CS201- Introduction to Programming

Mega Collection

for

Final Term

Only Solved

Paper	Year	Session
Paper # 01	2012	Unknown
Paper # 02	2011	(session_02)
Paper # 03	2011	(session_03)
Paper # 04	2010	Unknown
Paper # 05	2010	(session_02)
Paper # 06	2010	(session_03)
Paper # 07	2010	(session_05)
Paper # 08	2009	(session_01)
Paper # 09	2009	(session_02)
Paper # 10	2008	Unknown

Paper # 01

FINALTERM EXAMINATION

FALL (2012)

CS201- Introduction to Programming

Question No: 1 (Marks: 1) - Please choose on

Pointer is a variable which store,

► Data

► **Memory Address**

► Data Type

► Values

Question No: 2 (Marks: 1) - Please choose one

All preprocessor directives are started with the symbol______.

► *

► +

► @

➢ **#**

Question No: 3 (Marks: 1) - Please choose one

Within the statement **obj1=obj2;** ***obj1*** will call the assignment operator function and ***obj2*** will be passed as an argument to function.

➢ **True**

► False

Question No: 4 (Marks: 1) - Please choose one

What is the sequence of event(s) when deallocating memory using delete operator?

► Only block of memory is deallocated for objects

► Only destructor is called for objects

➢ **Memory is deal located first before calling destructor**

► Destructor is called first before deallocating memory

Question No: 5 (Marks: 1) - Please choose

The second parameter of operator functions for << and >> are objects of the class for which we are overloading these operators.

➢ **True**

► False

Question No: 6 (Marks: 1) - Please choose one

To include code from the library in the program, such as iostream, a directive would be called up using this command.

► #include "iostream.h"

► include <iostream.h>

► include <iostream.h>

➢ **#include <iostream.h>**

Question No: 7 (Marks: 1) - Please choose one

The number 544.53 must be stored in _____ data type.

► int

► short

➢ **Float**

► Char

Question No: 8 (Marks: 1) - Please choose one

A template function can have different type of arguments.

➢ **True**

► False

Question No: 9 (Marks: 1) - Please choose one

For which values of the integer _value will the following code becomes an infinite loop?

```
int number=1;

while (true) {

        cout << number;

        if (number == 3) break;

        number +=  integer_value; }
```

► any number other than 1 or 2

➢ **Only 0**

► only 1

► only 2

Question No: 10 (Marks: 1) - Please choose one

Template class cannot have static variables.

► True

➢ **False**

Question No: 11 (Marks: 1) - Please choose one

Which of the following is used with bit manipulation?

➢ **Signed integer**

► Un-signed integer

► Signed double

► Un-signed double

Question No: 12 (Marks: 1) - Please choose one

Structure is a collection of _______________ under a single name.

► Only Functions

➢ **Only variables**

► Both Functions and Variables

► None of the given options

Question No: 13 (Marks: 1) - Please choose one

Which of the following is the correct C++ syntax to allocate space dynamically for an array of 10 int?

► new int(10) ;

► new int[10] ;

► int new(10) ;

➢ **Int new[10];**

Question No: 14 (Marks: 1) - Please choose one

Unary operator implemented as member function takes ____ arguments whereas non-member function takes _____ arguments.

➢ **One,zero**

► Zero, one

► One, two

► Two, one

Question No: 15 (Marks: 1) - Please choose one

The first parameter of overloaded stream insertion operator is _________ where second parameter is _______

► input stream, object of class

► object of class, output stream

➢ **Output stream, object of class**

► object of class, input stream

Question No: 16 (Marks: 1) - Please choose one

We can also do conditional compilation with preprocessor directives.

➢ **True**

► False

Question No: 17 (Marks: 1) - Please choose one

If a symbolic constant has been defined, it will be an error to define it again.

► True

➢ **False**

Question No: 18 (Marks: 1) - Please choose one

While calling function, the arguments are assigned to the parameters from ______________.

► left to right.

► right to left

➢ **No specific order is followed**

► none of the given options.

Question No: 19 (Marks: 1) - Please choose one

Classes defined inside other classes are called ________ classes

▶ looped

➢ **nested**

▶ overloaded

▶ none of the given options.

Question No: 20 (Marks: 1) - Please choose one

If we define an identifier with the statement **#define PI 3.1415926** then during the execution of the program the value of PI __________.

