Please go through all the questions carefully. This is made to assist you in your conceptual understanding of concepts.

If you find any problem in below questions, please write to me at mauryaavinash95@gmail.com

Best of luck for your BOARDS...
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## UNIT 1: PROGRAMMING IN C++

### OBJECT ORIENTED CONCEPTS (OOPS)

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</table>
| 1. | The mechanism that binds code and data together and keeps them secure from outside world is known as | A. Abstraction  
B. Inheritance  
C. Encapsulation  
D. Polymorphism |
| 2. | The term __________ means the ability to take many forms. | A. Abstraction  
B. Inheritance  
C. Encapsulation  
D. Polymorphism |
| 3. | The members of a class by default are | A. Public  
B. Protected  
C. Private  
D. Mandatory to specify |
| 4. | It is possible to declare as a friend | A. A member function  
B. A global function  
C. A class  
D. All of the above |
| 5. | Which of the following statements is NOT valid about operator overloading? | A. Only existing operators can be overloaded  
B. Overloaded operator must have at least one operand of its class |
<p>| | |</p>
<table>
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</table>
| 5. | The overloaded operators follow the syntax rules of the original operator  
   C. The overloaded operators follow the syntax rules of the original operator  
   D. None of the above |
| 6. | **Polymorphism is implemented through ……**  
   A. Function Overloading  
   B. Virtual Functions  
   C. Operator Overloading  
   D. All of these. |
| 7. | **An object is**  
   A. One instance of a class  
   B. Another word for a class  
   C. A class with static method  
   D. A method that accesses class |
| 8. | **A class defined within another class is**  
   A. Nested class  
   B. Inheritance  
   C. Containership  
   D. Encapsulation |
| 9. | **A blueprint of an object in C++ is called a**  
   A. Object  
   B. Class  
   C. Instance  
   D. None of these |
| 10. | **At which point of time a variable comes into existence in memory is determined by its**  
    A. Scope  
    B. Storage class  
    C. Data type  
    D. All of the above |
| 11. | **Which of the following is false for cin?**  
   A. It represents standard input  
   B. It is an object of istream class. |
<table>
<thead>
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<th>Question</th>
<th>Answers</th>
</tr>
</thead>
</table>
| 6. It is a class of which stream is an object | C. It is a class of which stream is an object  
D. Using cin the data can be read from user's terminal |
| 12. Member functions, when defined within the class specification | A. Are always inline  
B. Are not inline  
C. Are inline by default, unless they are too big or too complicated  
D. Are not inline by default. |
| 13. Access to private data | A. Restricted to methods of the same class  
B. Restricted to methods of other classes  
C. Available to methods of the same class and other classes  
D. Not an issue because the program will not compile |
| 14. C++ was originally developed by | A. Clocksin and Melish  
B. Donald E.Knuth  
C. Sir Richard Hadlee  
D. Bjarne Stroustrup |
| 15. Inheritance is done to | A. Implement real world.  
B. Reusability  
C. Both A & B.  
D. None |
| 16. An instance of class is known as….. | A. Entity  
B. Object  
C. Functions  
D. None |
| 17. Which can be passed as an argument to a function? | A. Constant  
B. Expression  
C. Another function  
D. All of the above |
18. Act of representing essential features without including background details and explanations is known as ...

   A. Encapsulation  
   B. Abstraction  
   C. Inheritance  
   D. Polymorphism  

19. Member of a class specified as _______ are accessible only to method of the class.

   A. Private  
   B. Public  
   C. Protected  
   D. Derive  

20. A class enforces data hiding through ............ and .......... members.

   A. Private  
   B. Public  
   C. Private and Protected  
   D. Private and Public  

21. A struct is the same as a class except that

   A. There are no member functions  
   B. All members are public  
   C. Cannot be used in inheritance hierarchy  
   D. It does have a this pointer  

22. Object is an identifiable ............... with some characteristics and behaviour.

   A. Class  
   B. Instance  
   C. Entity  
   D. None  

23. A class which can use all the features of an established class, is

   A. A static class  
   B. A super class  
   C. A Super Class
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
</table>
| 24. **The functions which are defined inside the class are known as ....**  
   A. Virtual Functions  
   B. Static Functions  
   C. Inline Functions  
   D. None | **D. Overloaded** |
| 25. **Which of the following cannot be legitimately passed to a function**  
   A. A constant  
   B. A variable  
   C. A structure  
   D. A header file | **D. None** |
| 26. **A function call mechanism that passes arguments to a function by  
   passing a copy of the values of the arguments is __________**  
   A. Call by name  
   B. Call by value  
   C. Call by reference  
   D. Call by value result | **B. Call by value** |
| 27. **A variable defined within a block is visible**  
   A. From the point of definition onward in the program  
   B. From the point of definition onward in the function  
   C. From the point of definition onward in the block  
   D. Throughout the function | **C. From the point of definition onward in the block** |
| 28. **The process of building new classes from existing one is called  
   ______.**  
   A. Polymorphism  
   B. Structure  
   C. Inheritance  
   D. Cascading | **C. Inheritance** |
| 29. **What term is used to describe the internal representation of an object  
   that is hidden from view outside the object's definition?**  
   A. Polymorphism  
   B. Structure  
   C. Inheritance | **C. Inheritance** |
<p>| | |</p>
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<tbody>
<tr>
<td>D. Data Abstraction</td>
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</table>

30. Which of the following concepts means wrapping up of data and functions together?
   - A. Polymorphism
   - B. Structure
   - C. Inheritance
   - D. Encapsulation

AM- www.cs-4u.weebly.com
### CLASS and OBJECT

1. The members of a class, by default, are  
   A. public  
   B. protected  
   C. private  
   D. mandatory to specify

2. Which of the following statements are true in C++?  
   A. Classes cannot have data as public members.  
   B. Structures cannot have functions as members.  
   C. Class members are private by default.  
   D. None of these.

3. Member functions, when defined within the class specification:  
   A. are always inline.  
   B. are not inline.  
   C. are inline by default, unless they are too big or too complicated.  
   D. are not inline by default.

4. Which of the following concept of OOPs allows compiler to insert arguments in a function call if it is not specified?  
   A. Call by value  
   B. Call by reference  
   C. Default arguments  
   D. Call by pointer

5. Which of the following term is used for a function declared inside a class?  
   A. Member Variable  
   B. Member function  
   C. Class function  
   D. Classic function

6. Which of the following is an abstract data type?  
   A. int  
   B. Double  
   C. string  
   D. Class
7. Which of the following is correct about class and structure?
   - **A.** Class can have member functions while structure cannot.
   - **B.** Class data members are public by default while that of structure are private.
   - **C.** Pointer to structure or classes cannot be declared.
   - **D.** Class data members are private by default while that of structure are public by default.

8. Which of the following two entities (reading from Left to Right) can be connected by the dot operator?
   - **A.** A class member and a class object.
   - **B.** A class object and a class.
   - **C.** A class and a member of that class.
   - **D.** A class object and a member of that class.

9. Which of the following keywords is used to control access to a class member?
   - **A.** Default
   - **B.** Break
   - **C.** protected
   - **D.** Asm

10. Which of the following can access private data members or member functions of a class?
    - **A.** Any function in the program.
    - **B.** All global functions in the program.
    - **C.** Any member function of that class.
    - **D.** Only public member functions of that class.

11. Which of the following also known as an instance of a class?
    - **A.** Friend Functions
    - **B.** Object
    - **C.** Member Functions
    - **D.** Member Variables
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<thead>
<tr>
<th>Question</th>
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<td>12.</td>
<td>Scope resolution operator is represented by</td>
</tr>
<tr>
<td></td>
<td>A. ~</td>
</tr>
<tr>
<td></td>
<td>B. ::</td>
</tr>
<tr>
<td></td>
<td>C. :</td>
</tr>
<tr>
<td></td>
<td>D. ;</td>
</tr>
<tr>
<td>13.</td>
<td>Constructor is executed when _____</td>
</tr>
<tr>
<td></td>
<td>A. an object is created</td>
</tr>
<tr>
<td></td>
<td>B. an object is used</td>
</tr>
<tr>
<td></td>
<td>C. a class is declared</td>
</tr>
<tr>
<td></td>
<td>D. an object goes out of scope.</td>
</tr>
<tr>
<td>14.</td>
<td>Use of __________ protects data from inadvertent modifications.</td>
</tr>
<tr>
<td></td>
<td>A. private access specifier</td>
</tr>
<tr>
<td></td>
<td>B. class protection operator, @</td>
</tr>
<tr>
<td></td>
<td>C. none of these</td>
</tr>
<tr>
<td></td>
<td>D. public access specifier</td>
</tr>
<tr>
<td>15.</td>
<td>Which of the following statements is correct?</td>
</tr>
<tr>
<td></td>
<td>A. Data items in a class must be private.</td>
</tr>
<tr>
<td></td>
<td>B. Both data and functions can be either private or public.</td>
</tr>
<tr>
<td></td>
<td>C. Member functions of a class must be private.</td>
</tr>
<tr>
<td></td>
<td>D. Constructor of a class cannot be private.</td>
</tr>
<tr>
<td>16.</td>
<td>Which of the following is the only technical difference between structures and classes in C++?</td>
</tr>
<tr>
<td></td>
<td>A. Member function and data are by default protected in structures but private in classes.</td>
</tr>
<tr>
<td></td>
<td>B. Member function and data are by default private in structures but public in classes.</td>
</tr>
<tr>
<td></td>
<td>C. Member function and data are by default public in structures but private in classes.</td>
</tr>
<tr>
<td></td>
<td>D. Member function and data are by default public in structures but protected in classes.</td>
</tr>
<tr>
<td>17.</td>
<td>Which of the following is user defined data type?</td>
</tr>
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<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>18.</strong></td>
<td><strong>The Object is not declared for which class?</strong></td>
</tr>
</tbody>
</table>
|   | A. Parent  
|   | B. Base  
|   | C. Abstract  
|   | D. Derived  
| **19.** | **Data member is also called?** |
|   | A. Attribute  
|   | B. Method  
|   | C. Class  
|   | D. Object  
| **20.** | **A Class can have how many destructors?** |
|   | A. 1  
|   | B. 2  
|   | C. 3  
|   | D. 4  
| **21.** | **State true or false.**  
|   | i) We cannot make the function inline by defining a function outside the class.  
|   | ii) A member function can be called by using its name inside another member function of the same class, this is known as nesting of member function.  
|   | A) True, True  
|   | B) True, False  
|   | C) False, True  
|   | D) False, False  
| **22.** | ………….. is a way to bind the data and its associated functions together which allows the data and functions to be hidden.  
|   | A) Structure  
|   | B) Class  
|   | C) Enum  
|   | D) Both A and B  
| **23.** | **What happens when we try to compile the class definition in following code snippet?**
```cpp
#include<iostream.h>

void main()
{
    class Birds {};
    class Peacock : protected Birds {};
}
```

24. Which of the following can access private data members or member functions of a class?

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<tr>
<th>Option</th>
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<tbody>
<tr>
<td>A.</td>
<td>Any function in the program.</td>
</tr>
<tr>
<td>B.</td>
<td>All global functions in the program.</td>
</tr>
<tr>
<td>C.</td>
<td>Any member function of that class.</td>
</tr>
<tr>
<td>D.</td>
<td>Only public member functions of that class.</td>
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</tbody>
</table>

25. Which of the following type of data member can be shared by all instances of its class?

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<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Public</td>
</tr>
<tr>
<td>B.</td>
<td>Inherited</td>
</tr>
<tr>
<td>C.</td>
<td>protected</td>
</tr>
<tr>
<td>D.</td>
<td>Private</td>
</tr>
</tbody>
</table>

