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

136/1 **COMPUTER SCIENCE 1**
(For Both Schools and Private Candidates)

Time: 3 Hours **Year : 2021**

Instructions

1. This paper consists of sections A and B with a total of **ten (10)** questions.
2. Answer **all** questions in section A and **two (2)** questions from section B.
3. Section A carries **seventy (70)** marks and section B carries **thirty (30)** marks.
4. Cellular phones and any unauthorised materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).



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SECTION A (70 Marks)

Answer **all** questions in this section.

1. (a) Differentiate utility software from operating system. **(2 marks)**
   (b) State four factors to be considered when choosing an operating system. **(4 marks)**
   (c) Describe four functions of control unit in the Central Processing Unit (CPU). **(4 marks)**

2. (a) Explain briefly the demodulation process. **(1.5 marks)**
   (b) Briefly explain the following terms as used in data communication:
      (i) Bandwidth **(1 mark)**
      (ii) Baseband signal **(1 mark)**
      (iii) Broadband transmission **(1 mark)**
      (iv) Attenuation **(1 mark)**
   (c) With an example, describe three modes of data communication. **(4.5 marks)**
   wireless, wired, guided.

3. (a) Differentiate analogue from digital quantities. **(2 marks)**
   (b) Convert decimal number 30_{10} to binary form and then find the following:-
      (i) 1's complement. **(2 marks)**
      (ii) 2's complement. **(2 marks)**
   (c) Perform the following subtraction operations using 2's complement. Express your answer in decimal numbering system.
      (i) $100.5_{10} - 50.75_{10}$ **(2 marks)**
      (ii) $10_{10} - 28_{10}$ **(2 marks)**

4. (a) Differentiate public subprocedure from private subprocedure as applied in Visual basic. **(3 marks)**
   (b) What will happen if the number of items exceeds the value that can be displayed in the ComboBox? **(0.5 mark)**
   (c) Explain three types of ComboBox styles. **(4.5 marks)**
   (d) Read the following VisualBasic codes and answer the questions that follow:

```
Private Sub cmdRemoveListItem_click ()
If MyList.ListIndex > -1 Then
MyList.RemoveItem MyList.ListIndex
End if
```

      (i) What will ListIndex property do if there is no item selected in the list? **(1 mark)**
      (ii) Which type of event will cause the computer to execute codes above? **(1 mark)**

5. (a) What is a pointer? **(1 mark)**
   (b) State three advantages of a pointer. **(3 marks)**
   (c) Explain the advantage of dynamic data structure over static data structure in terms of size. **(3 marks)**
   (d) Distinguish between the following statements as used in the pointer:
      int *ptr = new int (5); and int *ptr = new int [5]; **(3 marks)**

6. (a) Briefly explain three basic HTML tags which are used together with <table> tag when creating tables. **(1.5 marks)**
   (b) Write HTML codes which will display the following Table: **(4 marks)**

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Students' Information

[redacted]	[redacted]	[redacted]
Changeme Panda	T.2006.27	Female
Mabula Pembe	T.2006.217	Male

(**HINT:** Use grey as background color of the table header)

(c) With examples, explain three ways used to embed JavaScript into HTML page. **(4.5 marks)**

7. (a) With an example for each case, differentiate relational operator from logical operator as applied in C++ programming language. **(3 marks)**
   (b) With the aid of a syntax template (or general form), describe a *while* loop and a *do...while* loop. **(3 marks)**
   (c) When the while and do...while loops are generally used? **(1 mark)**
   (d) What will the following C++ program give as output? **(3 marks)**

```
# include <iostream>
using namespace std;
int main()
{
 int i = 3, j;
 while(i)
 {
        cout<<"i= "<<i<<' ';
        for(j=0; j<i; j++)
        cout<<"j= "<<j<<' ';
        cout<<'\n';
        i--;
 }
   system("pause");
    return 0;
}
```

SECTION B (30 Marks)

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

8. Explain six ways in which ICT may affect human health, culture and environment. **(15 marks)**

9. Analyze four advantages and two disadvantages a school would face from using Database Management System (DBMS). **(15 marks)**

10. You have been asked to conduct training about the sources of computer damage to new staff employed by the Ministry of Education Science and Technology. Explain five possible sources that you will include in the presentation and give one preventive measure for each source. **(15 marks)**

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