Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Department of Computer Science and Technology
100 level 1st Semester Examination – Jul./Aug. 2016
CST105-3 Structured Programming

Uva Wellassa University

**Part C**

**Instructions to candidates**
**Duration:** Two (02) hours
**Number of questions:** Four (04)
**Mark allocation:** 100
**Sensible comments and the readability of the code will be considered**
**Save your files in a zip folder with your index number and upload to the CMS**
**Removable storage devices are not allowed**

1. Write a C program for a wholesale shop that generates the daily balance sheet at the end of the day.

   Your program should be able to

   a. Get the daily sales amount (in rupees) from the user.

   (3 mark)

   b. Ask the number of notes of 5000, 2000, 1000,500,100,50,20,10 and the amount of coins in rupees in the cash drawer respectively and calculate the total amount.

   (7 mark)

   c. Generate the output according to the following criteria
      - If the daily sales tally with the cash in the drawer then print, 'Balanced'.
      - If the cash in the drawer is less than the daily sales, then calculate the shortage amount and print, 'There is a shortage of' with the shortage calculated.
      - If the cash in the drawer is greater than the daily sales, then calculate the excess amount and print, 'There is an extra amount of' with the excess amount calculated.

   (15 mark)

2. Write a C program to print the given patterns according to the user selection.
   a. Print the following menu and ask the user to select a pattern by entering the relevant number. For the invalid user selection, your program should print 'Invalid user input'.

   ********** Pattern Printer **********
   1. Square pattern
   2. Triangle pattern

   Enter your choice:

   (7 mark)





(10)

b. For the first selection (number 1), print the following pattern using nested for loop (five rows and five columns).

```
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

(8 mark)

c. For the second selection (number 2), print the following pattern using nested for loop (five rows).

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

(10 ma

3.

a. Write a C program to insert ten (10) numbers into an array and display the minimum and the maximum of the values entered.

(15 mark)

b. Modify the program by adding a function called 'findAverage' which takes the array created in 3 a. as an argument and print the average of the values.

(10 mark)

4. Write a C program to store book details in a text file called 'book_data.txt' using file handling.

a. Get the 'title', 'author' and 'price' of the book from the user respectively. (10 mark)

b. Append the details of the new book to 'book_data.txt' file.

(15 mark)