**ADAVANCED LEVEL COMPREHENSIVE ASSESSMENT EXAMINATIONS 2019**

**SUBJECT: COMPUTER SCIENCE**

 **CLASS: SENIOR FIVE**

**COMBINATIONS: MATHS-COMPUTER SCIENCE-ECONOMICS: MCE**

 **MATHS-PHYSICS-COMPUTER SCIENCE: MPC**

**DURATION: 3HOURS**

**INSTRUCTIONS:**

This paper consists of **two** sections: **A, B**.

**Section A: Attempt all questions. (50 marks)**

1 Write an equivalent while loop for the following code: **(3 marks)**

Int sz=25;

for(int i=0,sum=0;i<sz;i++)

sum+=i;

System.out.println(sum);

Answer:

int sz=25;

int i=0,sum=0;

while(i<sz)

{

sum+=i;

i++;

}

System.out.println(sum);

2 List 5 access non modifiers in java **(5 marks)**

Ans

Non-access modifiers do not change the accessibility of variables and methods, but they do provide them special properties. Non-access modifiers are of 5 types,

1. Final
2. Static
3. Transient
4. Synchronized
5. Volatile

3 Explain the function of the following Stack Methods **(8 marks)**

|  |  |
| --- | --- |
| **Stack methods**  | **Description**  |
| push ();  | add/inserts new element/object into stack  |
| pop ();  | removes and return top of the stack  |
| peek ();  | returns top of the stack (just returns but doesn’t remove unlike pop () operation  |
| boolean empty ();  | check whether invoking stack is empty or not returns true, if stack is empty; otherwise, false  |

4 What are the disadvantage of a cell phone **(2 marks)**

**Answer:**

One major disadvantage of a cell phone is its negative health effects (sleeplessness, eye

cancer, infertility, cardiac problems, and chronic fatigue).

 5 Explain why Switch is much preferred than a HUB **(4 marks)**

Answer: A switch is effectively a higher-performance alternative to a hub. For a network

with more computers switch is preferable because it’s built in MAC table. Technically

speaking, hubs operate using a broadcast model where message is received on one

port is generated and send to all ports of the hub and switches operate using a virtual

circuit where received on one port is directly sent to its destination. Therefore, switch

is much intelligent that a hub.

6 Differentiate entity and relationship. **(3 marks)**

**Answer:**

Entity, defined as table/object that holds specific information (data).Student

and Teacher are example of entities

Relationships, defined as the associations or interactions between entities. For example Student is taught by Teacher

7 **What are the purpose of managing information? (2 marks)**

The purpose of management information systems, including **decision support**

**systems**, is to guide the decision-making process. Specifically, MIS combines

people, computer hardware, software and communication devices to collect,

store and convert raw data into useful information, which subsequently is

Communicated to the right people precisely when needed.

8 A School needs design a data base to store information about Teacher (identified by TeacherId, FirstName, Surname, Salary, Qualification, Address, Contact); Combination (identified by CombinationId, CombinationName),Student (identified by StudentId, FirstName, Surname, Address, Schoolfees, ContactNumber) and Subject (identified by subjectId, SubjectTitle).

As hired as data base design State database steps you will use to design that database.

 **(6 marks)**

State database design steps.

**Answer:**

Investigate the information.

Identify the objects.

Model the ob jects.

Identify the types of information for each object.

Identify the relationships between objects.

Database optimisation through normalisation

Data entry and manipulation

9 What the following controls prefix stand for? Chk, fil, cbo, frm, txt **(5 marks)**

Chk: Check box

Fil: File list box

Cbo: combo box

Frm: form

Txt: text box

10 What do you understand by network subnet? **(3 marks)**

 Answer:

Network Subnet is logical division of the network and it is the strategy used

to partition a single physical network into more than one smaller logical sub network.

11 Writes VB.6 codes that display your entered full name on the form when the **(4 marks)**

 application is loaded.

