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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.

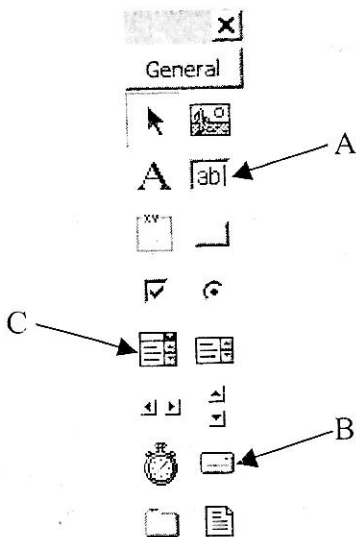
Instructions

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.

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: (4 marks)
$$F(x, y, z) = xy + \bar{x}z + yz$$
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)**