SOUTH EASTERN UNIVERSITY OF SRI LANKA
FIRST EXAMINATION IN BACHELOR OF INFORMATION AND COMMUNICATION TECHNOLOGY - 2016/2017
SEMESTER – I, SEPTEMBER / OCTOBER 2018

SWT 11012 - Fundamentals of Programming

Answer all Questions **Time: 02 hours.**

Question 01:

a) Identify and correct the errors in each of the following statements. (*Note:* There may be more than one error per statement.)

i. Scanf ("d", value);

ii. printf (**"The product of %d and %d is %d"**\n, x, y);

iii. firstNumber + secondNumber = sumOfNumbers

iv. printf("The value is %d\n", &number);

v. if (c < 7);{
printf("C is less than 7\n");
}

(05 Marks)

b) Write a single C statement or line that accomplishes each of the following:

i. Print the message "Enter two numbers."

ii. Assign the product of variables **b** and **c** to variable **a**.

iii. State that a program performs a sample payroll calculation (i.e., use text that helps to document a program).

iv. Input three integer values from the keyboard and place these values in int variables **a**, **b** and **c**.

v. Print the message "**This is a C program.**" with the words separated by tabs.

(05 Marks)

c) Copy each of the equation, State the order of evaluation of the operators in each of the following C statements and show the value of x after each statement is performed.

i. **x = 7 + 3 * 6 / 2 - 1;**

ii. **x = 2 % 2 + 2 * 2 - 2 / 2;**

iii. **x = (3 * 9 * (3 + (9 * 3 / (3))));**

(09 Marks)

d) State whether each of the following is **true** or **false**. If false, explain why.

i. Function **printf** always begins printing at the beginning of a new line.

ii. Comments cause the computer to print the text after the // on the screen when the program is executed.

iii. The escape sequence **\n** when used in a **printf** format control string causes the cursor to position to the beginning of the next line on the screen.

iv. All variables must be defined before they are used.

v. All variables must be given a type when they are defined.

vi. C considers the variables **number** and **NuMbEr** to be identical.

(06 Marks)

[Total 25 marks]

Question 02:

a) **Define** & **Differentiate** between the terms High level languages and Low level languages with a suitable examples.

(05 Marks)

b) Explain the meaning of the statements **given below.** (Hint: explain and draw the flow chart for each)

i. *If*

ii. *If-else*

iii. *Nested if – else*

iv. *Switch*

v. *do while*

(10 Marks)

c) Based on the below pseudo code, draw a flow chart.

1. Start
2. Enter Salary
3. Salary higher than 50000, then tax =25%
4. Find Net Salary (Net Salary = Salary – tax)
5. Find Annual Income
6. Print monthly salary and Annual Income
7. End

(10 Marks)

[Total 25 marks]

Question 03:

a) Write short notes about the looping statements with examples.

(09 Marks)

b) **Define** and **differentiate** an array and simple variable.

(06 Marks)

c) Write down the Structure of a **function** in **'C'** programing language and define each components of a function. **Define & differentiate** between Struct & function in C language.

(10 Marks)

[Total 25 marks]

Question 04:

Perform each of these steps for the following question

- Read the problem statement.
- Formulate the algorithm using pseudocode and top-down, stepwise refinement (write pseudocode).
- Write a C program (those operations must be written in separate functions, which is called on main).

Drivers are concerned with the mileage obtained by their automobiles. One driver has kept track of several tankful of gasoline by recording miles driven and gallons used for each tankful. Develop a program that will input the miles driven and gallons used for each tankful. The program should calculate and display the miles per gallon obtained for each tankful. After processing all input information, the program should calculate and print the combined miles per gallon obtained for all tankful. Here is a sample input/output dialog:

Enter the gallons used (-1 to end) : **12.8**
Enter the miles driven : **287**
The miles/gallon for this tank was 22.421875

Enter the gallons used (-1 to end) : **10.3**
Enter the miles driven: **200**
The miles/gallon for this tank was 19.417475

Enter the gallons used (-1 to end) : **5**
Enter the miles driven: **120**
The miles/gallon for this tank was 24.000000

Enter the gallons used (-1 to end) : **-1**

The overall average miles/gallon was 21.601423

[Total 25 marks]