THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

136/1

COMPUTER SCIENCE 1
(For Both Schools and Private Candidates)

Time: 3 Hours **Thursday, 14th May 2015 a.m.**

Instructions

1. This paper consists of **thirteen (13)** questions from sections A and B.
2. Answer **all** questions in section A and any **two (2)** questions from section B.
3. Cellular phones are **not** allowed in the examination room.
4. Write your **Examination Number** on every page of your answer booklets.

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SECTION A (60 Marks)

Answer **all** questions in this section.

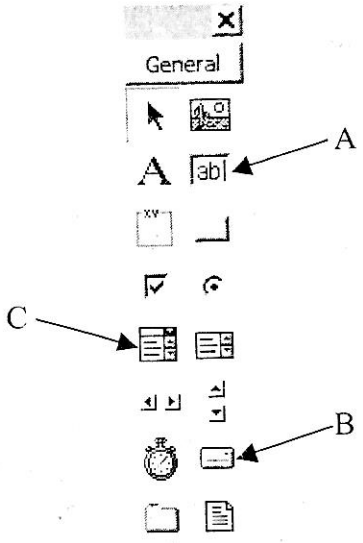
1. (a) Explain the function of each component of Central Processing Unit. **(3 marks)**
   (b) State six steps required to insert automatically a table of contents in Microsoft word document. **(3 marks)**

2. (a) Differentiate Multiplexer from Demultiplexer. **(2 marks)**
   (b) State and use Boolean laws of algebra to simplify the following Boolean expression:
   $F(x, y, z) = xy + \bar{x}z + yz$ **(4 marks)**

3. Identify three types of computer networks and in each state three characteristics. **(6 marks)**

4. (a) Explain three main steps required to create an application in Visual Basic programming. **(3 marks)**

   (b) Name and give the function of the controls A, B and C in the figure below:



(3 marks)

5. (a) (i) What is the effect that someone is likely to see when a piece of code system("pause"); has not been included in any C++ program and command prompt is not considered? **(1 mark)**

   (ii) With an example, explain how you can declare logical variables in C++ programming language. **(2 marks)**

   (b) Identify all errors from the following program which can prevent it from creating corresponding executable file.

```
#include <math>
using namespace std;
main()
{
width; Length;
cout<< "Enter width"<<endl;
```

```
cin>>width;
cout<< "Enter length"<<endl;
cin>>length;
area=width x length;
cout<<Area<<endl;
system("Pause")
return 0;
}
```

(3 marks)

6. (a) Give four characteristics of the First Normal Form (1NF). **(2 marks)**
   (b) With two examples, explain the concept of functional dependencies. **(4 marks)**

7. (a) Define the term problem solving. **(1 mark)**
   (b) Design an algorithm in pseudocode that reads an integer "n" from the keyboard, then compute and display the sum of integers (1+2+….+ n) on the screen. If "n" is less than 0, the program displays "Error in input". Hence use the algorithm to find the sum when n=5. **(5 marks)**

8. (a) Explain the significance of HTML form. **(2 marks)**
   (b) Write HTML codes which generate the output below:

Contact information:

Name: E-mail:

(4 marks)

9. Mwenge Savings Society (MSS) pays 10% interest on shares exceeding 1,000,000 shillings and 3% paid on shares that do not meet this target. However no interest is paid on deposits in the member's bank account. Design an algorithm (flowchart) for a program that would:
   (a) Prompt the user for shares and deposit of a particular member.
   (b) Calculate the interest and total savings.
   (c) Display the interest and total savings on the screen for a particular member of the society. **(6 marks)**

10. (a) Describe the basic ideas of intellectual property and copyright. **(3 marks)**
    (b) Explain the open source and non-open source software. **(3 marks)**

SECTION B (40 Marks)

Answer **two (2)** questions from this section.

11. Describe three advantages and one disadvantage of dynamic data structure over static data structure. **(20 marks)**

12. Program design aims at producing good software. Describe six characteristics of a good software. **(20 marks)**

13. Describe five generations of programming languages. **(20 marks)**