THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

ADVANCED CERTIFICATE OF SECONDARY EDUCATION

EXAMINATION

136/1 **COMPUTER SCIENCE 1**

(For Both School and Private candidates)

Time: 3 Hours **Year: 2019**

Instructions

1. This paper consists of sections **A** and **B** with a total of **thirteen (13)** questions**.**
2. Answer **all** questions in section **A**, and **two (2)** questions from section **B**.
3. Section **A** carries **sixty (60)** marks and section **B** carries **forty (40)** marks
4. Non-programmable calculators may be used.
5. Cellular phones and any unauthorized materials are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet (s)

SECTION A (60 marks)

Answer all questions in this section

1. (a) Mention six phases of system development life cycle.

   (b) Explain the importance of a feasibility study in system development.

2. Describe three limitations of computer networking.

3. (a) What is an entity relationship (E-R) diagram?

   (b) Differentiate a primary key from a foreign key.

   (c) Explain three tools used to automate database in MS Access.

4. (a) outline four procedures for generating a table of contents in a word document;

   (b) distinguish buffer memory from cache memory; and

   (c) describe one function of the two microcomputer application softwares in health information processing and management.

5. Read the following algorithm steps and answer the questions that follow:

   Step 1: Start the program.

   Step 2: Set the loop up to the size of an array. Then, use the loop to enter the marks of 10 candidates and calculate the sum of elements stored in an array.

   Step 3: Calculate the average.

   Step 4: Print the sum and average of the marks.

   Step 5: Stop.

   Question:

   (a) Draw a flow chart to represent the algorithm above.

   (b) Write C++ statements for step 2 and 3.

6. (a) use circuit diagram to explain how half adder operates.

   (b) Show that $\left(A+\overline{B}+\overline{C}\right)\left(A+\overline{B}C\right)=A+\overline{B}C$

7. (a) explain local variables and static variables as used in Visual Basic program;

   (b) write an example of an event procedure for a Command Button that counts and

displays the number of clicks made; and

(c) show how an empty Visual Basic form can be opened giving four steps.

8. (a) describe three healthy problems experienced by people who work with computers; and

(b) explain three ways of reducing the health risks when using ICT equipment.

9. (a) explain what is meant by the term data backup;

(b) mention six steps of troubleshooting process; and

(c) differentiate open ended questions from closed ended questions as applied in troubleshooting.

10. Read the following codes and answer the questions that follow:

```
int a[5] = {2, 5, 4, 1, 3}, i, k;
int x;
for (i=0; i<4; i++)
  {
for (k=1+I; k<5; k++)
  {
                    if (a [ i ] < a [ k ])
                      {
                    x = a[ i ];
                    a[ i ] = a[ k ];
                    a[ k ] = temp;
                       }
  }
 }
```

(a) How many elements are included in the array "a"?

(b) What type of sorting algorithm is implemented on the codes above?

(c) In which order will the array "a" be sorted?

(d) Which variable will be used as temporary in the codes above? Give a reason.

(e) Write the codes to display the sorted array "a".

SECTION B (40 Marks)

Answer two (2) questions from this section

11. Websites can facilitate communication between manufacturers and consumers. Analyze five advantages and three limitations of a website to manufacturers.
12. Describe four basic types of physical network topologies with the aid of a diagram, and explain two advantages and two disadvantages of each type.
13. Describe measures to be taken against unauthorized access and loss of data in a computer. Give four points for each.