16+17
~~Q1~~2

SOUTH EASTERN UNIVERSITY OF SRI LANKA

FIRST EXAMINATION IN BACHELOR OF INFORMATION AND COMMUNICATION TECHNOLOGY - 2016/2017

SEMESTER – I, SEPTEMBER/ OCTOBER 2018

SWT 11022 – Practical for Fundamentals of Programming

Answer all Questions. **Time: 03 hours**

- **Create a folder on Desktop with your index number.**
- **Take screenshot of final output for each question and save it as IndexNo_QNo.jpg.**
- **Save your program files and screenshots within the folder, you created.**
- **All answer files should be named as the instruction given on each question.**

Question 01:

a) You are requested to write a header file in C language to perform basic arithmetic operations. Implement the following functions in your header file to perform addition, subtraction, multiplication and division operations respectively. (Save your file as **IndexNo_arithmetic.h**)

i. add(int number1, int number2)
ii. sub(int number1, int number 2)
iii. mul(int number1, int number2)
iv. div(int number1, int number2)

(10 marks)

b) Implement the main function in a C program to perform the following tasks, by calling the functions that you have created in Question 1 (a). Save your program as **IndexNo_Q1_b.c**

i. Input five integer and store it in an array.
ii. Calculate the product (multiplication) of all input values.
iii. Find the sum of those five numbers.
iv. Calculate the mean of those five integers.

Hint: Mean = total / number of elements

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v. Find the deviation for each number.

Hint: Deviation[i] = number[i] – mean

vi. Finally, display the product, total, average and deviation of each number on the screen.

(30 marks)

[Total 40 marks]

Question 02:

You are requested to implement a student management system for department of ICT. Write a C program for the following requirements in your program. (Save your program as **IndexNo_Q2.c)**

- Define a structure **Student** with the following attributes.
  i. reg_no
  ii. name
  iii. age
  iv. marks (Hint: one dimensional array to store marks of five subjects)
  v. average
  vi. grade
- Implement separate functions to perform the following operations.
  i. Input the student registration number, name, age and marks for five subjects of a student.
  ii. Calculate the average marks of a student.
  iii. Find the grade of a student based on the average marks, using the following criteria.

  Hint: You can use the predefined function **strcpy()** to assign grade.

Average Marks	**Grade**
90 - 100	Merit
60 - 89	Distinction
45 - 59	Pass
0 - 44	Fail

  iv. Display all the details of a student.

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- Implement the **main** function to perform the following tasks.
    i. Input the details of three students.
    ii. Find the average and grade of each student.
    iii. Finally, display all the details of all three students.

Hint: You must take a pointer variable of type struct Student (struct Student *student) as a parameter for all the user defined functions.

[Total 60 marks]

*****END*****