26. How many specifiers are present in access specifiers in class?
27. Which is used to define the member of a class externally?
   A. :
   B. ::
   C. #
   D. none of the above

28. What is the output of this program?
   
   ```
   #include <iostream.h>
   
   class rect
   {
   int x, y;
   public:
   void val(int, int);
   int area ()
   {
   return(x * y);
   }
   
   void rect::val(int a, int b)
   {
   x = a;
   y = b;
   }
   int main ()
   {
   rect rect;
   rect.val(3, 4);
   cout<"rect area: "<rect.area();
   return 0;
   }
   
   A. rect area: 12
   B. rect area: 12
   C. rect area: 24
   D. rect area: 42
   ```

29. Which of the following is a valid class declaration?
A. class A { int x; };
B. class B { }
C. public class A { }
D. object A { int x; };

30. When struct is used instead of the keyword class means, what will happen in the program?
   A. access is public by default
   B. access is private by default
   C. access is protected by default
   D. none of the mentioned

31. How to access the members through class object?
   A. scope resolution operator
   B. ternary operator
   C. direct member access operator (.)
   D. none of the mentioned

32. Which of these following members are not accessed by using direct member access operator(.)?
   A. public
   B. private
   C. protected
   D. Both b & c

33. What is the output of the following program?
   #include <iostream.h>
   class Box
   {
   public:
   double length;
   double breadth;
   double height;
   
   void main()
   {
   Box Box1;
   double volume;
   Box1.height=5;
   Box1.length=6;
   Box1.breadth=7.1;
   volume = Box1.height* Box1.length* Box1.breadth;
   cout<"Volume of Box1 : ": volume <<endl;
   }
   
A. 210
34. What is the output of the program?
#include <iostream.h>

class Rect
{
    int x, y;
    public:
        void set_values(int, int);
        int area()
        {
            return(x * y);
        }
};
void Rect::set_values(int a, int b){
    x = a;
    y = b;
}
int main()
{
    Rect recta, rectb;
    recta.set_values(5, 6);
    rectb.set_values(7, 6);
    cout<<"recta area: "<<recta.area();
    cout<<"rectb area: "<<rectb.area();
    return 0;
}

A. recta area: 30 rectb area: 42
B. recta area: 20 rectb area: 34
C. recta area: 30 rectb area: 21
D. none of the mentioned

35. How many objects can be created of a class?
A. 1
B. 2
C. 3
D. as many as possible
36. **Pick out the other definition of objects.**
   
   A. member of the class  
   B. associate of the class  
   C. attribute of the class  
   D. instance of the class  

37. **What is the output of this program?**
   
   ```
   #include <iostream.h>  
   class sample  
   {
   private:  
   int var;  
   public:  
   void input()  
   {
   cout<<var;  
   }
   void output()  
   {
   cout<<"Variable entered is ";
   cout<<var<<"\n";  
   }
   };  
   void main()  
   {
   sample object;  
   object.var=5;  
   object.input();  
   object.output();
   }
   ```
   
   A. Variable entered is 5  
   B. runtime error  
   C. private member access by object  
   D. none of the mentioned  

38. **Which special character is used to mark the end of class?**
   
   A. ;  
   B. :  
   C. #  
   D. $  

39. **What is the output of this program?**
```c++
#include <iostream.h>

class number
{
int i;
public:
int geti();
void puti(int j);
};
int number::geti()
{
return i;
}
void number::puti(int j)
{
i = j;
}
void main()
{
    number s;
s. puti(10);
cout << s.geti();
    }
    A. 10
    B. 11
    C. 20
    D. 22

40. Which is true for this keyword

    A. this.member
    B. this->member
    C. this*.member
    D. *this.member
```
# CONSTRUCTORS & DESTRUCTORS

1. Which of the following is not a type of constructor?
   - A. Copy constructor
   - B. Friend constructor
   - C. Default constructor
   - D. Parameterized constructor

2. Which of the following statement is correct?
   - A. A constructor is called at the time of declaration of an object.
   - B. A constructor is called at the time of use of an object.
   - C. A constructor is called at the time of declaration of a class.
   - D. A constructor is called at the time of use of a class.

3. Which of the following is correct about function overloading?
   - A. The types of arguments are different.
   - B. The order of argument is different.
   - C. The number of argument is same.
   - D. Both A and B.

4. Given a class named `Book`, which of the following is not a valid constructor?
   - A. `Book ( ) {}`
   - B. `Book ( Book b) {}`
   - C. `Book ( Book &b) {}`
   - D. `Book (char* author, char* title) {}`

5. How many constructors can a class have?
   - A. 0
   - B. 1
   - C. 2
   - D. any number

6. Which of the following is not the characteristic of constructor?
   - A. They should be declared in the public section.
   - B. They do not have return type.
   - C. They can not be inherited.
   - D. They can’t be of same name as that of a class.
7. A copy constructor takes
   A. no argument
   B. one argument
   C. two arguments
   D. arbitrary no. of arguments

8. A constructor that accepts _________ parameters is called the default constructor.
   A. one  
   B. two  
   C. no  
   D. five

9. What happens when a class with parameterized constructors and having no default constructor is used in a program and we create an object with no-arguments?
   A. Compile-time error.
   B. Preprocessing error.
   C. Runtime error.
   D. Runtime exception.

10. Destructor has the same name as the constructor and it is preceded by ________.
    A. !  
    B. ?  
    C. ~  
    D. &

11. Constructors and destructors are called implicitly when the objects of the class is _____.
    A. Created and releases memory
    B. inherit parent class
    C. are constructed
    D. are destroyed
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<th>12.</th>
<th>Which constructor function is designed to copy objects of the same class type?</th>
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<tbody>
<tr>
<td></td>
<td>A. Create constructor</td>
</tr>
<tr>
<td></td>
<td>B. Object constructor</td>
</tr>
<tr>
<td></td>
<td>C. Dynamic constructor</td>
</tr>
<tr>
<td></td>
<td>D. Copy constructor</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>13.</th>
<th>Which of the following statement is correct?</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>A. Constructor has the same name as that of the class.</td>
</tr>
<tr>
<td></td>
<td>B. Destructor has the same name as that of the class with a tilde symbol at the beginning.</td>
</tr>
<tr>
<td></td>
<td>C. Both A and B.</td>
</tr>
<tr>
<td></td>
<td>D. Destructor has the same name as the first member function of the class.</td>
</tr>
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<tr>
<th>14.</th>
<th>Which of the following statement is incorrect?</th>
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<tbody>
<tr>
<td></td>
<td>A. Constructor is a member function of the class.</td>
</tr>
<tr>
<td></td>
<td>B. The compiler always provides a zero argument constructor.</td>
</tr>
<tr>
<td></td>
<td>C. It is necessary that a constructor in a class should always be public.</td>
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<td></td>
<td>D. Both B and C.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>15.</th>
<th>When are the Global objects destroyed?</th>
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<tbody>
<tr>
<td></td>
<td>A. When the control comes out of the block in which they are being used.</td>
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<tr>
<td></td>
<td>B. When the program terminates.</td>
</tr>
<tr>
<td></td>
<td>C. When the control comes out of the function in which they are being used.</td>
</tr>
<tr>
<td></td>
<td>D. As soon as local objects die.</td>
</tr>
</tbody>
</table>
16. Copy constructor must receive its arguments by __________.
   A. either pass-by-value or pass-by-reference
   B. only pass-by-value
   C. only pass-by-reference
   D. only pass by address

17. A function with the same name as the class, but preceded with a tilde character (~) is called __________ of that class.
   A. constructor
   B. destructor
   C. function
   D. object

18. Which of the following gets called when an object goes out of scope?
   A. constructor
   B. destructor
   C. main
   D. virtual function

19. Which of the following statement is correct?
   A. Destructor destroys only integer data members of the object.
   B. Destructor destroys only float data members of the object.
   C. Destructor destroys only pointer data members of the object.
   D. Destructor destroys the complete object.

20. __________ is used to make a copy of one object to another object of the same class type.
   A. constructor
   B. copy constructor
   C. destructor
   D. default constructor
21. Constructors __________ to create objects in different ways.
   A. cannot overloaded  
   B. can be overloaded  
   C. can be called  
   D. can be nested

22. Which of the following statement is correct?
   A. A destructor has the same name as the class in which it is present.  
   B. A destructor has a different name than the class in which it is present.  
   C. A destructor always returns an integer.  
   D. A destructor can be overloaded.

23. Which of the following are NOT provided by the compiler by default?
   A. Zero-argument Constructor  
   B. Destructor  
   C. Copy Constructor  
   D. A & B

24. It is a __________ error to pass arguments to a destructor.
   A. logical  
   B. virtual  
   C. syntax  
   D. linker

25. If the programmer does not explicitly provide a destructor, then which of the following creates an empty destructor?
   A. Preprocessor  
   B. Compiler  
   C. Linker  
   D. main() function

26. A constructor having parameters with default values is known as ..........
<table>
<thead>
<tr>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. default constructor</td>
</tr>
<tr>
<td>B. copy constructor</td>
</tr>
<tr>
<td>C. Constructor with default values.</td>
</tr>
<tr>
<td>D. None of these</td>
</tr>
</tbody>
</table>

27. How many default constructors per class are possible?
   | A. Only one  |
   | B. Two  |
   | C. Three  |
   | D. Unlimited  |

28. Which of the following statement is correct about destructors?
   | A. A destructor has void return type.  |
   | B. A destructor has integer return type.  |
   | C. A destructor has no return type.  |
   | D. A destructors return type is always same as that of main().  |

29. Which of the following statement is correct?
   | A. A constructor has the same name as the class in which it is present.  |
   | B. A constructor has a different name than the class in which it is present.  |
   | C. A constructor always returns an integer.  |
   | D. A constructor cannot be overloaded.  |

30. Which of the following implicitly creates a default constructor when the programmer does not explicitly define at least one constructor for a class?
<p>| | | | | |</p>
<table>
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<tr>
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<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Preprocessor</td>
<td>B. Linker</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Loader</td>
<td>D. Compiler</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

31. A destructor takes ________ arguments.
   - A. one
   - B. two
   - C. three
   - D. no

32. Destructor calls are made in which order of the corresponding constructor calls?
   - A. Reverse order
   - B. Forward order
   - C. Depends on how the object is constructed
   - D. Depends on how many objects are constructed

33. Which of the following never requires any arguments?
   - A. Member function
   - B. Friend function
   - C. Default constructor
   - D. const function

34. A class's ________ is called when an object is destroyed.
   - A. constructor
   - B. destructor
   - C. assignment function
   - D. copy constructor

35. Destructors ________ automatically when the program terminates with a call to function exit or function abort.
### 36. Which of the following statement is correct?

- **A.** A constructor of a derived class can access any public and protected member of the base class.
- **B.** Constructor cannot be inherited but the derived class can call them.
- **C.** A constructor of a derived class cannot access any public and protected member of the base class.
- **D.** Both A and B

### 37. Which of the following statements are correct?

- **A.** Constructor is always called explicitly.
- **B.** Constructor is called either implicitly or explicitly, whereas destructor is always called implicitly.
- **C.** Destructor is always called explicitly.
- **D.** Constructor and destructor functions are not called at all as they are always inline.

### 38. How many times a constructor is called in the life-time of an object?

- **A.** Only once
- **B.** Twice
- **C.** Thrice
- **D.** Depends on the way of creation of object

### 39. Which of the following statement is correct about constructors?
A. A constructor has a return type.
B. A constructor cannot contain a function call.
C. A constructor has no return type.
D. A constructor has a void return type.

40. Which of the following statement is correct whenever an object goes out of scope?
   A. The default constructor of the object is called.
   B. The parameterized destructor is called.
   C. The default destructor of the object is called.
   D. None of the above.

