MM: 70   TIME:03:00 HRS

Q.1	a)	What are functional components of a CPU	1
	b)	Which of the following Operating systems is used in Mobiles: Unix, Android, Solaris, Windows	2
	c)	Why ROM is required for the computer	2
Q.2	a)	Write any two features of Python programming language.	2
	b)	How is interactive mode different from script mode in python programming?	2
	c)	What will be the output of the following print statement: print("Object\noriented\nprogramming\t in python")	2
	d)	What are python keywords? Which of the following are python keywords: False, Import, strig,break	2
Q.3	a)	What will be the output of the following python statements? a,b,c = 1,4,2 a,c,b = b+1, a+2, c-1 print(a,b,c) print(a+b//c**2)	3
	b)	What are comments in a python program? Write a comment statement of your own	1
	c)	Write the answer of the following expression with justification. print(-20%4)	2
	d)	Which of the following are not valid python variable names? Justify your answers	2

      i)   _MyProg
      ii)   10DowningStreet
      iii)   True
      iv)   Or

Q.4	a)	Write a python program to find the area and perimeter of a rectangle by accepting inputs of length and breadth from user.	2
	b)	Write a python program to accept age of a person from user and check whether he has completed 18 years or more. If yes print 'Eligible for Voting' or else print 'A Minor'	3
	c)	Write a python program to find the largest of three numbers accepted as input from user.	4
	d)	Draw a decision tree to implement the following scenario: A student can offer Science, Commerce or Humanities if he has scored 60% or more in qualifying exam. He can offer Commerce or Humanities if he has scored between 55% to less than 60%. He can offer Humanities if he has secured between 33% to less than 55%. He cannot seek admission if he has failed.	4
Q.5	a)	Draw a flow chart to solve the problem of finding the factorial of a number. (Product of numbers from 1 to a given limit)	4

b) What will be the output of the following: 2

```
x = 1
y = 5
sum = 10
for i in range(1,y+1,2):
    sum = sum + x
    x=x+1
print(prod)
```

c) What will be the output of the following: 2

```
m,n=40,20
while m>n:
    m = m % 7
    n = n//2
print(m,n)
```

d) Re-write the following program using for while 2

```
sum = 0
for x in range(10):
    sum = sum + x**2
print(sum)
```

e) Write a python program to check whether an input number is prime or not. 4

f) Re-write the following program after removing errors. Also underline the corrections made. 2

```
n = 10
ams = 0
for i in (n+1)
    ams=ams + sqrt(i)
print(ams)
```

Q.6 a) What will be the output of the following for the given list: 2

```
m = [1,2,3,4,5]
    i)      print(m[::-1])
    ii)     print(m.pop())
```

b) Write a python program to reverse a list of integers without using the reverse() function 3

c) Write a python script to count the frequency of integers stored in a list using a dictionary. 3

Example:

For the given list

lst = [10,12,10,11,10,14,12,12,14]

The output should be

{10: 3, 12: 3, 11: 1, 14: 2}

d) With suitable example distinguish between pop() and popitem() functions in a dictionary. 2

e) What will be the output of the following python statements 2

```
d = {x:len(x) for x in ['Apple', 'Guava', 'Pineapple']}
print(d)
```

Q.7 a)   What will be the output of the following: 1

```
st = '''My name is
Sunil Sharma'''
print(len(st))
st = 'My name is\
Ashok Sengupta'
print(len(st))
```

b)   Write a program to accept a string from an user and count the number of alphabets, digits and special characters in the string   3

c)   What will be the output of the following python print statements for the string str = 'SUNDEW' :   2
     i)   print(str*2)
     ii)   print(str[-4:-1])

d)   Explain the difference between the following statements   2
     i)   import math
     ii)   from math import sqrt