

[This question paper contains 12 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 974

**G**

Unique Paper Code : 2342201102

Name of the Paper : A1 – Programming  
Fundamentals using Python

Name of the Course : **B.A. Program**

Semester : I

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 four** questions from **Section B**.
4. Parts of a question must be answered together.

**Section A**

**(Compulsory)**

1. (a) List one similarity and one difference between List and Dictionary data type. (2)

(b) What will be the output of the following code?

(2)

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

```
print (a [ :5])
```

(c) What are mutable and immutable data types in python? Write two examples of each. (3)

(d) What is the value of sum after the execution of the following code? (2)

```
sum = 0
```

```
for i in range (0,18,3):
```

```
    if i%6 == 0:
```

```
        sum = sum + 1
```

```
print(sum)
```

(e) Indicate the error (if any) in the given statement

(2)

```
str = "Hello Python"
```

```
str[5] = "T"
```

(f) Explain the use of following strings module functions briefly : (3)

(i) isalpha()

(ii) swapcase()

(iii) split ()

(g) Draw a flowchart to find the sum of the first 10 natural numbers. (3)

(h) Write and explain any 4 data types used in python with suitable examples of each. (4)

(i) Write the output of the following statements: (5)

(i) name = "Kavita"

print("hello", name, "2+2 is", 2+2)

(ii) print(max(59, 80, 95.6, 33))

(iii) print(min ("hello", "how", "are", "you", "Sir"))

(iv) print("978" + "34")

(v) print((eval("93 + 8")))

- Q) What do you understand about Syntax errors and Semantics errors? Explain these with suitable examples. (4)

### Section – B

2. (a) Perform the following operations on the list given below and write the output of each. (4)

```
list1 = ["Red", "Green"]
```

```
list2 = [10, 20, 30]
```

- (i) `list2 * 2`
- (ii) `print(list1+["Blue"])`
- (iii) `len(list1)`
- (iv) `list2[-1]`
- (v) `list2[0:2]`
- (vi) `min(list2)`
- (vii) `sum(list2)`
- (viii) `40 in list2`



(b) Write a python program to calculate the area of a rectangle, sides of the rectangle should be entered by the user using the built-in input function. Also, validate user entered data before calculating the area. (5)

(c) Rewrite the following code segment using while loop (6)

```
(i) total = 0
    for count in range (1, 21) :
        total +=count
    print(total)
```

```
(ii) import math
    total = 0
    for count in range(1,11,3):
        total += math.pow(count, 2)
    print(total)
```

3. (a) Give the output of the following code segments: (6)

(i) total = 0

count = 20

while count > 5:

total += count

count -= 1

print(total)

(ii) i = 20

if(i == 10):

print("The value of i is 10")

elif(i==15):

print("The value of i is 15")

elif(i==20):

print("The value of i is 20")

else:

print("i is not present")

(iii) sum = 0

for i in range (0,18,3):

if i%6 == 0:

sum= sum + 1

print(sum)

(b) A dictionary named 'Grades' is created as

```
Grades = {"Sahil":90, "Abhijeet":65, "Garima": 38}
```

What do the following statements do? (6)

(i) `print(Grades.keys())`

(ii) `print(Grades.values())`

(iii) `print(len(Grades))`

(iv) `Grades ["Kuruss"] = 99)`

(v) `print (Grades.items())`

(c) What is the use of the `format()` function? Explain with the help of suitable examples. (3)

4. (a) Differentiate between "continue", "pass" and "break" statements in python with suitable examples of each. (3+3)

Write the output of the following code segment

for letter in "statement":

```
    if letter == "m":
```

```
        continue
```

```
    print("Current letter:", letter)
```

(b) Write a function `Printdict()` that prints a dictionary where the keys are numbers between 1 and 5 and the values are cubes of the keys. (5)

(c) Show the output of the following code. (4)

```
S1 = {"A","B","C"}
```

```
S2 = {"C","D","E"}
```

(i) `print(S1.union(S2))`

(ii) `print(S1.intersection(S2))`

(iii) `print (S1.difference(S2))`

(iv) `print (S1.symmetric_difference(S2))`

5. (a) Write a Python function `smallerXY(X, Y)` that accept two integers `X` and `Y` and returns the smaller of two. Write another function `smallerXYZ (X, Y, Z)` that uses the function `smallerXY` to find a minimum of three numbers `X`, `Y`, `Z`. (5)



(b) What do you mean by the scope of a variable?  
Differentiate between local and global scope of variables with suitable examples of each. (5)

(c) Evaluate the following expressions involving arithmetic operators : (5)

(i)  $-7 * 20 + 8 / 16 * 2 + 54$

(ii)  $7 ** 2 // 9 \% 3$

(iii)  $(7 - 4 * 2) * 10 / 5 ** 2 + 15$

(iv)  $5 \% 10 + 10 - 25 * 8 // 5$

(v)  $'hello' * 2 - 5$

6. (a) Write a Program to Prompt for a Score between 50 and 100. If the Score is out of range, raise an appropriate exception. If the score is between 50 and 100, print a grade using the table given below. (8)

Score	Grade
$\geq 90$	"A"
$\geq 80$	"B"
$\geq 70$	"C"
$\geq 60$	"D"
$< 60$	"E"

- (b) Write the output of the following functions on the given string : (7)

s= " This is an online Gaming Platform"

print(s.lower())

print(s.count("i"))

print(s.find("o"))

print(s.rfind("o"))

print(s.split("an"))

print(s.swapcase())

print(s.capitalize())

7. (a) Evaluate the following expressions : (5)

(i) `d=dict()`

`for x in range (1,10+1):`

`d[x]=x**2`

`print(d)`

(ii) `a = (24 ** 2 // 4 % 25 / 19 * 8)`

`b = (4 << 8 >> 2)`

`print(a)`

`print(b)`

(iii) `t1 = (42, 36, 50)`

`t1= t1 + (18, 23, 5)`

`print(t1)`

(iv) `print (4.00 / (2.0 + 2.0))`

(v) `x = 2+9* ((3*12) - 8) / 10`

`print(x)`

(b) Write a Python function `fact(n)` that returns the factorial of a number (e.g.: Factorial of number 5, is 5! where  $5! = 5*4*3*2*1$  i.e., 120). Take n as input from the user. (5)

- (c) Write a program to calculate the area of a circle using the formula : (5)

Area of Circle =  $\pi * (r)^2$ ; use `math.pi` to calculate the area of the circle.