41. Answer the questions (i) and (ii) after going through the following program

```cpp
#include<iostream.h>
#include<string.h>
class Bazar
{
    char Type[20];
    char Product[20];
    int Qty;
    float Price;
    Bazar() //Function 1
    {
        strcpy(Type,"Electronic");
        strcpy(Product,"Calculator");
        Qty = 10;
        Price = 225;
    }

    public:
        void Disp( ) //Function 2
        {
            cout<<Type<<"-"<<Product<<":"<<Qty<<"@"<<Price<<endl;
        }

};

void main( )
```
\{ 
    Bazar B;                   //Statement 1 
    B.Disp();                 //Statement 2 
\}

(i) Will Statement 1 initialize all the data members for object B with the values given in the Function 1? Justify your answer suggesting the correction(s) to be made in the above code.

A. Yes  
B. No

(ii) What shall be the possible output when the program gets executed? (Assuming, if required - the suggested correction(s) are made in the program).

A. Electronic-Calculator:10@225  
B. Electronic Calculator ::10@250  
C. Electronic Calculator :10@250  
D. Electronic-Calculator:10@225

42. Answer the questions (i) and (ii) after going through the following class:
   class Seminar
   { 
     int Time; 
     public: 
       Seminar()                     //Function 1 
       { 
         Time=30; cout<<"Seminar starts now"<<endl; 
       } 
       void Lecture()                //Function 2 
       { 
         cout<<"Lectures in the seminar on"<<endl; 
       } 
       Seminar(int Duration)        //Function 3 
       { 
         Time=Duration; cout<<"Seminar starts now"<<endl; 
       } 
       ~Seminar()                   //Function 4 
   }
{ 
    cout<<"Vote of thanks"<<endl;
}

(i) In Object Oriented Programming, what is Function 4 referred as?

A. Copy Constructor
B. Constructor
C. Destructor
D. Default Constructor

(ii) In Object Oriented Programming, when does Function 4 get invoked/called?

A. When user calls it.
B. It is invoked as soon as the scope of the object gets over.
C. It can’t be invoked.
D. A & C

(iii) In Object Oriented Programming, which concept is illustrated by Function 1 and Function 3 together? Write an example illustrating the calls for these functions.

A. Inheritance
B. Encapsulation
C. Constructor Overloading (Polymorphism)
D. Data hiding

(iv) What is the correct code to call Function 1?

A. Seminar S1
B. Seminar S1;
C. S1;
D. A & C

(v) What is the correct code to call Function 3?
A. Seminar S2(90);
B. Seminar S2;
C. S2;
D. B & C

43. In which case is it mandatory to provide a destructor in a class?
   A. Almost in every class
   B. Class for which two or more than two objects will be created
   C. Class for which copy constructor is defined
   D. Class whose objects will be created dynamically

44. Constructor Overloading implements ............ feature of OOPs
   A. Polymorphism
   B. Inheritance
   C. Abstraction
   D. None

45. What happens when following statements are executed assuming Book is a class
   Book a,b;
   -------
   a=b;
   A. Copy Constructor is called.
   B. Default Constructor
   C. Assignment Operation
   D. None
## INHERITANCE

1. The process of building new classes from existing one is called ______.
   - E. Polymorphism
   - F. Structure
   - G. Inheritance
   - H. Cascading

2. Mechanism of deriving a class from another derived class is known as____
   - A. Polymorphism
   - B. Single Inheritance
   - C. Multilevel Inheritance
   - D. Message Passing

3. If a class C is derived from class B, which is derived from class A, all through public inheritance, then a class C member function can access
   - A. Protected and public data only in C and B
   - B. Protected and public data only in C
   - C. Private data in A and B
   - D. Protected data in A and B

4. The base class access specification determines how __________ members in the base class may be accessed by derived classes.
   - A. Private
   - B. Public
   - C. Protected
   - D. All of the above

5. A base class may also be called a
   - A. Child class
   - B. Subclass
   - C. Derived class
   - D. Parent class

6. Which of the statements are true?
   - I. Function overloading is done at compile time.
   - II. Protected members are accessible to the member of derived class.
   - III. A derived class inherits constructors and destructors.
<p>| | | | | |</p>
<table>
<thead>
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</thead>
</table>
| IV. | A friend function can be called like a normal function.  
V. | Nested class is a derived class.  
|   | A. I, II, III  
|   | B. II, III, V  
|   | C. III, IV, V  
|   | D. I, II, IV  
| 7. | **In multiple inheritance**  
|   | A. The base classes must have only default constructors  
|   | B. Cannot have virtual functions  
|   | C. Cannot have virtual classes  
|   | D. None of the above  
| 8. | **When a sub class is inherited from only one super class .It is known as**  
|   | A. Single inheritance  
|   | B. Multiple inheritance  
|   | C. Hierarchical inheritance  
|   | D. Multilevel inheritance  
| 9. | **________ members of a base class are never accessible to a derived class.**  
|   | A. Private  
|   | B. Public  
|   | C. Protected  
|   | D. All of the above  
| 10. | **What part of object-oriented technology defines superclass and subclass relationships?**  
|   | A. Inheritance  
|   | B. Scalability  
|   | C. Encapsulation  
|   | D. Polymorphism  
| 11. | In a student grading system, objects from different classes communicate with each other. These communications are known as _____  
|   | A. Inheritance  
|   | B. Scalability  
|   | C. Encapsulation  
|   | D. Polymorphism  

33
12. What common technique attempts to save time and energy by reducing redundant work in object-oriented programming?
   - A. Reduce lines of programming
   - B. Reuse of code
   - C. Reduce size of systems being developed
   - D. Merging different systems together

13. Which of the following term is used for a function defined inside a class?
   - A. Member Variable
   - B. Member function
   - C. Class function
   - D. Classic function

14. Which of the following is the valid class declaration header for the derived class b with base class a and derived class c with base class b?
   - A. `class b : public a{    };       class c : public b{     };`
   - B. `class d : class b1, class b2`
   - C. `class a : public b{    };       class b : public c{     };`
   - D. `class d : b1, b2`
   - E. 

15. Which of the statements is true in a protected derivation of a derived class from a base class?
   - A. Private members of the base class become protected members of the derived class
   - B. Protected members of the base class become public members of the derived class
   - C. Public members of the base class become protected members of the derived class
   - D. Protected derivation does not affect private and protected members of the derived class.

16. Which of the following is the valid class declaration header for the derived class d with base classes b1 and b2?
   - A. `class d : public b1, public b2`
   - B. `class d : class b1, class b2`
   - C. `class d : public b1, b2`
   - D. `class d : b1, b2`
17. The major goal of inheritance in C++ is:
   - A. To facilitate the conversion of data types.
   - B. To help modular programming.
   - C. To extend the capabilities of a class.
   - D. To hide the details of base class.

18. Consider the following class definitions:
    ```
    class a {
   );
    class b: protected a {
    );
    ```

    What happens when we try to compile this class?
    - A. Will not compile because class body of `a` is not defined.
    - B. Will not compile because class body of `b` is not defined.
    - C. Will not compile because class `a` is not public inherited.
    - D. Will compile successfully.

19. In access control in a protected derivation, visibility modes will change as follows:
    - A. private, public and protected become protected
    - B. only public becomes protected.
    - C. public and protected become protected.
    - D. only private becomes protected.

20. Which allows you to create a derived class that inherits properties from more than one base class?
    - A. Multilevel inheritance
    - B. Multiple inheritance
    - C. Hybrid Inheritance
    - D. Hierarchical Inheritance

21. Which feature in OOP allows reusing code?
    - A. Polymorphism
    - B. Inheritance
    - C. Encapsulation
    - D. Data hiding

22. To hide a data member from the program, you must declare the data member in the _____ section of the class
    - A. concealed
    - B. confidential
    - C. hidden
    - D. private
<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
</tr>
</thead>
</table>
| 23.      | When you derive a class privately, a protected base class member becomes  
|          | A. private  
|          | B. public   
|          | C. not inherited  
|          | D. protected  |
| 24.      | Irrespective of type of derivation__________members of a base class are never accessible in derived class.  
|          | A. (b), (d) and (e)  
|          | B. private  
|          | C. none of these  
|          | D. protected  
|          | E. public  |
| 25.      | A class inherited from an existing class is known as _____________.  
|          | A. derived class  
|          | B. inheritee  
|          | C. child class  
|          | D. A and C  |
| 26.      | When two or more classes serve as base class for a derived class, the situation is known as ___________.  
|          | A. multiple inheritance  
|          | B. polymorphism  
|          | C. encapsulation  
|          | D. None of these  |
| 27.      | Which type of inheritance is depicted in the given example?  
|          | class school : public student, private teacher  
|          | A. Multilevel Inheritance  
|          | B. Multiple Inheritance  
|          | C. Single Level Inheritance  
|          | D. None of these  |
| 28.      | When derived class and base classes both contain constructors, the base constructor is executed first and then the constructor in the derived class is executed.  
|          | A. True  
|          | B. False  
|          | C. All of the above  
|          | D. None of the above  |
29. How Many bytes will be required by an object of the class SHOP?

```cpp
class CUSTOMER
{
    int Cust_no;
    char Cust_Name[20];
};

class SALESMAN
{
    int Salesman_no;
    char Salesman_Name[20];
    protected:
    float Salary;
};

class SHOP : private CUSTOMER, public SALESMAN
{
    char Voucher_No[10];
    char Sales_Date[8];
};
```

A. 56 bytes  
B. 18 bytes  
C. 88 bytes  
D. 66 bytes

30. Which type of inheritance is shown in the following example?

```cpp
class olympics
{
    int no_of_events; char country_name[25];
};

class outdoorgame : public olympics
{
    char eventname[20];
    int eventcode;
};

class hockey : public outdoorgame
{
    int no_of_players;
    char venue[25];
};
```

A. Multilevel Inheritance  
B. Multiple Inheritance  
C. Single Level Inheritance
31. Consider the following class declaration and answer the question below:

```cpp
class university {
    int noc;
    protected;
    char uname[25];
    public:
    university();
    char state[25];
};

class college:public university{
    int nod;
    char cname[25];
    public:
    college();
};

class department:public college{
    char dname[25];
    int notof;
    public:
    department();
};
```

Which class’s constructor will be called first at the time of declaration of an object of class department?

A. university  
B. department  
C. college  
D. No class constructor will be called
consider the following class declaration and answer the question below:

```cpp
class university {
    int noc;
    protected:
    char uname[25];
    public:
    university();
    char state[25];
};

class college:public university{
    int nod;
    char cname[25];
    public:
    college();
};

class department:public college{
    char dname[25];
    int nof;
    public:
    department();
};
```

(i) How many bytes does an object belonging to class college, university and department require respectively?

A. 79, 52, 106
B. 52, 106, 79
C. 106, 79, 52
D. 79, 54, 106
(ii) Which data member will be accessible from the object of class department?

