**COMPUTER SCIENCE**

**30/06/2021**

**8:30 am-11:30 am**



**SENIOR FIVE END OF YEAR EXAMINATIONS, 2020/2021**

**SUBJECT: COMPUTER SCIENCE**

**COMBINATIONS:**

**MATHEMATICS- PHYSICS- COMPUTER SCIENCE (MPC)**

**MATHEMATICS-COMPUTER SCIENCE –ECONOMICS (MCE)**

**DURATION: 3 HOURS**

**INSTRUCTIONS:**

**ANSWER ALL QUESTIONS (100 MARKS)**

**ANSWER ALL QUESTIONS (100 MARKS)**

1. List any five internal components of a laptop **(5 marks)**
2. Give a clear difference between VGA and HDMI connectors. **(4 marks)**

1. Define two dimensional array and give their syntax for declaring it **(6 marks)**
2. Discuss the purpose of switching table in the switch? **(4 marks)**
3. Describer the 2 function of a modem **(4 marks)**
4. What is the purpose of managing information? **(4 marks)**
5. Explain three database design levels **(6 marks)**

1. By using a sketch, give types of Multiple Inheritance (4 marks)

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

1. What SQL command can be used to delete columns from a table?

 **(3 marks)**

A MODIFY TABLE TableName DROP COLUMN ColumnName

B MODIFY TABLE TableName DROP ColumnName

C ALTER TABLE TableName DROP COLUMN ColumnName

D ALTER TABLE TableName DROP ColumnName

1. Rewrite the following code using while loop: **(5 marks)**

1. Differentiate queue and stack and state their operations **(10 marks)**

1. Write an algorithm to solve quadratic equation. **(10 marks)**

1. Discuss advantages and disadvantage of using computer network

 **(10 marks)**

1. Write a java program that allows user to enter 2 inputs through the

 keyboard and calculate the sum, average and difference, use scanner

 **(10 marks)**

1. Write a vb program using do while…loop to display number from

 0 to 100 **(10 marks)**

Comprehensive Assessment S5

1. List any five internal components of a laptop **(5 marks)**

Answer

Ram, Cpu, Motherboard, Wireless card, Fan

1. Give a clear difference between VGA and HDMI connectors. **(4 marks)**

 Answer:

HDMI (High-Definition Multimedia Interface) connector transports both sound and

video data while VGA (Video Graphic Array) connector carries video data only.

Note that both connectors transport any other type of data.

1. Define two dimensional array and give their syntax for declaring it **(6 marks)**

Answer

A two dimensional array is a collection of a fixed number of elements (components) of the same

Data type arranged in columns and rows making two dimensions.

The syntax for declaring a two dimensional array is:

Set array name= array [row size][column size] of data types

1. Discuss the purpose of switching table in the switch? **(4 marks)**

Answer

The switch make a forwarding decision based on the destination host’s MAC address.

The switch essentially forwarded the frame from one port’s ingress queue to another

port’s egress queue. To perform this forwarding decision, a switch consults its MAC

address table.

1. Describer the 2 function of a modem **(4 marks)**

Answer

**The essential functions of a modem are:**

1. **Modulate:** an analog carrier signal to carry digital information, it means to convert the analog signal to digital signal.
2. **Demodulate:** a similar signal so as to decode the digital information from the analog carrier signal and it means to convert the same signal back to the analog signal then transmitted through telephone line.
3. What is the purpose of managing information? **(4 marks)**

 Answer

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.

1. Explain three database design levels **(6 marks)**

Answer

**Conceptual level:** this level describes the logical structure of whole database by using different concepts like: Entity, occurrence, properties, cardinalities, relationships or associations.

**Logical level:** this describes how data are actually stored and how they can be accessed.

**Physical level:** in this level there exist a number of views which is defined apart of actual database by using the different DBMS.

1. By using a sketch, give types of Multiple Inheritance (4 marks)

 Answer

 **Multiple Inheritance**

****

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

 Answer

Chk: Check box

Fil: File list box

Cbo: combo box

Frm: form

Txt: text box.

1. What SQL command can be used to delete columns from a table?

 **(3 marks)**

A MODIFY TABLE TableName DROP COLUMN ColumnName

B MODIFY TABLE TableName DROP ColumnName

C ALTER TABLE TableName DROP COLUMN ColumnName

D ALTER TABLE TableName DROP ColumnName

Answer

C. ALTER TABLE TableName DROP COLUMN ColumnName

1. Rewrite the following code using while loop: **(5 marks)**

 Answer

inti,j;

for(i=1,j=2;i<=6;i++,j+=2)

System.out.println(i++);

System.out.println(“Finished!!!”);

Ans:

 inti=1,j=2;

while(i<=6)

{System.out.println(i++);

i++;

j+=2;}

System.out.println(“Finished!!!”);

1. Differentiate queue and stack and state their operations **(10 marks)**

Answer

A queue is a linear list in which data can only be inserted at one end, called the REAR, and deleted from the other end, called the FRONT. These restrictions ensure that the data is processed through the queue in the order in which it is received. In an other words, a queue is a structure in which whatever goes fist comes out first (first in, first out (FIFO) structure).

Queue operations

There are two main operations related to queues.

Enqueue: the enqueue operation insert an items at the rear of the queue

Dequeue: the dequeue operation deletes the item at the front of the queue

A stack is a restricted linear list in which all additions and deletions are made at one end, the top.

The different operations performed on stacks are as follows:

Push: adds an element to the stack

Pop: removes an element from the stack

Peek: looks at the top element of the stack

1. Write an algorithm to solve quadratic equation. **(10 marks)**

Answer

**Variables** a, b, c, delta, x1, x2 **: numeric**
**Begin**
**Write** "Enter the coefficients of this polynomial:"
**Read** a ,b,c

**Delta** ←b^2-4\*a\*c

**If** delta>0 **Then**

x1←b+sqr(delta)/2\*a

x2←b+sqr(delta)/2\*a

**Write** "  the equation has two distincts roots  which are :",x1 , "nand ",x2

**elseif** delta=0 **Then**

x1←x2←b/2\*a ;

**Write**"the equation has two equal roots : ",x1

**else**

**Write** " The equation has no real solutions. "

**Endif**

 **End**

1. Discuss advantages and disadvantage of using computer network

 **(10 marks)**

Answer

 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

1. Write a java program that allows user to enter 2 inputs through the keyboard and calculate the sum, average and difference, use scanner

 **(10 marks)**

Answer

import java.util.Scanner;

class AddNumbers

{

public static void main(String args[])

{

double x, y, sum, average,difference ;

System.out.println(“Enter two numbers to calculate their sum”);

Scanner in = new Scanner(System.in);

x = in.nextInt();

y = in.nextInt();

sum = x + y;

average= (x+y)/2;

difference=x-y;

System.out.println(“Sum of the integers = “ + sum);

System.out.println(“average of the integers = “ + average);

System.out.println(“difference of the integers = “ + difference);

}

}

1. Write a vb program using do while…loop to display number from

 0 to 100 **(10 marks)**

Answer

Private Sub Form\_Load()

Form1.Show

Dim num As Integer

num = 0

Do While num <= 100

num = num + 1

print num

Loop

End Sub