MCA, Semester I

Department of Computer Science

MCAC-101 Object Oriented Programming

Minor Exam, Feb-2021 (SET-A)

Max marks: 25

Max time: 1Hours + 10minutes for Scanning and uploading answers

Instructions:

1. All questions are compulsory.
2. It has two sections:
    a. Section-A contains five questions and each carries 3 marks.
    b. Section-B contains one questions and is of 10 marks.

Section-A **(5 x 3 = 15)**

1. Write down the output of the following code and Modify the code to find reverse of a number.

```
def rev(num):
  if(num%10==0):
     return
  else:
      return rev(num/10)
```

2. Write a function to accept 'n' positive numbers from the user and returns the second highest number.

3. A number is said to be perfect if it is equal to the sum of all numbers which are its factors (excluding itself). So, for example, 6 is a perfect number, because, it is the sum of its factors (1, 2, 3). Write a function 'checkPerfect()' with appropriate parameters to print the factors of the number and whether the number is perfect or not. Accept the number from the user in the 'main()' function.

4. Find the output of the following code, Mention any type of error, if any.

```
def lottery(x):
  hash_x=int(x*7/2%10)
  def yourPrize(x):
    if x>=15:
      prize= "Prize Money: $10K "
    if x>=10:
      prize= "Prize Money: $5K"
    if x>=5:
      prize= "Prize Money: $1K"
    if x>=1:
      prize= "Prize Money: $50"
    else:
      prize= "Sorry, Better Luck next-time"
    return prize

  return yourPrize(hash_x)

for i in range(1,6):
  print(lottery(i))
```

5. Find the output of the following code, Mention any type of error, if any.

```
a=[0]*10
b=[0]*10
c=[0]*10
a[0] = 1
b[0] = 1
c[0] = 1
for i in range(1,5):
   a[i] = b[i-1]
   b[i] = a[i-1] + b[i-1]
   c[i]=a[i-1]*b[i-1]

print(a)
print(b)
print(c)
```

Section-B **(10 x 1 = 10)**

6. Write down the following functions:

a) Read a text file containing list of numbers separated by comma.
b) To "sort" positive integers in increasing order by looking only at the least significant two digits of each element (in decimal representation).
   Thus, if file contains values 105, 309, 415, 601, then the sorted (in increasing order) array should be 601, 105, 309, 415.
c) Write the output in a file named "sorted.txt"

NOTE: Take appropriate precautions to avoid runtime errors.