A. noc  
B. dname  
C. nof  
D. state

33. What is the output of this program?
```cpp
#include <iostream.h>  
class A  
{  
public:  
    A(int n)  
    {  
        cout<< n;  
    }  
};  
class B:public A  
{  
public:  
    B(int n, double d)  
    : A(n)  
    {  
        cout<< d;  
    }  
};  
class C:public B  
{  
public:  
    C(int n, double d, char ch)  
    : B(n, d)  
    {  
        cout<<ch;  
    }  
};  
int main()  
{  
    C c(5, 4.3, 'R');
```
return 0;
}
A. 54.3R
B. R4.35
C. 4.3R5
D. None of the mentioned

34. What is the output of this program?
#include <iostream.h>

class BaseClass
{
    protected:
    int i;
    public:
    BaseClass(int x)
    {
        i = x;
    }
    ~BaseClass()
    {
    }
};
class DerivedClass: public BaseClass
{
    int j;
    public:
    DerivedClass(int x, int y): BaseClass(y)
    {
        j = x;
    }
    ~DerivedClass()
    {
    }
    void show()
    {
        cout « i « " « j « endl;
    }
};
```c++
int main()
{
    DerivedClass ob(3, 4);
    ob.show();
    return 0;
}
```

35. What is the output of this program?

```c++
#include <iostream.h>

class Base
{
    public:
    int m;
    Base(int n=0)
    : m(n)
    {
        cout << "Base" << endl;
    }
};

class Derived: public Base
{
    public:
    double d;
    Derived(double de = 0.0)
    : d(de)
    {
        cout << "Derived" << endl;
    }
};

int main()
{
    cout << "Instantiating Base" << endl;
    Base cBase;
    cout << "Instantiating Derived" << endl;
    Derived cDerived;
    return 0;
}
```
A. Instantiating Base
   Base
   Instantiating Derived
   Base
   Derived

B. Instantiating Base
   Instantiating Derived
   Base
   Derived

C. Instantiating Base
   Base
   Instantiating Derived
   Base

D. None of the mentioned

What is the output of this program?

```cpp
#include <iostream.h>
class Parent
{
    public:
        Parent (void)
        {
        cout<<"Parent()\n";
        }
        Parent (int i)
        {
        cout<<"Parent("<<i<<")\n";
        }
        Parent (void)
        {
        cout<<"~Parent()\n";
        }
};
```
```cpp
class Child1 : public Parent {}
class Child2 : public Parent
{
    public:
        Child2 (void)
    {
            cout << "Child2()\n";
        }
        Child2 (int i) : Parent (i)
    {
            cout << "Child2(" << i << ")\n";
        }
    ~Child2 (void)
    {
            cout << "~Child2()\n";
        }
};
int main (void)
{
    Child1 a;
    Child2 b:
        Child2 c(42);
    return 0;
}
```


B. Error  

C. runtime error  

D. None of the mentioned
### Data File Handling

| Q1 | Which enables a program to store the data permanently on secondary storage devices  
|    | (a) monitor  
|    | (b) printer  
|    | (c) file  
|    | (d) None of these |
| Q2 | A collection of related data stored on some storage devices such as a hard disk, magnetic tape or floppy disk.  
|    | (a) program  
|    | (b) process  
|    | (c) file  
|    | (d) None of these |
| Q3 | Data files can be classified as  
|    | (a) Text File  
|    | (b) Binary File  
|    | (c) Both (a) & (b)  
|    | (d) None of these |
| Q4 | The files that store data in the form of binary digits are known as  
|    | (a) Text File  
|    | (b) Binary File  
|    | (c) Both (a) & (b)  
|    | (d) None of these |
| Q5 | The files that store data as strings of characters are known as  
|    | (a) Text File  
|    | (b) Binary File  
|    | (c) Both (a) & (b)  
|    | (d) None of these |
| Q6 | A flow of data in the form of a sequence of bytes is known as  
|    | (a) word  
|    | (b) string  
|    | (c) stream  
|    | (d) None of these |
| Q7 | The stream that reads the data from the device and supplies it to the program is known as  
|    | (a) input stream  
|    | (b) output stream  
|    | (c) Both (a) & (b)  
|    | (d) None of these |
| Q8 | The stream that receives data from the program and writes it to the device is known as  
|    | (a) input stream  
|    | (b) output stream  
|    | (c) Both (a) & (b)  
|    | (d) None of these |
| Q9 | Which one is file input stream class  
|    | (a) ifstream  
|    | (b) ofstream  
|    | (c) both (a) & (b)  
|    | (d) None of these |
| Q10 | Which one is file output stream class  
|    | (a) ifstream  
|    | (b) ofstream  
|    | (c) both (a) & (b)  
|    | (d) None of these |
| Q11 | Which is both file input and output stream class  
|    | (a) ifstream  
|    | (b) ofstream  
|    | (c) fstream  
|    | (d) None of these |
| Q12 | A file can be opened by  
      (a) constructor  
      (b) open( )  
      (c) both (a) & (b)  
      (d) None of these |
|-----|------------------|
| Q13 | Two or more file modes can be combined using the operator  
      (a) bitwise OR ( |  
      (b) bitwise AND ( &)  
      (c) both (a) & (b)  
      (d) None of these |
| Q14 | The default mode for the ifstream class is  
      (a) ios::in  
      (b) ios::out  
      (c) both (a) & (b)  
      (d) None of these |
| Q15 | The default mode for the ifstream class is  
      (a) ios::in  
      (b) ios::out  
      (c) both (a) & (b)  
      (d) None of these |
| Q16 | By default all files are open in which mode  
      (a) text mode  
      (b) binary  
      (c) both (a) & (b)  
      (d) None of these |
| Q17 | The open in which mode is compulsory to close the file by close() method  
      (a) constructor  
      (b) open( )  
      (c) both (a) & (b)  
      (d) None of these |
| Q18 | Which method is used to read the data from a file  
      (a) get( )  
      (b) read( )  
      (c) both (a) & (b)  
      (d) None of these |
| Q19 | Which method is used to write the data to the file  
      (a) put( )  
      (b) write( )  
      (c) both (a) & (b)  
      (d) None of these |
| Q20 | The current position of a get pointer can be known by using  
      (a) tellg( )  
      (b) tellp( )  
      (c) seekg( )  
      (d) seekp( ) |
| Q21 | The current position of a put pointer can be known by using  
      (a) tellg( )  
      (b) tellp( )  
      (c) seekg( )  
      (d) seekp( ) |
| Q22 | Which of these stream classes can be used to read data from a file?  
      (a) fstream  
      (b) ifstream  
      (c) ofstream  
      (d) both (a) & (b) |
| Q23 | Which of these file modes allows to write data anywhere in a file?  
      (a) ios::ate  
      (b) ios::app  
      (c) ios::out  
      (d) ios::trunk |
| Q24 | Which of these functions allows to change the position of the get pointer?  
      (a) tellg( )  
      (b) tellp( ) |
<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q25</td>
<td>Which of these refers to the end position of a file?</td>
<td>(a) <code>ios::beg</code>  (b) <code>ios::end</code>  (c) <code>ios::cur</code>  (d) None of these</td>
</tr>
<tr>
<td>Q26</td>
<td>Which of these functions returns a non-zero value if end of file is encountered while reading data from a file?</td>
<td>(a) <code>eof()</code>  (b) <code>fail()</code>  (c) <code>good()</code>  (d) <code>fast()</code></td>
</tr>
</tbody>
</table>

(c) `seekg()`  (d) `seekp()`
# POINTERS

1. Which of the following is the proper declaration of a pointer?
   - A. int x;
   - B. int &x;
   - C. ptr x;
   - D. int *x;

2. Which of the following gives the memory address of integer variable a?
   - A. *a;
   - B. a;
   - C. &a;
   - D. address(a);

3. Consider the following statements
   ```cpp
   char *ptr;
ptr = "hello";
cout << *ptr;
   ```
   What will be printed?
   - A. first letter
   - B. entire string
   - C. it is a syntax error
   - D. last letter

4. Declaration of a pointer reserves memory space
   - A. for the object.
   - B. for the pointer.
   - C. both for the object and the pointer.
   - D. none of these.

5. What would be the output of the following?
   ```cpp
   #include<iostream.h>
   void main()
   {
   char *ptr="abcd"
   char ch;
   ch = +++*ptr++;
cout<<ch;
   ```
A. a  
B. b  
C. c  
D. d

6. Which of the following declarations are illegal?  
   A. void *ptr;  
   B. char *str = "hello";  
   C. char str = "hello";  
   D. const *int p1;

7. You have assigned the address of Value to the pointer P. Which statement will display the value stored in Value?  
   A. cout<<P;  
   B. cout<<*Value;  
   C. cout<<&P;  
   D. cout<<*P;

8. A pointer to a block of memory is effectively same as an array  
   A. True  
   B. False

9. Which of the following gives the value stored at the address pointed to by pointer a?  
   A. a;  
   B. val(a);  
   C. *a;  
   D. &a;

10. Which of the following gives the memory address of a pointer a?  
    A. a;  
    B. *a;  
    C. &a;  
    D. address(a);

11. What will be the output of this code?  
    ```cpp
    int *p1,*p2;
p1=new int;
p2=new int;
*p1=10;
*p2=20;
cout<<*p1<< " "<<*p2<<endl;
*p1=*p2;
    ```
cout<<*p1" "<<*p2<<endl;
*p1=30;
cout<<*p1" "<<*p2<<endl;

A. 10 20
   20 20
   30 20
B. 10 20
   20 40
   30 40
C. 20 20
   20 30
   20 20
D. None

12. The operator used for dereferencing or indirection is ____
   A. *
   B. &
   C. ->
   D. -->

13. Which of the following is illegal?
   A. int *ip;
   B. string s, *sp = 0;
   C. int i; double* dp = &i;
   D. int *pi = 0;

14. What will happen in this code?
   int a = 100, b = 200;
   int *p = &a, *q = &b;
   p = q;

   A. b is assigned to a
   B. p now points to b
   C. a is assigned to b
   D. q now points to a

15. What is the output of this program?

   #include <iostream.h>
   void main()
   {
      int a = 5, b = 10, c = 15;
      int *arr[ ] = {&a, &b, &c};
cout << arr[1];

A. 5  
B. 10  
C. 15  
D. it will return some random address value

16. What is the output of this program?
#include <iostream.h>
void main()
{
    char arr[20];
    int i;
    for(i = 0; i < 10; i++)
        *(arr + i) = 65 + i;
    *(arr + i) = '\0';
    cout << arr;
}
A. ABCDEFGHIJ  
B. AAAAAAAAAAA  
C. JJJJJJJJJ  
D. none of the mentioned

Each time we are assigning 65 + i. In first iteration i = 0 and 65 is assigned. 
So it will print from A to J.

17. What is the output of this program?
#include <iostream.h>
int main()
{
    char *ptr;
    char Str[] = "abcdefg";
    ptr = Str;
    ptr += 5;
    cout << ptr;
    return 0;
}
A. fg  
B. cdef  
C. defg
18. What is the output of this program?
#include <iostream.h>
void main()
{
    int a[2][4] = {3, 6, 9, 12, 15, 18, 21, 24};
    cout << *(a[1] + 2) << *(a[1] + 2) << 2[1[a]];
}
A. 15 18 21
B. 21 21 21
C. 24 24 24
D. Compile time error


19. What is the output of this program?
#include <iostream.h>
void main()
{
    int i;
    char *arr[] = {"C", "C++", "Java", "VBA");
    char *(*ptr)[4] = &arr;
    cout << ++(*ptr)[2];
}
A. java
B. Java
C. c++
D. Compile time error

Answer: a
Explanation: In this program we are moving the pointer from first position to second position and printing the remaining value.

20. What is the output of this program?
#include <iostream.h>
void main()
{
    int arr[] = {4, 5, 6, 7};
    int *p = (arr + 1);

```C```
cout << *p;
}

A. 4  
B. 5  
C. 6  
D. 7  

View Answer  
Answer: b  
Explanation: In this program, we are making the pointer point to next value and printing it.

21. What is the output of this program?
#include <iostream.h>
void main()
{
    int arr[] = {4, 5, 6, 7};
    int *p = (arr + 1);
    cout << arr;
}
A. 4  
B. 5  
C. address of arr  
D. 7  

Explanation: As we couted to print only arr, it will print the address of the array.

22. What is the output of this program?
#include <iostream.h>
void main ()
{
    int numbers[5];
    int * p;
    p = numbers; *p = 10;
    p++; *p = 20;
    p = &numbers[2]; *p = 30;
    p = numbers + 3; *p = 40;
    p = numbers; *(p + 4) = 50;
    for (int n = 0; n < 5; n++)
        cout << numbers[n] << ",";
23. What is the output of this program?

