UNIVERSITY OF MINES AND TECHNOLOGY, TARKWA

FIRST SEMESTER EXAMINATIONS, NOV/DEC. 2018

COURSE NO: MA-163
COURSE NAME: Introduction to programming with C++ (Practical)
CLASS: **MA I** **TIME:** 2

Name**:** _____Index Number: _____

Answer question 1 and any one of the two other questions

Questions 1 (20 marks)

(Computer-Assisted Instruction) The use of computers in education is referred to as computer-assisted instruction (CAI). Write a program that will help an elementary school student learn basic arithmetic operations. Use the rand function to produce two positive one-digit integers. Create a function for addition, subtraction and multiplication and pass the two random integers as the function parameters. Structure the application to allow the user to pick a type of arithmetic problem to study. An option of 1 means addition problems only, 2 means subtraction problems only and 3 means multiplication problems only. The program should then prompt the user with a question by calling any the selected arithmetic option. The student then inputs the answer. Next, the program checks the student's answer. If it's correct, display possible messages such as ***"Excellent!"*** and ask another arithmetic question. If the answer is wrong, display the message "No. Please try again." and let the student try the same question repeatedly until the student finally gets it right.

Questions 2 (10 marks)

Write a C++ program to hold the grades of UMaT student using the data below.

Student ID	C++ Grade (3 credit)	Linear Algebra (3 credit)	Calculus (2 credit)	Basic Electronics (2 credit)
10001	65	75	78	89
10002	78	40	79	45
10003	89	75	44	89
10004	87	74	98	45
10005	98	23	57	67

i. Create a two dimensional arrays with name student Data to hold the data in the table above.
ii. Ask the user to enter a student ID
iii. Display student grades as per the module registered with respect to the ID entered.
iv. Create a function to calculate the CWA of the student ID entered [Cumulated Weighted Average (CWA)= summation of (each module score * corresponding credit hour)/total credit hours]

v. Create a function to specify the division of the student based on the returned CWA by the function created in 'iv'. Call this function within you main function to obtain an output such as the one shown below.
[Use the display below as a guide]

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Enter student Id: 1002
Result For Student No: 1002
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C++ : 85
Linear Algebria: 65
Basic Machanic: 99
TD: 83
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CWA: 81.5455
Student Division: First Class


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Question 3 (10 marks)

Write a program which allows a user to enter a single-dimensional array of 10 elements from the keyboard, prints out the array and gives the following information:

I. The total number of negative elements entered;

II. The total number of positive elements entered;

III. The total number of zeros among the elements entered.

(Try you application with the following value:-15,-4,10,87,7,34,0,34,-6,0)

Examiners: R.K Annan/T. Kwantwi