University of Mauritius
Faculty of Engineering
Department of Computer Science and Engineering
CSE 1003 – Computer Programming
2010/2011- Semester 2

Labsheet 8 (Computing with Boolean**)**

Question 1
Write a program, which uses a post-test loop, to compute the sum of a series of numbers entered by the user.
The sum should be displayed when the user enters the value 0, i.e. zero.

Question 2
Modify the above program so that it rejects negative values, if entered by the user.

Question 3
The Fibonacci sequence starts 1, 1, 2, 3, 5, 8, ...
Each number in the sequence (after the first two) is the sum of the previous two.
Write a program that uses a post-test loop to compute the n^{th} Fibonacci number, where n is a value entered by the user.

Question 4:
Write a program that prints the following menu indefinitely until a 0, zero, is entered:

```
**********************************
********Counting in Maths*********
**********************************
1.Sum of first n counting numbers
2.Sum of first nth odd numbers
3.Number of division by two
0.Exit
**********************************
Enter choice:
```

For the other choices, i.e., from 1 to 3, the following is to be performed after requesting the user for the appropriate inputs:

Choice 1: Sum of the first n counting numbers: 1 + 2 + 3 + .. + n
Choice 2: Sum of the first n odd numbers: 1 + 3 + 5 + .. + n
Choice 3: The number of times a whole number can be divided by 2 (using integer division) before reaching 1.

You are also required to

(i) validate user inputs as necessary.
(ii) Make use of functions which are called based on the user's choice. The functions should use post-test loops as far as possible.

Question 5
Write the truth table that shows the (Boolean) value of each of the following Boolean expressions, for every possible combination of "input" values. (Hint: including columns for "intermediate" expressions is helpful.)

a) not (P and Q)
b) (not P) and Q
c) (not P) or (not Q)
d) (P and Q) or R
e) (P or R) and (Q or R)

Use the python interpreter to check.