

Data Structures and Algorithms IT2070

Year two Semester two 2021

Online Examination

Sri Lanka Institute of Information Technology

Time: 20 minutes

Paper Number (20 marks)

Consider the following pseudocode to implement the python code:

```
Five(integer n)
Begin
    If n is zero or one Then
        Return n+100
    Else
        If n is divisible by 5 Then
            Return n(Five(integer n-1))
        Else
            Return (n-1)(Five(integer n-1))
        Endif
    Endif
End.
```

Sample input and output:

```
Enter value for n:10
50904000
Enter value for n:6
15150
Enter value for n:2
101
Enter value for n:-1
```

- Write a program in Python to read an integer from the keyboard for n.
- Develop a function in python named as Five and implement the above recursive algorithm.
- Pass the input number as parameter to the function developed and get the results of numbers as output given.
- Use the loop to run the program and display the correct output until user input -1.

Upload your answer using given in the course web link “Paper Number 2”

Grading Sheet:

- 1) Program is compiling. **2 marks**
- 2) Program is running successfully. **2 marks**
- 3) Program takes the input number as integer. **2 marks**
- 4) Correct implementation function. **6 marks**
- 5) Display the output correctly **2 marks**
- 6) Use of loop correctly **4 marks**
- 7) Include comments and properly indented. **2 marks**
- 8) Plagiarism testing tool results:

Answer:

```
#function starts here
def Five(n):
    if n==0 or n==1:
        return n+100
    elif n%5==0:
        return n*Five(n-1)
    else:
        return (n-1)*Five(n-1)

n=int(input('Enter value for n:'))

#Termination loop starts here
while(n!=-1):
    print(Five(n))
    n=int(input('Enter value for n:'))
```