```cpp
#include <iostream.h>

int main()
{
    int arr[] = {4, 5, 6, 7};
    int *p = (arr + 1);
    cout << *arr + 9;
}
```

A. 12  
B. 5  
C. 13  
D. error

Explantion: In this program, we are adding the value 9 to the initial value of the array, So it’s printing as 13.

24. What is the output of this program?

```cpp
#include<iostream.h>

void main()
{
    int arr[] = {12, 23, 34, 45};
    int *ptr = arr;
    int val = *ptr; cout << val << endl;
    val = (*ptr)++; cout << val << endl; // first print value then increment (post increment in value)
    val = *ptr; cout << val << endl;  // only values are changing
    val = *++ptr; cout << val << endl;  // first increment the address and then print the value.
}
```
25. What is the output of this program?

```cpp
#include <iostream.h>

void main()
{
    int arr[] = {12, 23, 34, 45};
    int *ptr = arr;
    int val = *ptr; cout << val << endl;
    val = *ptr++; cout << val << endl;
    val = *ptr; cout << val << endl;
    val = *++ptr; cout << val << endl;
}
```

<table>
<thead>
<tr>
<th></th>
<th>A. 12</th>
<th>B. 12</th>
<th>C. 12</th>
<th>D. 12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
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<td>14</td>
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<tr>
<td></td>
<td>22</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
</tbody>
</table>

26. What is the output of this program?

```cpp
#include <iostream.h>

void main()
{
    int arr[] = {12, 23, 34, 45};
    int *ptr = arr;
    int val = *ptr; cout << val << endl;
    val = *ptr++; cout << val << endl;
    val = *ptr; cout << val << endl;
    val = ++*ptr; cout << val << endl;
}
```

<table>
<thead>
<tr>
<th></th>
<th>A. 12</th>
<th>B. 12</th>
<th>C. 12</th>
<th>D. 22</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>23</td>
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<td>23</td>
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<tr>
<td></td>
<td>22</td>
<td>24</td>
<td>23</td>
<td>23</td>
</tr>
</tbody>
</table>
### UNIT 2: DATA STRUCTURES

#### ARRAYS

<table>
<thead>
<tr>
<th></th>
<th>Which of the following correctly declares an array?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A. <code>int anarray[10];</code></td>
</tr>
<tr>
<td></td>
<td>B. <code>int anarray;</code></td>
</tr>
<tr>
<td></td>
<td>C. <code>an array[10];</code></td>
</tr>
<tr>
<td></td>
<td>D. <code>array anarray[10];</code></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.</th>
<th>2. What is the index number of the last element of an array with 29 elements?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A. 29</td>
</tr>
<tr>
<td></td>
<td>B. 28</td>
</tr>
<tr>
<td></td>
<td>C. 0</td>
</tr>
<tr>
<td></td>
<td>D. Programmer-defined</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.</th>
<th>Which of the following is a two-dimensional array?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A. <code>array anarray[20][20];</code></td>
</tr>
<tr>
<td></td>
<td>B. <code>int anarray[20][20];</code></td>
</tr>
<tr>
<td></td>
<td>C. <code>int array[20, 20];</code></td>
</tr>
<tr>
<td></td>
<td>D. <code>char array[20];</code></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.</th>
<th>Which of the following correctly accesses the seventh element stored in <code>Game</code>, an array with 100 elements?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A. <code>Game[6];</code></td>
</tr>
<tr>
<td></td>
<td>B. <code>Game7];</code></td>
</tr>
<tr>
<td></td>
<td>C. <code>Game(7);</code></td>
</tr>
<tr>
<td></td>
<td>D. <code>Game;</code></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5.</th>
<th>What is an array?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) An array is a series of elements of the same type in contiguous memory locations</td>
</tr>
<tr>
<td></td>
<td>b) An array is a series of elements of the same type placed in non-contiguous memory locations</td>
</tr>
<tr>
<td></td>
<td>c) None of the mentioned</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6.</th>
<th>Which of the following gives the memory address of the first element in an array?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) <code>array[0];</code></td>
</tr>
</tbody>
</table>
b) array[1];  
c) array(2);  
d) array;

7. What is the formula for address calculation in row major order of element $A[I][J]$ of an array $A[r][c]$ if $B$ is the Base address, $W$ is the word size, $r$ is number of rows, $c$ is number of columns.

   A. Address of element $A[I][J] = B + W[c*I+J]$  
   B. Address of element $A[I][J] = B + W[c*J+I]$  
   C. Address of element $A[I][J] = B + W[r*I+J]$  
   D. Address of element $A[I][J] = B + W[r*J+I]$

8. What is the formula for address calculation in column major order of element $A[I][J]$ of an array $A[r][c]$ if $B$ is the Base address, $W$ is the word size, $r$ is number of rows, $c$ is number of columns.

   A. Address of element $A[I][J] = B + W[c*I+J]$  
   B. Address of element $A[I][J] = B + W[c*J+I]$  
   C. Address of element $A[I][J] = B + W[r*J-I]$  
   D. Address of element $A[I][J] = B + W[r*J-I]$

9. What is the formula for address calculation in row major order of element $A[I][J]$ of an array $A[L_r,...,U_r][L_c,...,U_c]$ if $B$ is the Base address, $W$ is the word size, $r$ is number of rows, $c$ is number of columns.

   A. Address of element $A[I][J] = B + W[(I-L_r)+r*(J-L_c)]$  
   B. Address of element $A[I][J] = B + W[r*(I-L_r)+(J-L_c)]$  
   C. Address of element $A[I][J] = B + W[I-L_r] + c*(J-L_c)]$  
   D. Address of element $A[I][J] = B + W[c*(I-L_r)+(J-L_c)]$

10. What is the formula for address calculation in column major order of element $A[I][J]$ of an array $A[L_r,...,U_r][L_c,...,U_c]$ if $B$ is the Base address, $W$ is the word size, $r$ is number of rows, $c$ is number of columns.

    A. Address of element $A[I][J] = B + W[(I-L_r)+r*(J-L_c)]$  
    B. Address of element $A[I][J] = B + W[r*(I-L_r)+(J-L_c)]$
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>11.</strong></td>
<td></td>
</tr>
<tr>
<td>P is 2-D array [10x5]. Each element of the array is stored in 2 memory locations. If X[1,1] begins at address 180, find the correct location of P[2,4]. The arrangement is in row-major.</td>
<td></td>
</tr>
<tr>
<td>A. 176</td>
<td>B. 190</td>
</tr>
<tr>
<td>C. 196</td>
<td>D. 208</td>
</tr>
<tr>
<td><strong>12.</strong></td>
<td></td>
</tr>
<tr>
<td>A character array A[-20..20],10...35] is stored in memory along with columns. The beginning address is 500 the identify the location of A[0,40].</td>
<td></td>
</tr>
<tr>
<td>A. 1234</td>
<td>B. 1340</td>
</tr>
<tr>
<td>C. 2345</td>
<td>D. 3245</td>
</tr>
<tr>
<td><strong>13.</strong></td>
<td></td>
</tr>
<tr>
<td>An array P[20][30] is stored in the memory along the column with each of the element occupying 4 bytes, find out the Base Address of the array, if an element P[2][20] is stored at the memory location 5000.</td>
<td></td>
</tr>
<tr>
<td>A. 3454</td>
<td>B. 3390</td>
</tr>
<tr>
<td>C. 3392</td>
<td>D. 6545</td>
</tr>
<tr>
<td><strong>14.</strong></td>
<td></td>
</tr>
<tr>
<td>If an Array B[11][8] is stored as column wise and B[2][2] is stored at 1036 and B[3][3] at 1084, write the addresses of B[5][3] and B[1][1].</td>
<td></td>
</tr>
<tr>
<td>Address of B[5][3] is ..........</td>
<td>Address of B[1][1] is..........</td>
</tr>
<tr>
<td><strong>15.</strong></td>
<td></td>
</tr>
<tr>
<td>An array Arr[50][100] is stored in the memory along the row with each element occupying 2 bytes.Find out the address of the location Arr[20][50],if the location Arr[10][25] is stored at the address 10000.</td>
<td></td>
</tr>
<tr>
<td>address of the location Arr[20][50]..........................</td>
<td></td>
</tr>
<tr>
<td><strong>16.</strong></td>
<td></td>
</tr>
<tr>
<td>An array Arr[1...15][1...8] is stored in the memory along the column with each of its elements occupying 4 bytes . Find out the base address and the address of an element Arr[3][2], if the location Arr[5][7] is stored at the address 2500.</td>
<td></td>
</tr>
</tbody>
</table>
Base address is ........................

Address of an element Arr[3][2] is ..........................

17. Write a function in C++ which accepts an integer array and its size as argument/parameters and exchanges the values of first half side elements with the second half side elements of the array.

Example: If an array of eight elements has initial content as
2,4,1,6,9,23,10,16
The function should rearrange the array as
9,23,10,16,2,4,1,6,7

18. The function definition is given below:
void exchange(int a[ ], int n)
{
    int i, mid, j, temp;
    mid=n/2;     //divide total no.of elements by 2 and assign the result to mid

    if (n%2 == 0)
        j=mid;
    else
        j=mid+1;

    //swap elements
    for(i=0; i<mid; i++, j++)
    {
        temp = a[i];
        a[i] = a[j];
        a[j] = temp;
    }
}

19. Write a function in C++ to print the sum of all the values which are either divisible by 3 or are divisible by 5 present in a two dimensional array passed as the argument to the function.

20. Define a function SwapArray(int [ ], int) that would accept a one dimensional integer array NUMBERS and its size N. The function should rearrange the array in such a way that the values of alternate locations of the array are exchanged (Assumed the size of the array to be even)
Example:
If the array initially contains
[2,5,9,14,17,8,19,16]
then after rearrangement the array should contain [5,2,14,9,8,17,16,19]

Ans

