produced on execution of the following Python statements : (4)

(i) print (i==k/j)

(ii) print (k % i < k % j)

6. (a) Write a Python function that prints the following pattern- (5)

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

(b) Write a Python function that multiplies two positive number a and b using recursion and returns the result. (5)

7. (a) Write a Python program to create a tuple t1 and divide it in to tuples t2 and t3 so that t2 contains even numbers and t3 contains odd numbers of t1. (4)

For example: Given tuple t1 = (1,2,3,4,5,6,7,8,9,10), resultant tuples are t2 = (2,4,6,8,10) and t3 = (1,3,5,7,9).

(b) Define a function maxSum(List1), which takes as an argument a list of lists of numbers. The function calculates the sum of elements in each list and returns the largest sum. (6)

For example, if List1 = [[1, 4, 0, 2], [2, 5, 1, 3], [3, 6, 2, 4]], the sums of elements of each list is 7, 11 and 15. It returns the maximum value 15.