



CANARA VIKAAS PRE-UNIVERSITY COLLEGE
II PUC Board Examination – March 2024
Computer Science (41) – Answer Key

PART A

I

1. a) Inside the CPU
2. c) Switching algebra
3. b) both the input are high
4. a) A is true, R is false
5. b) ::
6. d) All A,B,C are correct
7. b) public
8. d) Hierarchical inheritance
9. c) invalid indirection
10. a) ORACLE
11. b) UPDATE
12. a) Metropolitan Area Network
13. c) Half duplex
14. a) Open Source Software
15. b) web scripting

II

16. Information
17. Record
18. tree
19. Primary key
20. Data mining

PART B
III

21. Idempotence Law

This law states that when a variable is combined with itself using OR or AND operator, the output is the same variable.

a) $X + X = X$

b) $X \cdot X = X$

22. If result of any logical statement or expression is always TRUE or 1, it is called Tautology and if the result is always FALSE or 0 it is called Fallacy..

23. Objects, Classes, Data abstraction, Data encapsulation, Inheritance, Overloading, Polymorphism, Dynamic binding, Message passing

Any two characteristics and its definition..

24. A constructor is a special member function that is used in classes to initialize the objects of a class automatically

There are three types of constructors, namely:

1. Default constructor

2. Parameterized constructor

3. Copy constructor

25. Open(), put(), write(), tellp(), seekp()

26. A Candidate key is any set of one or more columns whose combined values are unique among all occurrences (ie tuples or rows) .

The alternate keys of any table are simply those candidate keys which are not currently selected as the primary key.

27. Syntax:

`DROP TABLE table_name;`

Eg: `DROP TABLE employee;`

28. This topology consists of a central node to which all other nodes are connected by a single path.



PART C

IV

29.

- USB port gives a single, standardized, easy-to-use way to connect a variety of newer peripherals to a computer.

- USB supports a data speed of 12 megabits per second.
- It support upto 127 devices.
- USB supports a data speed of 12 megabits per second.

30.

X	Y	F
0	0	0
0	1	1
1	0	1
1	1	1



31. The simplest application of a stack is to reverse a word.

- An “undo” mechanism in text editors.
- Backtracking.
- Language processing..
- Conversion of decimal number to binary.
- Conversion of infix expression into prefix and postfix.
- Quick sort.
- Runtime memory management.

32. An array of pointers means that it is a collection of addresses.

The example below shows the array of pointers.

```
int *iptr[3];
int i=10, j=20, k=30;
iptr[0] = &i; *iptr[0] = 10;
iptr[1] = &j; *iptr[1] = 20;
iptr[2] = &k; *iptr[2] = 30;
```

33.

ios::app Append to end of file
ios::in open file for reading only
ios::out open file for writing only
ios::ate Open file for updation and move the file pointer to the end of file
ios:binary Opening a binary file
ios::noreplace Turn down opening if the file already exists
ios::nocreate Turn down opening if the file does not exists
ios::trunc On opening, delete the contents of file

34.

a. Entity:

- An Entity can be any object,place,person or class.
- In E-R Diagram, an entity is represented using rectangles.

Student

b. Attribute:

- An Attribute describes a property or characteristic of an entity.
- Attributes are represented by means of eclipses.
- For example, Roll_No, Name and Birth date can be attributes of a student.



c. Relationship:

- A relationship type is a meaningful association between entity types.
- Relationship is represented using diamond shaped box.



35. It is the trade of goods and services with the help of telecommunication and computers.

Technologies / services E- commerce:

[Any two]

- Electronic mail (e-mail).
- E-banking / Net banking.
- Electronic fund transfer (EFT).
- Electronic data interchange.
- Digital cash, smart cards, security services etc.

36.

```
<HTML>
  <HEAD>
    <TITLE> ----- </TITLE>
  </HEAD>
  <BODY> -----
    -----
  </BODY>
</HTML>
```

<HTML> tag marks the beginning of the HTML and </HTML> tag marks the end of HTML document.

<HEAD> tag begins the head section of the HTML document and </HEAD> tag defines the end of the heading.

The <TITLE> tag gives title to HTML document that appears on browser title bar.

<BODY> tag defines the body of HTML document.

PART D

37.

- 1. Traversing:** The processing of accessing each element exactly once to perform some operation is called traversing.
- 2. Insertion:** The process of adding a new element into the given collection of data elements is called insertion.
- 3. Deletion:** The process of removing an existing data element from the given collection of data elements is called deletion.
- 4. Searching:** The process of finding the location of a data element in the given collection of data elements is called as searching.
- 5. Sorting:** The process of arrangement of data elements in ascending or descending order is called sorting.