```c
void SwapArray(int NUMBERS[], int N)
{
    int i, temp;
    for (i = 0; i < N; i += 2)
    {
        temp = NUMBERS[i];
        NUMBERS[i] = NUMBERS[i + 1];
        NUMBERS[i + 1] = temp;
    }
}
```

21. Write a function in C++ which accepts a character array and its size as arguments and reverse that array without using second array and library function.
Example: if the array is having “Computer Science”
Then after reversal it should rearranged as “ecneicSretupmoC”

22. The function definition is given below:
```c
void Reversearray(int a[], int size)
{
    int temp, i, j;
    for(int i = 0, j = size - 1; i < j; i++, j--)
    {
        temp = a[i];
        a[i] = a[j];
        a[j] = temp;
    }
}
```

Ans

An array of a structure Student, S is required to be arranged in descending order of marks.
Write a C++ function to arrange the same with the help of bubble sort.
The array and its size is required to be passed as parameters to the function.
Definition of structure student is as follows
```c
struct Student
{
    int rollno;
    char name[20];
}
```
23. void Arrange (Student S[], int size)
{
    int i, j;
    Student temp;
    cout<< " Arranging in Descending Order\n\n";
    for(i=0; i<size; i++)
    {
        for(j=0; j<size-1-i; j++)
        {
            if( S[j].marks < S[j+1].marks)
            {
                temp = S[j];
                S[j] = S[j+1];
                S[j+1] = temp;
            }
        }
    }
}

Ans  An array E containing elements of structure Employee is required to be arranged in descending order of salary. Write a C++ function to arrange the same with the help of Selection sort. The array and its size is required to be passed as parameters to the functions. Definitions of the structure is as follows:
struct Employee
{
    int empno;
    char Ename[20];
    float salary;
};

24. void Arrange (Employee E[], int size)
{
    int i, j, temp;
    Employee temp;
    cout<< " Arranging in Descending Order\n\n";
    for(i=0; i<size; i++)
    {
        highest=E[i].salary;
        pos=i;
        for(j=i+1; j<size; j++)
        {
            if(E[j].salary > highest)
            {
                temp = E[j];
                E[j] = E[pos];
                E[pos] = temp;
                highest = E[j].salary;
                pos = j;
            }
        }
    }
}
```c
{
    if( E[ j ]. salary > highest )
        {
            highest=E[ j ].salary;
            pos = j;
        }
    temp=E[i];
    E[i]=E[pos];
    E[pos]=temp;
}
```

Ans:
Write a function in C++ to merge the contents of two sorted arrays A and B, into the third array C. Assume array A is sorted in ascending order, B is sorted in descending order, the resultant array is required to be in ascending.

25. Write a function in C++ to merge the contents of two sorted arrays A and B, into the third array C. Assume array A is sorted in descending order, B is sorted in descending order, the resultant array is required to be in ascending.

Ans:
Write a function in C++ to merge the contents of two sorted arrays A and B, into the third array C. Assume array A is sorted in ascending order, B is sorted in ascending order, the resultant array is required to be in descending.

26. Write a function in C++ to merge the contents of two sorted arrays A and B, into the third array C. Assume array A is sorted in ascending order, B is sorted in ascending order, the resultant array is required to be in ascending.

27. Write a function in C++ to merge the contents of two sorted arrays A and B, into the third array C. Assume array A is sorted in descending order, B is sorted in descending order, the resultant array is required to be in descending.
# STACK, QUEUE AND LINKED LIST

1. Linked list is a collection of :
   - A. Data elements, called nodes pointing to the next nodes by means of pointers.
   - B. Data elements, called nodes pointing to the next nodes by means of integers.
   - C. Data elements, called nodes.
   - D. B & C

2. A stack is a linear list implemented in
   - A. LIFO
   - B. FIFO
   - C. SIFO
   - D. FISO

3. A queue is a linear list implemented in
   - A. LIFO
   - B. FIFO
   - C. SIFO
   - D. FISO

4. Which memory allocation technique reserves fixed amount of memory before actual processing takes place?
   - A. Dynamic memory allocation
   - B. Static memory allocation
   - C. Root memory allocation
   - D. None of them

5. Which memory allocation technique allocates an amount of memory during program run?
   - A. Dynamic memory allocation
   - B. Static memory allocation
   - C. Root memory allocation
   - D. None of them

6. Which data structure works on static memory allocation?
   - A. Linked List
   - B. Trees
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Stack</td>
<td></td>
</tr>
<tr>
<td>D. Array</td>
<td></td>
</tr>
<tr>
<td><strong>7.</strong> Which data structure works on dynamic memory allocation?</td>
<td></td>
</tr>
<tr>
<td>A. Linked List</td>
<td></td>
</tr>
<tr>
<td>B. Structures</td>
<td></td>
</tr>
<tr>
<td>C. Array</td>
<td></td>
</tr>
<tr>
<td>D. Pointer</td>
<td></td>
</tr>
<tr>
<td><strong>8.</strong> Write the full form of FIFO and LIFO.</td>
<td></td>
</tr>
<tr>
<td>FIFO………………………………………</td>
<td></td>
</tr>
<tr>
<td>LIFO…………………………….</td>
<td></td>
</tr>
<tr>
<td><strong>9.</strong> An insertion operation in a stack is called: -</td>
<td></td>
</tr>
<tr>
<td>A. POP</td>
<td></td>
</tr>
<tr>
<td>B. PUSH</td>
<td></td>
</tr>
<tr>
<td>C. Force</td>
<td></td>
</tr>
<tr>
<td>D. None of them</td>
<td></td>
</tr>
<tr>
<td><strong>10.</strong> A delete operation in a stack is called: -</td>
<td></td>
</tr>
<tr>
<td>A. POP</td>
<td></td>
</tr>
<tr>
<td>B. PUSH</td>
<td></td>
</tr>
<tr>
<td>C. Force</td>
<td></td>
</tr>
<tr>
<td>D. None of them</td>
<td></td>
</tr>
<tr>
<td><strong>11.</strong> Identify the name of the pointer generally used to implement stack</td>
<td></td>
</tr>
<tr>
<td>A. Rear</td>
<td></td>
</tr>
<tr>
<td>B. Front</td>
<td></td>
</tr>
<tr>
<td>C. Top</td>
<td></td>
</tr>
<tr>
<td>D. B&amp;C</td>
<td></td>
</tr>
<tr>
<td><strong>12.</strong> Identify the name of the pointer generally used to insert new element in a queue</td>
<td></td>
</tr>
<tr>
<td>A. Rear</td>
<td></td>
</tr>
<tr>
<td>B. Front</td>
<td></td>
</tr>
<tr>
<td>C. Top</td>
<td></td>
</tr>
<tr>
<td>D. B&amp;C</td>
<td></td>
</tr>
<tr>
<td><strong>13.</strong> Identify the name of the pointer generally used to delete an existing element from a queue</td>
<td></td>
</tr>
<tr>
<td>A. Rear</td>
<td></td>
</tr>
<tr>
<td>B. Front</td>
<td></td>
</tr>
<tr>
<td>C. Top</td>
<td></td>
</tr>
<tr>
<td>D. B&amp;C</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| 14.      | What is underflow in an array/stack/queue?  
          | A. If one tries to delete an element from an empty array/stack/queue.  
          | B. If one tries to delete an element from a partially empty array/stack/queue.  
          | C. If one tries to insert an element into an empty array/stack/queue.  
          | D. B & C |
| 15.      | What is overflow in an array/stack/queue?  
          | A. If one tries to insert an element into full array/stack/queue.  
          | B. If one tries to delete an element from a partially filled array/stack/queue.  
          | C. If one tries to insert an element into a partially filled array/stack/queue.  
          | D. None of them |
| 16.      | What is the postfix form of the following expression  
          | a*(b+(c+d)*(e+f)/g)*h  
          | A. Abcdef++*g/+*h*  
          | B. Abcd+ef++*g/+*h*  
          | C. Abcd+ef++*g/+*h+  
          | D. Abc*d+ef++*g/+*h |
| 17.      | What is the postfix form of the following expression  
          | a+[(b+c)+(d+e)*f]/g  
          | A. A+bc+de+f*+g/  
          | B. Ab*+c+de+f+g/+  
          | C. Abs+de+f+*g/+  
          | D. Both A & B |
| 18.      | What is the postfix form of the following expression  
          | NOT a OR NOT b NOT c  
          | A. a NOT b NOT c NOT AND OR  
          | B. a NOT bc NOT AND OR  
<pre><code>      | C. a NOT NOT b OR c NOT AND |
</code></pre>
<table>
<thead>
<tr>
<th></th>
<th>D. a AND NOT b OR c NOT NOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.</td>
<td>Find the Correct choice after calculating following postfix notation.</td>
</tr>
<tr>
<td></td>
<td>100,40,+20,14,-8,*,+</td>
</tr>
</tbody>
</table>
|     | A. 198  
|     | B. 188  
|     | C. 78   
|     | D. None of them |
| 20. | Find the correct postfix notation of following expression: |
|     | (True && False ) || ! (False ||True) |
|     | A. True False && False True || ! ||  
|     | B. True True && False True || ! ||  
|     | C. True False && True True || ! ||  
|     | D. True False && False False || ! || |
UNIT 3: DATABASES MANAGEMENT SYSTEM
AND SQL

1. The collection of related data from which users can efficiently retrieve the desired information is known as
   (a) Database (b) Table (c) Relation (d) DBMS

2. The software that allows the user to access the data contained in a database is known are
   (a) Database (b) Table (c) Relation (d) DBMS

3. The advantages of DBMS are
   (a) Data redundancy (b) Data Security (c) Data integrity (d) All of the above

4. A ....... holds one piece of information about an item or subject in the database.
   (a) Record (b) field (c) domain (d) None of these

5. A ....... is a collection of multiple related fields that can be treated as a unit.
   (a) Record (b) field (c) domain (d) None of these

6. The ................ data model was developed by E F Codd of IBM in 1970.
   (a) Relational (b) Network (c) Hierarchical (d) None of these

7. Name the data model in which all the tables are linked with each other using a common attribute in the tables.
   (a) Relational (b) Network (c) Hierarchical (d) None of these

8. In relational data model , collection of logically records are known as
   (a) Relation (b) Table (c) Both (a) & (b) (d) None of these

9. The rows of a relation are referred to
   (a) tuples (b) attributes (c) domain (d) None of these

10. The columns of a relation are referred to
    (a) tuples (b) attributes (c) domain (d) None of these

11. The set of permissible values of the same type for a column is known as
    (a) tuples (b) attributes
<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>The number of attributes in a relation is called the ................. of a relation.</td>
<td>(a) Degree  (b) Cardinality  (c) domain  (d) None of these</td>
</tr>
<tr>
<td>13</td>
<td>The number of tuples in a relation is called the ................. of a relation.</td>
<td>(a) Degree  (b) Cardinality  (c) domain  (d) None of these</td>
</tr>
<tr>
<td>14</td>
<td>A ...... (key) is an attribute or set of attributes that ensures that no two rows of the relation are identical.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>A set of one or more attributes that can uniquely identified tuples within the relation is known as</td>
<td>(a) Primary Key  (b) Alternate Key  (c) Foreign Key  (d) None of these</td>
</tr>
<tr>
<td>16</td>
<td>All attribute combinations inside a relation that can serve as primary key are known as</td>
<td>(a) Candidate Key  (b) Alternate Key  (c) Foreign Key  (d) None of these</td>
</tr>
<tr>
<td>17</td>
<td>A candidate key that is not the primary key is called</td>
<td>(a) Candidate Key  (b) Alternate Key  (c) Foreign Key  (d) None of these</td>
</tr>
<tr>
<td>18</td>
<td>The operation that is used to extract specific tuples from a given relation that satisfy a given condition for a relation</td>
<td>(a) SELECT  (b) PROJECT  (c) UNION  (d) INTERSECTION</td>
</tr>
<tr>
<td>19</td>
<td>The operation that is used to extract specific attributes from all the tuples of a relation.</td>
<td>(a) SELECT  (b) PROJECT  (c) UNION  (d) INTERSECTION</td>
</tr>
<tr>
<td>20</td>
<td>The operation that displays all the tuples of both the relations as the output with the duplicate tuples eliminated.</td>
<td>(a) SELECT  (b) PROJECT  (c) UNION  (d) INTERSECTION</td>
</tr>
<tr>
<td>21</td>
<td>The operation that displays all the tuples that exist in both the relations and discards the rest of the tuples.</td>