*Private sub command1\_click ()*

*Dim name as string*

*Name=Inputbox (”enter your full name”)*

*Print “my full name is”; name*

*End sub*

*Or*

*Private sub form1\_load ()*

*Form1.show*

*Print “RUBANGURA Simoni”*

12 Predict the out put of the following program **(5 marks)**

class SampleSwitch {

public static void main(String args[]) {

for(int i=0; i<6; i++)

switch(i) {

case 0:

System.out.println("i is zero.");

break;

case 1:

System.out.println("i is one.");

break;

case 2:

System.out.println("i is two.");

break;

case 3:

System.out.println("i is three.");

break;

default:

System.out.println("i is greater than 3.");

}

}

}

The output produced by this program is shown here:

i is zero.

i is one.

i is two.

i is three.

i is greater than 3.

i is greater than 3.

**Section B: Attempt all questions. (50 marks)**

13 Write a java program where you declare the variables school, firstname, lastname, age, level and combination. This program should display like this: Gs Kigali, Ange Batoni is 19 years old and in senior 4 of LKK **(10 marks)**

*package education;*

*public class education{*

*public static void main(String[] args) {*

*String school=”GS Kigali”, firstname = “Ange”, lastname= “Batoni”;*

*String level=”senior4”;*

*String combination=”LKK”;*

*int age =19;*

*System.out.println(school+””+firstname+” “+lastname+” “+”is”+” “+age+”years old and in”+level+”*

*“+”of”+” “+combination);*

*}}*

14 Using Visual Basic, write a program that prompts a user to enter a student’s score in Mathematics. If the score is above 45%, the program should display “Pass” otherwise it should display “Fail” **(10 marks)**

*Private Sub Command1\_Click()*

*Dim mark As Single*

*mark = Val(Text1.Text)*

*If (mark > 45 And mark <= 100) Then*

*Label3.Caption = “Pass”*

*ElseIf (mark <= 45 And mark >= 0)*

*Then*

*Label3.Caption = “Fail”*

*Else*

*Label3.Caption = “Invalid”*

*End If*

*End Sub*

15 Write a class in C++ called person which has 2 functions: getdata() and putdata(). The getdata() prompts the user to enter his or her first name name, last name and age, the putdata() displays on the screen the user first name last, name and age. **(10 marks)**

*#include<iostream>*

*using namespace std;*

*class person*

*{*

*private:*

*char*

*fname[20],lname[20];*

*int age;*

*public:*

*void getdata()*

*{*

*cout<<”enter the first name, last*

*name and age”;*

*cin>>fname>>lname>>age;*

*}*

*void putdata()*

*{*

*cout<<”First*

*name: “<<fname<<endl;*

*cout<<”Last*

*name: “<<lname<<endl;*

*cout<<”age:*

*“<<age<<endl;*

*}*

*};*

*intmain()*

*{*

*person a1;*

*a1.getdata();*

*a1.putdata();*

*return 0;*

*}*

17 Discuss advantages and disadvantage of using computer network in your school laboratory

 **(10 marks)**

Advantages of Computer Network

It enhances communication and availability of information.

It allows for more convenient resource sharing.

It makes file sharing easier.

It is highly flexible.

It is an inexpensive system.

It increases cost efficiency.

It boosts storage capacity.

**Disadvantages of Computer Network**

It lacks independence.

It poses security difficulties.

It lacks robustness.

It allows for more presence of computer viruses and malware.

Negative usage promotes negative acts.

It requires an efficient handler.

It requires an expensive set-up.

18 Explain how you can care your laptop. **(10 marks)**

**Answer:**

 Always place your laptop on a level surface.

Wash your hands before using the computer.

 Fluids are the number one enemy of electronic items so it is best not to eat or

drink while working on the laptop.

If liquid spills on the keyboard, turn the keyboard upside down to drain for at

least 12 hours before powering on again.

Never put personal data or programs that can’t be easily recovered on your

laptop.

Your laptop may, someday, unexpectedly require service. Your personal data

will not be protected if this happens and you could lose your data.

Don’t save passwords on your laptop.

Use a password that is easy for you to remember (but not easy for someone else to

guess)