Practical Assessment – Functions

Description

A mail-order house sells five products whose prices are as below:

Product 1	$2.98	Product 4	$4.49
Product 2	$4.50	Product 5	$7.86
Product 3	$9.98		

Write a C++ program that creates customers' bills for the mail-order house when the quantity of each product is given. The tax rate is 6% applied and it is also to be defined as a *constant*. The input data consists of a set of 5 integers representing the quantity of 5 products. The program is to prompt the use for the input as shown below. (Bold numbers are typical responses.)

```
Quantity of Product 1 ($ 2.98) : 2
Quantity of Product 2 ($ 4.50) : 10
Quantity of Product 3 ($ 9.98) : 0
Quantity of Product 4 ($ 4.49) : 5
Quantity of Product 5 ($ 7.86) : 0
```

The output is shown below. Be aware to align the decimal points.

```
                          CHARGES

DESCRIPTION       COST $          QUANTITY          CHARGE $
-----------       ------          --------          --------
Product 1          2.98               2               5.96
Product 2          4.50              10              45.00
Product 3          9.98               0               0.00
Product 4          4.49               5              22.45
Product 5          7.86               0               0.00

SUBTOTAL                                             73.41
TAX (6%)                                              4.40

TOTAL                                                77.81
```

The program's design should use `main` (*20 marks*) and at least the FIVE(5) functions described below:

a. Function 1: Read the quantities of FIVE(5) products from the keyboard. This function is to use addresses/references to read all data and place them in the calling function's variables. (*15 marks*)
b. Calculate values. This section consists of three sub-functions. Each function will return the respective value.
   - Function 2: Calculate the subtotal. (*10 marks*)
   - Function 3: Calculate the tax (*10 marks*)
   - Function 4: Calculate the total price with subtotal and tax. (*10 marks*)
c. Function 5: Print the result (the charges). (*25 marks*)

Note that *10 marks* are reserved for the presentation of the program, such as indent style, comments, and choice of variable and function names.

Submission

This is a practical assessment. You are allowed to refer to reference books and notes. However, **NO** *discussion* and **NO** *online access* (except WBLE) allowed during the practical session.

This practical assessment will be 2 hours. You have another 20 minutes to prepare your program and upload it to WBLE. There is a link created in WBLE subject page for you to submit source code of your program. The source code should have your name (e.g. **Tan Ah Kow.cpp**) and your name should also be included in the comments at the start of the source code file. You are required to upload the soft copy of your program by the deadline. Late submission will not be entertained.

In addition, prepare a report (preferable using word processing software) that contains print out of your program and sample output(s). Submit the report to your tutor on **Week 9** during your practical session. Do remember to attach marking sheet as the cover page of your report.

The total mark of this practical assessment is 100. The 100 marks will contribute 10% of your final mark. Your program will be marked for **correctness**, **programming style**, **adequate testing** and **documentation/comments**. It's your responsibility to understand the requirements of the task and prepare well for your submission. No mark will be given if the report is not received and marks will be deducted for late submissions.