<td>(a) SELECT  (b) PROJECT  (c) UNION  (d) INTERSECTION</td>
</tr>
<tr>
<td>22</td>
<td>The operation that displays the tuples that exist in one table but inot in the other table.</td>
<td>(a) SET DIFFERENCE  (b) PROJECT  (c) CARTESIAN PRODUCT  (d) INTERSECTION</td>
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<tr>
<td>---</td>
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</tr>
</tbody>
</table>
| **23** | The operation that displays the third relation that includes all the tuples from the first relation combined with every tuple of the second relation.  
(a) SET DIFFERENCE  
(c) CARTESIAN PRODUCT  
(b) PROJECT  
(d) INTERSECTION |
| **24** | Standard language for RDBMS is  
(a) SQL  
(c) JAVA  
(b) PASCAL  
(d) C++ |
| **25** | Oracle, Sybase, Microsoft SQL Server, Access, Ingres etc are the example of  
(a) Programming Language  
(c) Computer Hardware  
(b) RDBMS  
(d) OOPS |
| **26** | In SQL, the commands that are used to create, manipulate and delete a database and its objects are known as  
(a) DDL  
(c) DCL  
(b) DML  
(d) None of these |
| **27** | In SQL, the commands that are used to manipulate the data in the table are known as  
(a) DDL  
(c) DCL  
(b) DML  
(d) None of these |
| **28** | In SQL, the commands that are used to grant or revoke access rights to the database users are known as  
(a) DDL  
(c) DCL  
(b) DML  
(d) None of these |
| **29** | A condition or a check that is applicable to an attribute or a set of attributes in a table is known as  
(a) constraint  
(c) variable  
(b) constant  
(d) None of these |
| **30** | The constraint that ensures that no two rows are identical  
(a) NOT NULL  
(c) UNIQUE  
(b) DEFAULT  
(d) None of these |
| **31** | The constraint that doesn't allow NULL values in a specified column.  
(a) NOT NULL  
(c) UNIQUE  
(b) DEFAULT  
(d) None of these |
| **32** | The keyword that is used to display the results of the SELECT command after eliminating the duplicate rows  
(a) ALL  
(c) UNIQUE  
(b) DISTINCT  
(d) None of these |
| **33** | The clause that allows sorting of the query results by one or more columns  
(a) GROUP BY  
(b) ORDER BY   |
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>The clause lets the user to split up the values in a column into subsets.</td>
<td>(c) <strong>ASC</strong></td>
<td>(d) None of these</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>35</td>
<td>A virtual table whose contents are defined by a query</td>
<td>(a) <strong>VIEW</strong></td>
<td>(b) <strong>TABLE</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(d) None of these</td>
</tr>
<tr>
<td>36</td>
<td>The SQL command that is used to remove an entire row of data from a table</td>
<td>(a) <strong>DELETE</strong></td>
<td>(b) <strong>DROP</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(d) None of these</td>
</tr>
<tr>
<td>37</td>
<td>Which of the following SQL Commands is used to modify the structure of a table</td>
<td>(a) <strong>DROP TABLE</strong></td>
<td>(b) <strong>ALTER TABLE</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(d) None of these</td>
</tr>
<tr>
<td>38</td>
<td>Which of these functions is used to find the total summation of a column</td>
<td>(a) <strong>ADD</strong></td>
<td>(b) <strong>COUNT</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(d) <strong>AVG</strong></td>
</tr>
<tr>
<td>39</td>
<td>Which of these clause is not used with SELECT command</td>
<td>(a) <strong>MODIFY</strong></td>
<td>(b) <strong>WHERE</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(d) <strong>GROUP BY</strong></td>
</tr>
<tr>
<td>40</td>
<td>Which of these is not an aggregate function in SQL?</td>
<td>(a) <strong>COUNT(*)</strong></td>
<td>(b) <strong>AVG</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(d) <strong>Date</strong></td>
</tr>
<tr>
<td>41</td>
<td>Which of these clauses is used for pattern matching?</td>
<td>(a) <strong>LIKE</strong></td>
<td>(b) <strong>BETWEEN AND</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(d) <strong>IS NULL</strong></td>
</tr>
</tbody>
</table>
## UNIT 4: BOOLEAN ALGEBRA

<table>
<thead>
<tr>
<th>Fill in the blanks Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> In Boolean algebra, a statement can have only two values, .............(<strong>TRUE</strong>) or .................(<strong>FALSE</strong>).</td>
</tr>
<tr>
<td><strong>2</strong> Boolean algebra uses upper case letters such as A,B,X,Y etc., to represent propositions instead of words. These letters are known as ..........(<strong>literals</strong>).</td>
</tr>
<tr>
<td><strong>3</strong> In 1854, Boolean algebra was originally developed by (a) <strong>George Boole</strong> (b) Konard Zuse (c) Claude Shannon (d) John Von Neumann</td>
</tr>
<tr>
<td><strong>4</strong> The two values <strong>TRUE</strong> and <strong>FALSE</strong> used in Boolean algebra are known as .................. (<strong>Logical or Boolean</strong>) constants.</td>
</tr>
<tr>
<td><strong>5</strong> The statement that can only have either the <strong>TRUE</strong> or <strong>FALSE</strong> value is known as a ................... (<strong>Logical</strong>) statement.</td>
</tr>
<tr>
<td><strong>6</strong> The variables that can only take either of the two values <strong>TRUE</strong> or <strong>FALSE</strong> are called ......................... (<strong>Logical or binary valued or binary values quantities</strong>) variables.</td>
</tr>
<tr>
<td><strong>7</strong> In Boolean algebra the logical statements are represented by letters like A,B,X,Y etc. Hence A,B,X,Y are referred to as ................ (<strong>logical</strong>) variables.</td>
</tr>
<tr>
<td><strong>8</strong> The Boolean operators are (a) NOT (bar) (b) OR (+) (c) AND (.) (d) All of the above</td>
</tr>
<tr>
<td><strong>9</strong> Correct example of compound statement is (a) A AND B (b) B NOT C (c) A AND B NOT C (d) None of these</td>
</tr>
<tr>
<td><strong>10</strong> A unique representation of a Boolean expression in a tabular form is known as a ....................... (<strong>truth table</strong>).</td>
</tr>
<tr>
<td><strong>11</strong> If there are n number of variables in an expression, then the truth table comprises ................ no. Of rows. (a) <strong>2^n</strong> (b) <strong>n^2</strong> (c) 2n (d) None of these</td>
</tr>
<tr>
<td><strong>12</strong> The system of Boolean algebra is said to be closed with respect to any binary operator if for every two Boolean values it produces a Boolean result. This property is known as (a) <strong>Closure Property</strong> (b) <strong>Commutative</strong> (c) <strong>Associative</strong> (d) None of these</td>
</tr>
<tr>
<td><strong>13</strong> In which law, the logical addition and logical multiplication of two variables is commutative in nature.</td>
</tr>
<tr>
<td>Question</td>
</tr>
<tr>
<td>----------</td>
</tr>
</tbody>
</table>
| 14 | According to Commutative law, which of the following statement is correct | (a) $A + B = B + A$  
(b) $A \cdot B = B \cdot A$  
(c) Both (a) & (b)  
(d) None of these |
| 15 | In which law, the logical addition and logical multiplication of three variables are associative in nature. | (b) Associative  
(b) Commutative  
(c) Inverse  
(d) None of these |
| 16 | According to Associative law, which of the following statement is correct | (a) $A + (B + C) = (A + B) + C$  
(b) $A \cdot (B \cdot C) = (A \cdot B) \cdot C$  
(c) Both (a) & (b)  
(d) None of these |
| 17 | In which law, the logical addition and logical multiplication of three variables is distributive in nature. | (a) Associative  
(b) Commutative  
(c) Distributive  
(d) None of these |
| 18 | According to Distributive law, which of the following statement is correct | (a) $A \cdot (B + C) = (A \cdot B) + (A \cdot C)$  
(b) $A + (B \cdot C) = (A + B) \cdot (A + C)$  
(c) Both (a) & (b)  
(d) None of these |
| 19 | In which law, the logical addition and logical multiplication of two variables is absorptive in nature. | (a) Absorption  
(b) De Morgan  
(c) Inverse  
(d) None of these |
| 20 | According to Absorption law, which of the following statement is correct | (a) $A + A \cdot B = A$  
(b) $A \cdot (A + B) = A$  
(c) Both (a) & (b)  
(d) None of these |
| 21 | Which one of the following is best correct for Idempotence law, which states that for every logical variable $A$ there exists $A$ such that | (a) $A + A = A$  
(b) $A \cdot A = A$  
(c) Both (a) & (b)  
(d) None of these |
| 22 | Which one of the following is best correct for Inverse law, which states that for every logical variable $A$ there exists $A'$ such that | (a) $A + \bar{A} = 1$  
(b) $A \cdot \bar{A} = 0$  
(c) Both (a) & (b)  
(d) None of these |
<p>| 23 | Which one of the following is best correct for Involution law, which states that for every logical variable $A$ there exists $A'$ such that | |</p>
<table>
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</thead>
<tbody>
<tr>
<td>(a) ((A')') = A</td>
<td>(b) ((A')') = 1</td>
<td>(c) ((A')') = 0</td>
<td>(d) None of these</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>De Morgan's Law states that for every two logical variables A and B</td>
<td>(a) ((A+B)' = A' \cdot B')</td>
<td>(b) ((A \cdot B)' = A' + B')</td>
<td>(c) Both (a) &amp; (b)</td>
</tr>
<tr>
<td>25</td>
<td>The principle that states that any valid Boolean expression of Boolean algebra remains valid even if the logical operators and the logical constants in the expression are interchanged.</td>
<td>(a) Duality Principle</td>
<td>(b) Commutative Principle</td>
<td>(c) Associative Principle</td>
</tr>
<tr>
<td>26</td>
<td>The dual of an expression can be obtained by following these rules</td>
<td>(a) Interchanging OR and AND operators.</td>
<td>(b) Interchanging '+' and '.' Signs.</td>
<td>(c) Replacing 0s by 1s and 1s by 0s.</td>
</tr>
<tr>
<td>27</td>
<td>The term in a Boolean expression, which is a logical multiplication of two or more Boolean variables (either in normal or complemented form) is called</td>
<td>(a) Product term</td>
<td>(b) Sum term</td>
<td>(c) Minterm</td>
</tr>
<tr>
<td>28</td>
<td>The term in a Boolean expression, which is a logical addition of two or more Boolean variables (either in normal or complemented form) is called</td>
<td>(a) Product term</td>
<td>(b) Sum term</td>
<td>(c) Minterm</td>
</tr>
<tr>
<td>29</td>
<td>A product term in which each of the n variables of a Boolean function appears once ((either in normal or complemented form) is called</td>
<td>(a) Product term</td>
<td>(b) Sum term</td>
<td>(c) Minterm</td>
</tr>
<tr>
<td>30</td>
<td>A sum term in which each of the n variables of a Boolean function appears once ((either in normal or complemented form) is called</td>
<td>(a) Product term</td>
<td>(b) Sum term</td>
<td>(c) Minterm</td>
</tr>
<tr>
<td>31</td>
<td>Any Boolean expression that is either in the form of sum of product terms (SOP) or product of sum terms (POS) is called</td>
<td>(a) Standard form</td>
<td>(b) Non standard form</td>
<td>(c) Canonical form</td>
</tr>
<tr>
<td>32</td>
<td>Any Boolean expression that is a combination of sum terms and product terms is said to be in</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Any Boolean expression that is either in the form of sum of minterms or product of maxterms is said to be in:

(a) Standard form     (b) Non standard form
(c) Canonical form     (d) None of the above

Canonical SOP form of the Boolean functions is obtained by doing the following in correct order:

i. Preparing a truth table for the given Boolean function
ii. Obtain the minterms by complementing the variable if the corresponding bit is 0, otherwise keep it in normal form.
iii. Perform the logical addition between the terms to obtain the canonical form of the expression.

(a) i, ii, iii     (b) ii, i, iii
(c) iii, ii, i     (d) none of these

Canonical POS form of the Boolean functions is obtained by doing the following in correct order:

I. Preparing a truth table for the given Boolean function
II. Obtain the maxterms by complementing the variable if the corresponding bit is 1, otherwise keep it in normal form.
