REB

Rwanda Education Board

ADVANCED LEVEL NATIONAL EXAMINATIONS, 2017

SUBJECT: COMPUTER SCIENCE

COMBINATIONS:

- MATHS-COMPUTER SCIENCE-ECONOMICS   (MCE)
- MATHS-PHYSICS-COMPUTER SCIENCE   (MPC)

DURATION: 3HOURS

INSTRUCTIONS:

1. Write your names and index number on the answer booklet as they appear on your registration form and **DO NOT** write your names and index number on additional sheets of paper if provided.

2. Do not open this question paper until you are told to do so.

3. This paper consists of **three** sections: **A, B** and **C**.

   Section A: Attempt **all** questions.   **(55 marks)**

   Section B: Attempt **three** questions.   **(30 marks)**

   Section C: Attempt **only one** question.   **(15 marks)**

4. Use only a **blue** or **black** pen.

SECTION A: Attempt all questions (55marks)

1) List 6 devices that use USB port connector. **(6marks)**
2) What is an event in Visual basics? Give two examples. **(5marks)**
3) Differentiate between a variable from variable address. **(2marks)**

4) Write an algorithm which stores 5 numbers entered by a user in array and display them to the user. **(5marks)**

5) Give the codes for movenext, moveprevious methods in VB. **(2marks)**

6) What are the meanings of the following commands?
   a)Date : **(1mark)**

   b) Ls : **(1mark)**

   c)MD or mkdir **(1mark)**

7) Describe the system call in operating system. **(3marks)**

8) What are the outputs of the following program. **(2marks)**
```
#include <iostream>
using namespace std;
voidprevnext (int x, int&prev, int& next)
    {
prev = x-1;
next = x+1;
}
int main ()
{
int x=100, y, z;
prevnext (x, y, z);
cout<< "Previous=" << y << ", Next=" << z;
```

9) a) What are the functions of a database management system? **(2marks)**
    b) What are the roles of Intersection in SQL? **(2marks)**
    c) Give examples of intersection. **(2marks)**

10) What are the 3 characteristics of a printer? **(3marks)**

11) Write a program in C language to find a greater number of five numbers stored in array. **(5marks)**

12) Give an illustration of the following logic gates: NOT, AND, OR. **(3marks)**

13) List five types of instructions of a computer program? **(5marks)**

14) Write in full the following abbreviations: **(5marks)**

   a) RJ45   b) VPN   c) ISP   d) ISO e) UTP

SECTION B: Attempt any three questions. (30marks)

15 a) What is a Table in SQL? **(2marks)**

b) Name and explain the types of identifiers. **(8marks)**

16) Write a C++ program to read through an array of any type. Write a C++ program to scan through this array to find a particular value. **(10marks)**

17) a)What is a file system? **(3marks)**

b) List four activities that an Operating System does/operate for file management. **(4marks)**

c) What are the functions of a file system? **(3marks)**

18) a) Write a function program in C programming language to multiply two numbers. **(7marks)**

b) The scope and lifetime of the variables defined in C is classified depending on the storage. Give 3 classes of storage variables. **(3marks)**

19) Using a switch, write an algorithm which receives a student and tells him his grades as follows: **(10marks)**

Note 16 and above: Grade A
Note 14-16   : Grade B
Note 12-14   : Grade C
Note below 12   : Grade D

SECTION C: Attempt only one question (15marks)

20) List and explain 5 basic concepts of Object Oriented Programming. **(15marks)**

21) Below is a table that contains information of teachers.

No	Name of Teacher	Age	Department	Date of Joining	Salary	Sex
1	Ndahimana	36	Computer	12-Jan-99	150000	M
2	Kamili	59	Maths	4-Mar-86	250000	M
3	Neema	30	Entrepreneurship	30-Jun-12	120000	F
4	Harima	29	Geography1	10-Apr-10	130000	F
5	Kasiimu	43	Geography2	12-Feb-88	200000	M
6	Nzabandora	32	Physics	1-Feb-00	230000	M
7	Ruterana	45	Kinyarwanda	12-Aug-85	240000	M
8	Shakilla	29	Maths	13-Jul-12	150000	F
9	Jackline	31	Geography1	12-Jan-11	120000	F
10	Jack	40	Physics	11-Sep-99	200000	M
11	Mutessa	28	Computer	9-Nov-14	120000	M

Write SQL commands:

a) To find the Teachers that did not join on the date of ("1/feb/2000" , "4/mar/1986","12/feb/1988"); **(2marks)**

b) To show all information about the Teachers of Maths Department. **(1mark)**

c) To List the Name and age of the female Teachers who are in the Geography1 Department. **(2marks)**

d) To list the names of all Teachers whose age is greater than 30 with their date of joining in ascending order. **(2marks)**

e) To display the Names, Age and Salary for male teachers only. **(2marks)**

f) Arrange the whole table in the alphabetical order of names. **(2marks)**

g) Display all Teachers whose Names contain the character"n" **(2marks)**

h) Remove duplicates Department from the table. **(2marks)**