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

136/1

COMPUTER SCIENCE 1
(For Both School and Private Candidates)

Time: 3 Hours **Thursday, 12th May 2016 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 other **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 booklet.

SECTION A (60 Marks)

Answer **all** questions in this section.

1. (a) Identify six resources managed by an operating system. **(3 marks)**
   (b) Explain three importances of data backup. **(3 marks)**

2. (a) Describe three advantages of digital data over analog data. **(3 marks)**
   (b) Explain three main ways of describing the function of a combinational logic circuit. **(3 marks)**

3. (a) Explain the role of each line in the C++ program given below:

```
#include <iostream>
using namespace std;
int main()
{
cout<<" Hello"\n
return (0);
}
```

(4 marks)

   (b) Write a function which does not return a value named "swap_floats" that takes two floating point arguments and exchanges the values that are stored in those arguments. **(2 marks)**

4. Write an algorithm which enables customers to withdraw cash from an Automatic Teller Machine (ATM). The algorithm inputs a request for a sum of money and decides if withdraw can be made. It also calculates charge for the following conditions:
   - Withdraw is refused if amount entered>current balance.
   - Withdraw is refused if amount entered> daily limit.
   - If current balance<150000, then a charge of 2% is made and
   - If current balance is 150000, no charge is made. Appropriate output messages should be included.

(6 marks)

5. (a) Giving an example of a code, write the function of the List Box control. **(2 marks)**
   (b) Write Visual Basic codes that check the validity of a password entered by a user. The program should display appropriate message in a message box after clicking a command button "Confirm". (Hint. Use "12345" as the correct password). **(4 marks)**

6. (a) Differentiate array from linked list. **(2 marks)**
   (b) Define quick sorting and explain how it is implemented. **(4 marks)**

7. (a) Define the term relational database. **(1 mark)**
   (b) An employee database consists of three relations as shown in the next page. Use the relations given to answer the questions that follow.

Employee Database:

Employee Relation

Employee Id	Name	Address	Check No
25X15	Joe E.	22 Tanga	11256978
34Y70	H.Clark	1254 DSM	22345609
23Y34	Steven.Alter	670 Dodoma	10345632

Job Relation

Job Id	Job Title	Skill Code	Dept
MT13	Secretary	SMS32	Personal
CT 65	Programmer	SBS 56	ICT
PT 79	Manager	FM3	Sales

Assignment Relation

Employee Id	Job Id	Start Date	Term Date
23Y34	MT13	3-1-1998	30-4-2006
34Y70	PT 79	4-2-2006	4-7-2011
25X15	CT 65	5-8-2005	6-2-2009

(i) Write Structured Query Language (SQL) to retrieve Job title, skill code and department of employee whose Job Id is PT 79. Write the record(s) of the output. **(3 marks)**

(ii) Based on Assignment and Job relation; write Structured Query Language (SQL) to retrieve all employees Id along with their corresponding departments. **(2 marks)**

8. By using HTML and JavaScript concepts, write codes which develop HTML form with one input field named "Number" and a submit button called "Process". The form inputs a value and checks if the entered value is greater than 0. If the value is less than 0 the form displays an alert "Error: provide a number greater than 0". Then if the value is an even number it alerts "The number provided is divisible by 2" otherwise it alerts "The number provided is not divisible by 2". **(6 marks)**

9. EACL company sells bunches of flowers in East Africa. Create a flow chart which enables the company to keep the record of sells for the year 2014. The flow chart should detect the following descriptions:
   - Total number of bunches of flowers sold;
   - The value of the most expensive bunch of flowers sold;
   - The value of the least expensive bunch of flowers sold; and
   - The average value of bunches of flowers sold in East Africa.

(6 marks)

10. (a) Explain two responsibilities of a computer engineer. **(2 marks)**

(b) Describe two health hazards associated with the use of computer and state the control of each hazard. **(4 marks)**

SECTION B (40 Marks)

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

11. Explain five roles of each basic element of a computer system. **(20 marks)**

12. Describe six networking devices used in data communication. **(20 marks)**

13. Explain three advantages and three disadvantages of high level programming languages. **(20 marks)**