This question paper contains 7 printed pages]

Roll No. | | | | | | | | | | | |

3/12/18 (E)

S. No. of Question Paper : **1367**

Unique Paper Code : **62347502** **I**

Name of the Paper : **Programming with Python**

Name of the Course : **B.A. (Programme) Computer Application : DSE-1**

Semester : **V**

Duration : **3 Hours** Maximum Marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Question No. **1** is compulsory.

Attempt any **5** of Question Nos. **2** to **8**.

Parts of a question must be answered together.

1. (*a*) Which of the following is an *invalid* name ? 3

(*i*) `my_string_1`
(*ii*) `2nd_string`
(*iii*) `foo`
(*iv*) `__init__`
(*v*) `in`
(*vi*) `it`

(*b*) Which of the following is an *invalid* statement ? 1

(*i*) `abc = 1,000,000`
(*ii*) `a b c = 1000 2000 3000`
(*iii*) `a,b,c = 1000, 2000, 3000`
(*iv*) `a_b_c = 1,000,000`

(c) What is the output of the following code segments ? 6

(i)
```
x = 'abcd'
for i in range(len(x)):
    x = 'a'
    print(x)
```

(ii)
```
i = 1
while True:
    if i%007 == 0:
        break
    print(i)
    i += 1
```

(iii)
```
def foo(k):
    k[0] = 1
q = [0]
foo(q)
print(q)
```

(d) What is the output of the following Python code fragment ? Justify your answer : 3

(i)
```
weekdays =
['sun','mon','tue','wed','thu',
'fri','sun','mon','mon']
print(weekdays.count('mon'))
```

(ii)
```
weekdays =
['sun','mon','tue','wed','thu','fri',
 'sun','mon','mon']
print([[x,weekdays.count(x)] for x in
set(weekdays)])
```


(e) Translate the following `while` loop into a `for` loop : 3

```
i = 20
while (i > 0):
    print "i = ", i
i =- 1
```

(f) Rectify the error (if any) in the given statements : 2

```
>>> str= "Hello Python"
>>> str[6]= "S"
```

(g) Under what conditions is binary search used ? Give the outline of binary search algorithm. Given : 7

```
testlist=[0,1,2,8,13,17,19,32,42],
```

Illutsrate the operation of the binary search algorithm to search for the number 13.

2. What is the output of the following code segments ? 10

(i)
```
class test:
    def __init__(self,a="Hello World"):
        self.a=a

    def display(self):
        print(self.a)
obj=test()
obj.display()
```

(*ii*)
```
class test:
    def __init__(self,a):
        self.a=a

    def display(self):
        print(self.a)
obj=test()
obj.display()
```

(*iii*)
```
def power(x, y=2):
    r = 1
    for i in range(y):
        r = r * x
        return r
print power(3)
print power(3, 3)
```

(*iv*)
```
x = 2
for i in range(x):
    x -= 2
    print (x)
```

(*v*)
```
i = 0
while i < 3:
    print(i)
    i += 1
else:
    print(0)
```

3. (*a*) For the given array `arr = [1,2,4,3]`, apply bubble sort algorithm to sort the array elements and also show the modified list after each iteration. 5

(b) What is a queue ? Write a Python code to create an empty queue. Initialize front and rear suitably. 5

4. What will be the output of the applying the following list Functions on list given below ? 10

```
L1=[1, 3, 2, 12, 2, 4, 3]
L.append(10)
L.count(2)
L.index(12)
L.insert(2,15)
L.remove(2)
```

5. (*a*) Write a function to compute the following series : 3

$Sum=1+1/2^2+1/3^2+...+1/n^2$

(*b*) Evaluate the following expressions : 3

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

(*ii*) `5%10+10-25*8//5`

(*iii*) `10+6*2**2!=9//4-3 and 29>=29/9`

(*c*) What will be the output of the following code segment ? 4

```
for letter in 'geeksforgeeks':
    if letter == 'e' or letter == 's':
        continue
    print 'Current Letter :', letter
```

6. (*a*) Write the output of the following code segments : 5

(*i*)

```
for letter in 'geeksforgeeks':
    if letter == 'e' or letter == 's':
        break
print 'Current Letter :', letter
```

....).

(*ii*)

```
def myfunc(a):
    a = a + 2
    a = a * 2
    return a
print myfunc(2)
```

(*b*) Write a python function to find the sum of all the numbers provided by the user as the input. [5]

7. (*a*) Differentiate between type conversion and type coercion with the help of an example. [5]

(*b*) What will be the output the following code ? [5]

```
def f(x,l=[]):
    for i in range(x):
        l.append(i*i)
    print(l)

f(2)
f(3,[3,2,1])
f(3)
```

8. (*a*) Write the output of the following python code : 5

```
lis = [1, 2, 3]
lis1 = [4, 5, 6]
lis2= lis + lis1
print ('list after concatenation is')
for i in range(0,len(lis2)):
        print (lis2[i]),
print ("\r")
lis3 = lis * 3
print ('list after combining is')
for i in range(0,len(lis3)):
        print (lis3[i]),
```


(*b*) Write output of the following python code : 5

(*i*)

```
x = "Welcome to GeeksforGeeks"
print x[2:5]
print x[4:10:2]
print x[-5:-3]
```

(*ii*)

```
i = 0
while i < 5:
    print(i)
    i += 1
    if i == 3:
        break
else:
    print(0)
```