



# UNIVERSITY OF MINES AND TECHNOLOGY, TARKWA

## FIRST SEMESTER EXAMINATIONS, NOV/DEC. 2018

**COURSE NO:** CE-163

[Unihubgh.com](http://Unihubgh.com)

**COURSE NAME:** Procedural Programming with C++ (Practicals)

**CLASS:** CE I

**TIME:** 2 HOURS

Name: \_\_\_\_\_ Index Number: \_\_\_\_\_

*Answer question 1 and any of one the two other questions*

### **Question 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. The program should then prompt the user with a question by randomly calling any of the arithmetic functions. 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. Any of the functions should be called randomly once when the application begins execution and each time the user answers the question correctly.

### **Question 2 (10 marks)**

The UMaT grading system is described briefly as follows:

If a student's Examination score is less than 50, the grade is F. If the score is equal to or greater than 50 but less than 60, the grade is D. Any student who scores 60 or more but less than 70 get the grade C. A student is assigned grade B if he scores greater than or equal to 70 but less than 80. Any student who scores 80 or more gets grade A.

Write a program in C++ which takes a student's mark in the range of 0 to 100 and suggests if the mark corresponds to grade A, B, C, D, or F.

### **Question 3 (10 marks)**

(UMaT Facts Quiz) The debate on how much UMaT's students know of its history has been long running. The university spends money to provide students with a guide which has some history about the institution; but how many read? To ascertain the speculations of this debate we want to use our C++ knowledge to develop a UMaT Facts Quiz game application which would test

students history knowledge of the university. The game would use a five-question multiple choice quiz on UMaT history; and each question having four possible answers (numbered 1–4) as shown below.

Q1. UMaT started as Tarkwa Technical Institute in which year?

1. 1952                    2. 1962   3.1852                    4.1862

Q2. UMaT was officially commissioned by Government of Ghana more precisely by His Excellence Sir Noble Arden Clarke on 7<sup>th</sup> Otober.....

1. 1963                    2.1953                    3.1853                    4.1962

Q3. In which year was Tarkwa Technical Institute recognized as Tarkwa School of Mines?.....

1. 1962                    2.1952                    3.1961                    4.1953

Q4. In which year was the name Tarkwa School of Mines changed to KNUST- Tarkwa School of Mines?.....

1. 1967                    2.1957                    3.1976                    4.1987

Q5. When did the Parliament of the Republic of Ghana pass the bill UMaT into an Act of Parliament? It was on the 11<sup>th</sup> of November.....

1. 2005                    2.2003                    3.2006                    4.2004

Next, write an application that administers the quiz, calculates the number of correct answers (zero through five) and returns a message to the user. If the user correctly answers five questions, print “Excellent”; if four, print “Very good”; if three or fewer, print “Time to brush up on your knowledge of UMaT’s History”. [*Note: The correct answers have been underlined for coding the application. The answers should not be shown to the game user at run-time*]

**Examiners: R.K Annan/T. Kwantwi**