III. Perform the logical multiplication between the terms to obtain the canonical form of the expression.

(a) I, II, III     (b) II, I, III
(c) III, II, I     (d) none of these

The Boolean expression that is obtained after simplification is known as the .................(optimal) form of the Boolean expression.

The optimal form of a Boolean expression can be achieved by ...................(algebraic) approach and .................(graphical) approach.

The map method that is the graphical representation of a truth table is simplified by ......................(Karnaugh Map or K-map).

The best approach to solve any problem is:

(a) Graphical Approach     (b) Algebraic Approach
(c) Both (a) and (b)     (d) None of these

The minterms in K-map are represented by ..........(ones) and maxterms are represented by ..........(Zeros)

In general, if a Boolean function has 'n' number of variables, the K-map will have ...............(2^n) cells.

Which one is the correct progression of the values in K-map

(a) 00,01,11,10     (b) 00,01,10,11
<p>| | | | |</p>
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<tbody>
<tr>
<td>43</td>
<td>In K-map, grouping of terms is always done in the power of ..........(2).</td>
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<td>44</td>
<td>A group of two 1s is called a ............(pair), a group of four 1s is called a ............(quad) and a group of eight 1s is known as an ............(octet).</td>
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<td>45</td>
<td>In K-map, a pair cancels ............(one) variable, a quad cancels ............(two) variables and an octet cancels ............(three) variables.</td>
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<td>46</td>
<td>An electronic circuit that takes one or more input signals and produces only one output signal is called a ............(gate).</td>
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</table>
| 47 | Which of these are basic gates are  
  (a) NOT  
  (b) OR  
  (c) OR  
  (d) AND  
  (e) AND  
  (f) All of these |
| 48 | Which of these is Universal gate  
  (a) NAND  
  (b) NOR  
  (c) Both (a) & (b)  
  (d) None of these |
| 49 | Which of these performs the logical addition in a Boolean algebra  
  (a) OR  
  (b) AND  
  (c) NOT  
  (d) NAND |
| 50 | Which of these is also known as complement operator?  
  (a) OR  
  (b) AND  
  (c) NOT  
  (d) NAND |
| 51 | Which of these is a valid complemented OR gate?  
  (a) OR  
  (b) XOR  
  (c) XNOR  
  (d) NOR |
UNIT 5: NETWORKING AND OPEN SOURCE SOFTWARE

<table>
<thead>
<tr>
<th>Fill in the blanks Questions</th>
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</table>
11. The maximum volume of data that can be transferred over any communication channel at a given point of time is known as

(a) Bandwidth  (b) Data Transfer rate
(c) Baud  (d) None of these

12. The unit of bandwidth in analog system is

(a) bits per second  (b) hertz
(c) baud  (d) None of these

13. The unit of bandwidth in digital system is

(a) bits per second  (b) hertz
(c) baud  (d) None of these

14. The amount of data transferred per second by the communication channel from one point to another is known as

(a) Bandwidth  (b) Data Transfer rate
(c) Baud  (d) None of these

15. The unit of data transfer rate is

(a) bits per second  (b) bytes per second
(c) baud  (d) All of the above

16. The inexpensive transmission media that is used for transmission of analog as well as digital signals

(a) Twisted Pair Cable  (b) Co-axial Cable
(c) Optical Fibre  (d) None of these

17. The transmission media that are capable of transmitting digital signals at a very high speed with bandwidth 1 GHz and are immune to noise

(a) Twisted Pair Cable  (b) Co-axial Cable
(c) Optical Fibre  (d) None of these

18. The transmission media that can transmit data over long distance with high security with bandwidth up to 10Gbps

(a) Twisted Pair Cable  (b) Co-axial Cable
(c) Optical Fibre  (d) None of these

19. The high frequency waves used for short range communication and are used in TV remotes, garage doors, wireless speakers

(a) Microwave  (b) Radio Wave
(c) Infrared Wave  (d) None of these

20. The transmission media that facilitates mobility for long distances are

(a) Microwave  (b) Radio Wave
(c) Infrared Wave  (d) None of these

21. The line of sight transmission media that facilitates easy communication in mountainous areas and over oceans

(a) Microwave  (b) Radio Wave
<p>| | | | |</p>
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<tr>
<td>(c) <strong>Infrared Wave</strong></td>
<td>(d) <strong>None of these</strong></td>
<td></td>
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</tbody>
</table>
| 22 | The transmission media that covered a quite large and there is no line of sight restriction is  
  (a) **Microwave** | (b) **Radio Wave**  
  (c) **Infrared Wave** | (d) **Satellite** |
| 23 | The device that convert analog signal into digital and digital signal into analog is known as  
  (a) **MODEM** | (b) **HUB**  
  (c) **SWITCH** | (d) **Gateway** |
| 24 | The multi port device that works on IP addresses and broadcast the signals is  
  (a) **MODEM** | (b) **HUB**  
  (c) **SWITCH** | (d) **Gateway** |
| 25 | The network device that works on the physical address and filter the network signals is  
  (a) **MODEM** | (b) **HUB**  
  (c) **SWITCH** | (d) **Gateway** |
| 26 | An interconnecting device which joins two dissimilar networks with the help of different protocols  
  (a) **MODEM** | (b) **HUB**  
  (c) **SWITCH** | (d) **Gateway** |
| 27 | The four wire connector that is used to connect telephone network  
  (a) **RJ45** | (b) **RJ11**  
  (c) **Ethernet** | (d) **None of these** |
| 28 | The eight wire connector that is used to connect Ethernet network or computer network  
  (a) **RJ45** | (b) **RJ11**  
  (c) **Ethernet** | (d) **None of these** |
| 29 | A privately owned computer network that is confined to an area of few kilometres  
  (a) **LAN** | (b) **MAN**  
  (c) **WAN** | (d) **None of these** |
| 30 | A computer network usually spreading over a metropolitan area such as a city and the suburbs  
  (a) **LAN** | (b) **MAN**  
  (c) **WAN** | (d) **None of these** |
| 31 | A computer network that spreads over a large geographical area like a country or a continent  
  (a) **LAN** | (b) **MAN**  
  (c) **WAN** | (d) **None of these** |
<p>| | |</p>
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<tbody>
<tr>
<td><strong>32</strong></td>
<td>The topology that uses a common single cable to connect all the workstations</td>
</tr>
<tr>
<td>(a) Bus</td>
<td>(b) Star</td>
</tr>
<tr>
<td>(c) Tree</td>
<td>(d) None of these</td>
</tr>
<tr>
<td><strong>33</strong></td>
<td>The topology in which the devices are connected through a centralized network component known as hub or switch</td>
</tr>
<tr>
<td>(a) Bus</td>
<td>(b) <strong>Star</strong></td>
</tr>
<tr>
<td>(c) Tree</td>
<td>(d) None of these</td>
</tr>
<tr>
<td><strong>34</strong></td>
<td>The topology that combines the characteristics of the linear bus and the star topology known as</td>
</tr>
<tr>
<td>(a) Bus</td>
<td>(b) Star</td>
</tr>
<tr>
<td>(c) Tree</td>
<td>(d) None of these</td>
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<tr>
<td><strong>35</strong></td>
<td>The layered set of protocols that handles the way data is transmitted across Internet</td>
</tr>
<tr>
<td>(a) TCP / IP</td>
<td>(b) FTP</td>
</tr>
<tr>
<td>(c) PPP</td>
<td>(d) Telnet</td>
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<tr>
<td><strong>36</strong></td>
<td>A Protocol that is used to transfer information between computers on the Internet</td>
</tr>
<tr>
<td>(a) TCP / IP</td>
<td>(b) FTP</td>
</tr>
<tr>
<td>(c) PPP</td>
<td>(d) Telnet</td>
</tr>
<tr>
<td><strong>37</strong></td>
<td>The protocol that provides the ability to transport TCP / IP traffic over serial lines</td>
</tr>
<tr>
<td>(a) SLIP / PPP</td>
<td>(b) FTP</td>
</tr>
<tr>
<td>(c) Telnet</td>
<td>(d) None of these</td>
</tr>
<tr>
<td><strong>38</strong></td>
<td>The protocol that is used to send the e-mail over Internet</td>
</tr>
<tr>
<td>(a) SMTP</td>
<td>(b) FTP</td>
</tr>
<tr>
<td>(c) POP3</td>
<td>(d) Telnet</td>
</tr>
<tr>
<td><strong>39</strong></td>
<td>The protocol that is used to receive the e-mail over Internet</td>
</tr>
<tr>
<td>(a) SMTP</td>
<td>(b) FTP</td>
</tr>
<tr>
<td>(c) POP3</td>
<td>(d) Telnet</td>
</tr>
<tr>
<td><strong>40</strong></td>
<td>The protocol that is used for chat and video conferencing</td>
</tr>
<tr>
<td>(a) SMTP</td>
<td>(b) FTP</td>
</tr>
<tr>
<td>(c) POP3</td>
<td>(d) <strong>VOIP</strong></td>
</tr>
<tr>
<td><strong>41</strong></td>
<td>A non self replicating program that appears to perform a desirable function for the user but instead facilitates unauthorized access to the user’s computer system.</td>
</tr>
<tr>
<td>(a) Virus</td>
<td>(b) WORM</td>
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<tr>
<td>(c) Trojan Horse</td>
<td>(d) Spam</td>
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<tr>
<td>Question</td>
<td>Description</td>
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</tbody>
</table>
| 42       | A program that is capable of replicating itself on a computer network  
(a) Virus  
(b) WORM  
(c) Trojan Horse  
(d) Spam |
| 43       | A software program that is capable of reproducing itself the help of other executable files  
(a) Virus  
(b) WORM  
(c) Trojan Horse  
(d) Spam |
| 44       | Electronic junk mail are known as  
(a) Virus  
(b) WORM  
(c) Trojan Horse  
(d) Spam |
| 45       | Which one of the following is not a client side scripting language  
(a) VB Script  
(b) Java Script  
(c) PHP  
(d) ASP |
| 46       | Which one of the following is not a server side scripting language  
(a) JSP  
(b) Java Script  
(c) PHP  
(d) ASP |
| 47       | The software that is owned by an individual or a company  
(a) Proprietary  
(b) Open Source  
(c) Freeware  
(d) Shareware |
| 48       | The software whose source code is freely available  
(a) Proprietary  
(b) Open Source  
(c) Freeware  
(d) Shareware |
| 49       | The software which are available freely and whose source code may or may not be free  
(a) Proprietary  
(b) Open Source  
(c) Freeware  
(d) Shareware |
| 50       | Software that is available free of charge and often distributed informally for evaluation, after which a fee may be requested for  
(a) Proprietary  
(b) Open Source  
(c) Freeware  
(d) Shareware |
| 51       | The computing that relies on sharing computing resources rather than having local servers or personal devices to handle applications.  
(a) Cloud Computing  
(b) Network Computing  
(c) Mobile Computing  
(d) None of these |
| 52       | The cloud infrastructure operated solely for a single organization, whether managed internally or by a third-party ...  
(a) Private Cloud  
(b) Public Cloud  
(c) Community Cloud  
(d) Hybrid Cloud |
<table>
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<th>The cloud computing in which the services are rendered over a network that is open for public use.</th>
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<tbody>
<tr>
<td></td>
<td>(a) <strong>Private Cloud</strong>  (b) Public Cloud  (c) <strong>Community Cloud</strong>  (d) <strong>Hybrid Cloud</strong></td>
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<th>The cloud computing that is the combination of two or more clouds</th>
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<tr>
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<td>(a) <strong>Private Cloud</strong>  (b) Public Cloud  (c) <strong>Community Cloud</strong>  (d) <strong>Hybrid Cloud</strong></td>
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<th>The open forum for discussing, sharing, and collaborating on Cloud Computing</th>
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<td>(a) <strong>Private Cloud</strong>  (b) Public Cloud  (c) <strong>Community Cloud</strong>  (d) <strong>Hybrid Cloud</strong></td>
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