[This question paper contains 8 printed pages.]

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Your Roll No.....

Sr. No. of Question Paper : 1140 **D**

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 : 90

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) Using suitable example, explain the use of below python built-in functions (5)

P.T.O.

(i) eval ()

(ii) type ()

(iii) set ()

(iv) dir ()

(v) strip ()

(b) Find the output of below code, in case of errors explain the problem (5)

(i)
```
K = 13 + 5 ** 2 - 21 / 7
print(K)
```

(ii)
```
Z = 3
X, Y = Z, 5
X, Y = Y, X
print("X= ", X, ", Y= ", Y)
```

(iii)
```
Var1 = 17
Var1 //= 7
print('Python ' * Var1)
```

(iv)
```
s1 = "Python Programming"
print(s1[0], s1[-1], s1[-18])
```

(v)
```
for i in range (1, 11, 2) :
    print(i ** 2)
```

(c) Write a python program using nested loops that prints the following pattern (for n = 7 rows).

Take the number of rows n as an input from the user. (5)

```
* *
* * * *
* * * * * *
* * * * * * * *
* * * * * *
* * * *
* *
```

(d) Write three differences between **list** and **tuple** data structure used in python. (3)

(e) Write a python function findMax(), that take two integer parameters and return the maximum of the both numbers. (3)

(f) With the help of suitable examples, explain the use of **try** and **except** blocks used in python for error handling. (3)

(g) Explain the use of following strings module functions using suitable example (3)

(i) isdigit ()

(ii) swapcase ()

(iii) split ()

(h) What are mutable and immutable objects in python? Create a dictionary data type object and explain why it is mutable? (3)

Section B

2. (a) When should we use **set** data structure? Show any two built-in functions used for **set** data type. (5)

(b) Given a list L1 = [22, 11, 88, 55, 23, 60, 70]. Write Python code to perform following task : (10)

(i) Sort the list L1 in descending order

(ii) Remove element '55' from the list L1

(iii) Write code to print alternate elements of list L1

(iv) Print the given list L1 in reverse order

(v) Find the sum of all element present in the list L1

3. (a) With the help of suitable examples define a dictionary object and explain the purpose of **items**() and **values**() methods used for dictionary objects. (5)

(b) Write the output that will be produced after execution of the following code segments, identify errors if present. (10)

(i)
```
x=3
y=2
if x>2:
```

```
if y>2:
    z = x + y
    print("Z is: " , z)
else:
    print("x is: ", x)
```

(ii)
```
for i in range (1, 5) :
    j = 0
    while j<i :
        print(j, end=" ")
        j += 1
```

(iii)
```
d={'Name' : 'Komal',  'Age':7}
print(d.get('Name'))
d['address']='delhi'
print(d.keys () )
```

(iv)
```
print("Python"[: :–1])
```

(v)
```
print(list('Goodbye'))
```

4. (a) What are the features of set data structure? Consider the following two sets: (5)

```
x = set(["green", "blue", "yellow", "red"])
y = set(["blue", "yellow", "pink", "orange"])
```

Perform the following tasks :

(i) Find the union of both sets x and y

(ii) Perform the intersection of both sets x and y

(iii) Perform the Difference of both sets (x – y)

(b) Write a menu driven python program using user defined functions to perform following tasks : (10)

(i) Create a function to compute area of **square**, function should take one parameter for length of a side of square

(ii) Create a function to compute the area of the rectangle; this function should take two parameters, length and width of the rectangle.

(iii) Create a function to compute the area of the circle; this function should take the parameter radius of the circle.

(iv) All the three functions created above should take the user choice and based on the user choice, a respected function should be executed.

5. (a) What will be the output of following code segments (5)

(i)
```
num = 0
while num < 20 :
    num += 3
    print(num, end= ',')
```

(ii) for i in range (1, 11, 2):

```
print(' 3 x ' , i , ' = ', 3 * i )
```

(b) For the given string testStr = "Programming is fun", perform the following tasks using built-in functions (10)

(i) Print the string in reverse order

(ii) Print the alternate character present in testStr

(iii) Replace the word 'fun' with 'easy' and print the new string

(iv) Using len() function, print the middle character present in testStr string

(v) Print the substring starting from character 7 to 16

6. (a) Write a python program to print the below series, and sum of the series. Number of terms should be taken from the user.

1, 1/2, 1/4, 1/8 .... up to n terms (5)

(b) Write a python program to compute the area of a triangle using math library functions. Formula to compute area is given as

$$\sqrt{s(s-a)(s-b)(s-c)}$$

where a, b and c are the three sides of triangle and s = (a + b + c)/2

Also, **raise Exception** if sum of any two sides is less than third side. (10)

7. (a) Identify valid and invalid identifiers as given below, state the reason of invalid identifiers (5)

(i) #ofObjets

(ii) No of elements

(iii) 4List

(iv) studentEmail

(v) continue

(b) Find the output of the following python program, in case of error, correct the code. (5)

```
str1 = "Python is fun"
str2 = "I like Python"
for i in str1:
    if i in str2:
        print(i, end=" ")
```

(c) Given a tuple t1 = (12, 17, 22, 13, 71, 47, 9, 66, 38, 74), write python code to perform the following tasks

(i) Print all odd number present in the tuple t1

(ii) Print first half of the elements present in the tuple t1 (5)