Question 4 (20 marks)

This question is based on contents covered in Chapter 6, 12, and 15 of text.

Study the given information and answer the questions that follow:

Invoice ID	Sale Amount	Discount
1000	200.20	7%
2000	310.00	4.5%
3000	345.00	10.6%

(a) Write down a C++ record type, *purchaseType* for the above information. Write down the C++ declaration of a variable, *purchaseTable* to hold a table of 20 such records.

(2 marks)

(b) Write C++ statements to assign the last element of *purchaseTable* with the following data:

> InvoiceID : 1004
> Sale Amount : 450.00
> Discount : 6%

(3 marks)

(c) Write a function, *getInvoice* that takes in one argument, InvoiceID and returns the index of the invoice if it is in the list, otherwise it returns -1.

(5 marks)

(d) Write a main program that allows the user to enter the InvoiceID and called the function *getInvoice* to find if it is in the list. When it is found, the program calculates the final sales amount using the following formula:

final Sales Amount = (1-Discount/100) * final Sales Amount

If the InvoiceID is valid, the invoice details and the final sales amount are displayed. If the invoiceID is not in the list, write out appropriate message to inform the user. When the user enters 'S', the program terminates.

(10 marks)

Question 5 (15 marks)

This question is based on contents covered in Chapter 6 of text.

Write C++ definitions – heading and function body – for the functions specified below:

(a)   bool testRemainer(int x, int y)

The function takes in two integer numbers and calculates if there is any remainder. If the remainder is non-zero, returns true, otherwise returns false.

(7 marks)

(b)   void changePlural(string inStr)

The function takes in a string variable which is a noun and returns its plural based on the following rules:

- If the noun ends in \y", remove the \y" and add \ies".
- If the noun ends in \s", \ch", or \sh", add \es".
- In all other cases, just add \s".

You may assume that the data is always correct, i.e. the string will always contain letters and is a noun.

(8 marks)