▶ cannot be replaced

▶ None of the given options

▶ Remain constant.

➢ **Can be changed by some operation**

Question No: 21 (Marks: 1) - Please choose one

Assignment operator is ------------------------associative.

▶ right

➢ **left**

▶ binary

▶ unary

Question No: 22 (Marks: 1) - Please choose one

If **text** is a pointer of class **String** then what is meant by the following statement?

text = new String [5];

▶ Creates an array of 5 string objects statically

▶ Creates an array of 5 string objects dynamically

➢ **Creates an array pointers to string**

► Creates a string Object

Question No: 23 (Marks: 1) - Please choose one

The return type of the operator function for << operator is __________.

► class for which we overload operator

► reference of ostream class (ostream&)

► reference of istream class (istream&)

➢ **Void**

Question No: 24 (Marks: 1) - Please choose one

The code is written to __________ the program.

➢ **implement**

► design

► analysis

► none of the given options.

Question No: 25 (Marks: 1) - Please choose one

Memory allocated at run time is a system resource and it is the responsibility of _____ to de-allocate the memory.

► System

➢ **programmer**

► User of program

► None of given options

Question No: 26 (Marks: 1) - Please choose one

Templates are not type safe.

► true

➢ **false**

Question No: 27 (Marks: 2)

Give the general syntax of class template.

Answer:

Syntax of class template:

template <class T>

class *class-name*()

{

definition of class

};

Question No: 28 (Marks: 2)

What is difference between endl and \n?

Answer:

The difference between endl and \n *is that* endl is use to start a new line for the next row

And \n is a new line character.

Question No: 29 (Marks: 2)

What is the **this** pointer? Give an example of its use.

Answer:

This pointer is use to points to the current object in programming.

Question No: 30 (Marks: 2)

Identify each of the following as function call, function definition and function declaration.

1. **int func(int num1, int num2);**

Function call:

Function ; Function definition: Integer; Function declaration: Num1 and Num2

2. **int func(int, int);**

Function call:

Function ; Function definition: Integer; Function declaration: integers

3. **func(5, 6) ;**

Function call:

Function ; Function definition: numbers; Function declaration: 5&6

4. **int func(int num1, int num2){}**

Function call:

Function ; Function definition: Integer; Function declaration: Num1 and Num2 from user

Question No: 31 (Marks: 3)

Consider the following code segment. What will be the output of the following code segment?

```
class class1{
public:
        class class2{
        public:
class2(){
        cout << "Calling default constructor of class2\n" ;
        }
        };
        class1(){
        cout << "Calling default constructor of class1\n" ;
        }
};
main(){
class1::class2 obj1;
class1 obj2 ;
}
```

Question No: 32   (Marks: 3)

Is it possible to define two functions as given below? Justify your answer.

func(int x, int y)

func(int &x, int &y)

Answer:

No, we cannot define two functions as func(intx, inty) func(int &x, int&y) because it's give an error function not initializing.

Question No: 33   (Marks: 3)

What happens when we use new and delete operator?

Answer:

When we use ***new*** operator to create objects the memory space is allocated for the object and then its constructor is called. Similarly, when we use ***delete*** operator with our objects, the destructor is called for the object before deallocating the storage to the object.

Question No: 34   (Marks: 5)

What is the difference between function overloading and operator overloading?

Answer:

Difference b/w function overloading and operator overloading is:

In function overloading, the functions have the same name but differ either by the number of arguments or the type of the arguments.

Operator overloading is to allow the same operator to be bound to more than one implementation, depending on the types of the operands.

Question No: 35 (Marks: 5)

Why the first parameter of operator function for << operator must be passed by reference?

Answer:

Operator<<'s first parameter must be an ostream passed by reference. Its second parameter, the IntList that is printed, does not have to be passed as a const-reference parameter; however it is more efficient to pass it by reference than by value (since that avoids a call to the copy constructor), and it should not be modified by operator<<, so it should be a const reference parameter

Question No: 36 (Marks: 5)

Read the given below code and explain what task is being performed by this function

```
Matrix :: Matrix ( int row , int col )

{

   numRows = row ;

   numCols = col ;

   elements = new ( double * ) [ numRows ] ;

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

         {

      elements [ i ] = new double [ numCols ] ;

      for ( int j = 0 ; j < numCols ; j ++ )

            elements [ i ] [ j ] = 0.0 ;

    }

}
```

Hint : This function belong to a matrix class, having

Number of Rows = numRows

Number of Columns = numCols

Answer:

In this code the matrix function is defined, it get the number of rows from the user and create the row of matrix and then get the columns from the user and create the columns. The New is showing for creating more array space for the data which user enters. The elements [i][j] will print the data in matrix form.