38.

```
Step 1: IF FRONT =NULL then
        PRINT "QUEUE IS EMPTY"
        EXIT
    [End of if ]
Step 2: ITEM = QUEUE[FRONT]
Step 3: IF FRONT = REAR THEN
        FRONT = NULL
        REAR = NULL
    ELSE
        FRONT = FRONT + 1
    [End of if ]
Step 4: RETURN
```

39. [Any Five]

- CAD/ CAM Software.
- Computer graphic applications.
- Object -Oriented Database.
- Real-time systems.
- Artificial intelligence and expert systems.
- User Interface design such as windows.

40.

A non-member function of a class that has access to both private and protected members of a class.

characteristics of friend function [Any Four]

- A friend function is a non-member function which can access both private and protected members of a class.
- It can be declared anywhere in the class definition, because it is not affected by

access specifiers.

- The function is declared with keyword friend.
- While defining friend function it does not use either keyword friend or :: operator.
- A friend function can be invoked like normal function without help of any objects.
- It cannot access the member variables directly and has to use an object name and dot operator(.) with each member name.

41.

A constructor which does not take any argument is called a default constructor.

[Any Two]

Features:

- For every object created, the default constructor is automatically called.
- All objects of a class are initialized to same set of values by the default constructor.
- If different objects are to be initialized with different values, it cannot be done using default constructor.

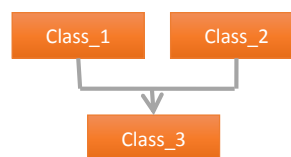
```
Syntax
class classname
{
    public:
        classname( )
        {
            body of the constructor
        }
};
```

```
Example
class sum
{
    int a,b;
    public :
        sum()
        {
            a=0; b=0;
        }
};
```

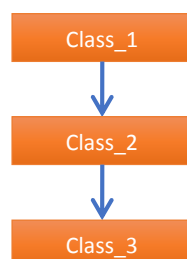
42.

Inheritance is the capability of one class to inherit properties from another class.

a). **Multiple inheritance:** If a class is derived from more than one base class then it is called as multiple inheritance.



b). **Multilevel inheritance:** The classes can also be derived from the classes that are already derived. This type of inheritance is called multilevel inheritance.



43.

Manual Data Processing	Computerized/Electronic Data Processing
Entire process takes place manually.	Entire process takes place by the machine.
The volume of the data, which can be processed, is limited.	The volume of data which can be processed is large.
It requires large quantity of papers.	Less amount of papers are used.
The speed and accuracy is less.	High speed and greater accuracy.
Labor cost is high.	Labor cost is economical.
Storage medium is paper.	Storage medium is Secondary storage medium.
Data transfer is difficult.	Data can be transferred (soft copy) easily through computer networks.

44.

Computer Virus is a malicious program that can spread from computer to computer and they can replicate themselves

symptoms (characteristics) of a computer virus. [Any Four]

- Computer may respond slowly.
- Disk drivers may become inaccessible.
- It creates multiple/duplicate files.
- Unusual error message.
- Computer reboots on its own.
- Applications may not work normally.

VI

45.

	$\bar{C} \bar{D}$	$\bar{C} D$	CD	$C \bar{D}$
$\bar{A} \bar{B}$	1	1	1	1
$\bar{A} B$	1		1	
AB	1		1	
$A \bar{B}$	1			

Reduced expression for Quad 1: $\bar{A}\bar{B}$

Reduced expression for Quad 2: $\bar{C}\bar{D}$

Reduced expression for Pair 1: BCD

Final reduced SOP expression $\bar{A}\bar{B} + \bar{C}\bar{D} + BCD$

46.

- Member functions declared within a class must be defined separately outside the class.
- The definition of a member function is similar to the normal function, but it has an identity label in the header which tells the compiler which class the member function belongs to.
- The scope resolution operator (::) is used to define a function outside the class definition.

Syntax:

```
return_type_specifier classname :: function_name (arguments)
{
    function body
}
```

Programming Example:

```
#include<iostream.h>
#include<conio.h>
class sum
{
    private:
        int a,b;
    public:
        void input( );
        void output( );
};

void sum::input( )
{
    cout<<"Enter two number";
    cin>>a>>b;
}
void sum::output( )
{
    cout<<" The sum is"<<a+b;
}
```



```
void main()  
{  
    sum s;  
    s.input();  
    s.output();  
    getch();  
}
```

47.

a) Display all the records from “employee” table.

Select * from employee;

b) Find the maximum of Net salary.

Select Max(Net_Salary) from employee;

c) Find the minimum of Net salary.

Select Min(Net_Salary) from employee;

d) Delete all the records from the table “employee”.

Delete from employee;

e) Remove the table “employee”.

Drop table employee;

Computer Science @ CANVIK