THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

MAIN EXAMINATION

JANUARY – APRIL 2015 TRIMESTER
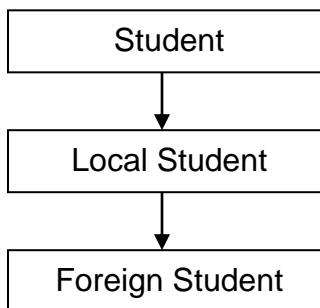
FACULTY OF SCIENCE

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

REGULAR PROGRAMME

CMT 204: OBJECT ORIENTED PROGRAMMING I LAB

Date: APRIL 2015	Duration: 2 Hours
Instructions: Answer Question ONE and any other TWO Questions.	

Q1.   Consider a class that has two different categories of students i.e. local students and foreign students. Suppose foreign students are forced to do Kiswahili in addition to Maths, English, Geography and Biology that are a must for all students while local students are exempted form the subject. Using the concept of inheritance, write a program in C++ to capture marks for these students and display the relevant details plus the total mark. The figure that follows shows the inheritance hierarchy.

```
        ┌─────────────────┐
        │     Student     │
        └─────────────────┘
                 │
                 ▼
        ┌─────────────────┐
        │  Local Student  │
        └─────────────────┘
                 │
                 ▼
        ┌─────────────────┐
        │ Foreign Student │
        └─────────────────┘
```

Q2.   Using the concept of array of objects write a C++ program that captures names and ages of five students in a class and displays the same on the console.

(20 marks)

ISO 9001:2008 Certified by the Kenya Bureau of Standards

Q3. Write a C++ program that uses the concept of class to compute the amount a obtained after charging compound interest on a principal p at the rate of r% per annum after n years.

$$a = p\left(1 + \frac{r}{100}\right)^n$$ **(20 Marks)**

END