Paper # 02

FINALTERM EXAMINATION
FALL 2011(session_02)
CS201- Introduction to Programming

Question No: 1 (Marks: 1) - Please choose one
***.doc is ____________ by type.**

.

► Sequential File

- ► **Random Access File**
- ► Data File
- ► Record File

Question No: 2 (Marks: 1) - Please choose one

Which of the following is NOT a preprocessor directive?

- ► #error
- ► #define
- ► #line
- ► **#ndefine**

Question No: 3 (Marks: 1) - Please choose one

The return type of operator function must always be void.

- ► True
- ► **False**

The syntax of the prototype of the overloaded operator function is: *return-type* operator *operator-symbol (parameter-list);*

Question No: 4 (Marks: 1) - Please choose one

What does **(*this)** represents?

- ► The current function of the class
- ► The current pointer of the class
- ► **The current object of the class**
- ► A value of the data member

Whenever an object calls a member function, the function implicitly gets a pointer from the calling object. That pointer is known as *this* pointer. '*this*' is a key word. We cannot use it as a variable name. '*this*' pointer is present in the function, referring to the calling object. For example, if we have to refer a member, let's say *buf*, of our *String* class, we can write it simply as: *buf ;*

Question No: 5 (Marks: 1) - Please choose one

The statement **cin.get ();** is used to,

- ► Read a string from keyboard
- ► **Read a character from keyboard**
- ► Read a string from file
- ► Read a character from file

Question No: 6 (Marks: 1) - Please choose one

When we do dynamic memory allocation in the constructor of a class, then it is necessary to provide a destructor.

► **True**
► False

Question No: 7 (Marks: 1) - Please choose one

Overloaded new operator function takes parameter of type *size_t* and returns

► void (nothing)
► **void pointer**
► object pointer
► int pointer

Question No: 8 (Marks: 1) - Please choose one

The second parameter of operator functions for << and >> are objects of the class for which we are overloading these operators.

► **True**
► False

The second parameter to *operator* << is an object of the class that we are overloading the operator for. Similar is the case for *operator* >>.

Question No: 9 (Marks: 1) - Please choose one

C++ is a case-sensitive language

► **True**
► False

Question No: 10 (Marks: 1) - Please choose one

To include code from the library in the program, such as iostream, a directive would be called up using this command.

► #include "iostream.h"
► include
► include
► **#include**

Question No: 11 (Marks: 1) - Please choose one

A template function must have only generic data types.

► True

- **False**

Its not compulsory, only min we have one generic data type but we can have native data type as well.

Question No: 12 (Marks: 1) - Please choose one

Template class can not have static variables.

- True
- **False**

Question No: 13 (Marks: 1) - Please choose one

What will be the correct syntax to assign an array named ***arr*** of 5 elements to a pointer ***ptr***?

- *ptr = arr ;
- **ptr = arr ;**
- *ptr = arr[5] ;
- ptr = arr[5] ;

Question No: 14 (Marks: 1) - Please choose one

What will be the correct syntax to access the value of fourth element of an array using pointer ptr?

- ptr[3]
- (ptr+3)
- *(ptr+3)
- **Both 1and 3**

try this demo program to confirm result I wrote for you.

2 option will print the reference rest 1,3 are righ options

```
#include
 #include
// #include
main()
{
int myarr [4]= {0,1,2,3};
int *ptr ;
ptr = myarr;
cout<
cout<<*(ptr+3);
cout<<(ptr+3);
int i = 0;
cin>> i;
}
```

Question No: 15 (Marks: 1) - Please choose one

If most significant bit of un-signed number is 1 then it represents a positive number.

- ► True
- ► **False**

The most significant bit is used as a sign bit. If this bit is zero, the number is considered positive. However, if it is 1, the number will be considered negative.

Question No: 16 (Marks: 1) - Please choose one

If there is a symbol (& sign) used with the variable name followed by data type then it refers to _____ and if & is being used with variable name then it refers to _____.

