QUESTION 2

a) Write a python function linearSearch() to read an array and search for the key element. Display the appropriate messages. Use the recursive function

#Python program-4 linear search using recursive function

```
def linear_search(arr,key,size):
 if(size==0):
 return -1
 elif(arr[size -1]==key):
 return size -1
 else:
 return linear_search(arr,key,size-1)
arr=[10,20,30,40,50]
key=20
size=len(arr)
ans=linear_search(arr,key,size)
if(ans!=-1):
 print('The element',key,'is found at',ans,'index of the given array')
else:
 print('The element',key,'is not found')
```

OUTPUT-

The element 20 is found at 1 index of the given array

b)Write a python program to define a function max_of_three() that takes three numbers as arguments and returns the largest of them using default arguments

#Python program -5 to return largest of 3 numbers

```
def max_of_three(a,b,c):
 if(a>b and a>c):
```

```
 print(a,'Is The Largest Number')
 return
 elif(b>a and b>c):
 print(b,'Is The Largest Number')
 return
 else:
 print(c,'Is The Largest Number')
 return
a=int(input('Enter the value of a: '))
b=int(input('Enter the value of b: '))
c=int(input('Enter the value of c: '))
x=max_of_three(a,b,c)
print(x)
None
```

OUTPUT-

```
Enter the value of a: 500
Enter the value of b: 800
Enter the value of c: 600
800 Is The Largest Number
None
```

c)Write a python program to define a function generate_n_chars() that takes an integer n and a character c and returns a string, n characters long. For example, generate_n_chars(5,"x") should return the string "xxxxx“ using keyword only parameters.

```
#Python program-6 to generate n chars taking 2 parameters
def generate_n_chars(n,c,i):
 if(n==0):
```

```
 print('No output')
 return
 else:
 i=n*c
 print(i)
 return
c=input('Enter a character: ')
n=int(input('Enter number of times to generate character: '))
i=0
p=generate_n_chars(n,c,i)
print(p)
```

OUTPUT-

```
Enter a character: X
Enter number of times to generate character: 5
XXXXX
None
```