- ► Address of variable, reference variable
- ► Reference variable, value of variable
- ► **Reference variable, address of variable**
- ► Address of variable, value of variable

we see a data type followed by & sign, it's a reference. And when the & sign is being used in the code with a variable name then it is the address of the variable.

Question No: 17 (Marks: 1) - Please choose one

We can also do conditional compilation with preprocessor directives.

- ► **True**
- ► False

Question No: 18 (Marks: 1) - Please choose one

The default value of a parameter can be provided inside the _______________

- ► function prototype
- ► function definition
- ► **both function prototype or function definition**
- ► none of the given options.

The default value of a parameter is provided inside the function prototype or function definition.

Question No: 19 (Marks: 1) - Please choose one

Classes defined inside other classes are called _______ classes

- ► looped
- ► **nested**
- ► overloaded
- ► none of the given options.

Question No: 20 (Marks: 1) - Please choose one

What purpose do classes serve?

- ► Data encapsulation
- ► Providing a convenient way of modeling real-world objects
- ► Simplifying code reuse
- ► **All of the given options**

Question No: 21 (Marks: 1) - Please choose one

vuzs

Every class contains _____________.

- ► **Constructor**
- ► Destructor
- ► Both a constructor and a destructor
- ► None of the given options

Question No: 22 (Marks: 1) - Please choose one

new operator is used to allocate memory from the free store during

- ► Compile Time
- ► **Run Time**
- ► Link Time
- ► None of the given options

Question No: 23 (Marks: 1) - Please choose one

When an object of a class is defined inside another class then,

- ► **Destructor of enclosing class will be called first**
- ► Destructor of inner object will be called first
- ► Constructor and Destructor will be called simultaneously
- ► None of the given options

Question No: 24 (Marks: 1) - Please choose one

It is possible to define a class within another class.

- ► **True**
- ► False

Question No: 25 (Marks: 1) - Please choose one

New and Delete are also used with __________ and data types as well.

- ► **Class, Objects**
- ► Structures, Pointers
- ► Both Class and structures
- ► None of above

we prefer to use **new** and **delete** operators as they are designed to work with classes and objects.

Question No: 26 (Marks: 1) - Please choose one

With New keyword, data types and class members are initialized with meaningful values instead of garbage.

- ► **True**
- ► False

Question No: 27 (Marks: 2)

How many arguments a Unary Operator take? Can we make a binary operator as unary operator?

Ans: Unary operator takes only one aurgument like i++ or i— (Post increment or post decrement operators for intergers) or ++i,--i (Pre increment or pre decrement operators for intergers) ,we can not make Unary operator as binary or binary as Unary operator.

Question No: 28 (Marks: 2)

Which arithmetic operators cannot have a floating point operand?

Ans:

Modulus operator

This operator can only be used with integer operands ONLY

Question No: 29 (Marks: 2)

What are manipulators? Give one example.

Ans:

The manipulators are like something that can be inserted into stream, effecting a change in the behavior. For example, if we have a floating point number, say pi (л), and have written it as *float pi = 3.1415926* ; Now there is need of printing the value of pi up to two decimal places i.e. 3.14 . This is a formatting functionality. For this, we have a *manipulator* that tells about width and number of decimal points of a number being printed.

Some manipulators are parameter less. We simply use the name of the manipulator that works. For example, we have been using *endl*, which is actually a manipulator, not data. When we write *cout* << *endl* ; a new line is output besides flushing the buffer. Actually, it manipulates the output stream.

Question No: 30 (Marks: 2)

Write down piece of code that will declare a matrix of 3x3. And initialize all its locations with 0;

Ans:

```
int matrix [3] [3] ;
matrix [0] [0] = 0;
matrix [0] [1] = 0;
matrix [0] [2] = 0;
matrix [1] [0] = 0;
matrix [1] [2] = 0;
matrix [1] [2] = 0;
matrix [2] [0] = 0;
matrix [2] [1] = 0;
matrix [2] [2] = 0;
```

we can also do it as given below

```
int matrix [3][3] = { 0 }; //all elements 0
```

Question No: 31 (Marks: 3)

Which one (copy constructor or assignment operator) will be called in each of the following code segment?

1) Matrix m1 (m2);
2) Matrix m1, m2;
m1 = m2;
3) Matrix m1 = m2;

Ans:

1) Matrix m1 (m2); **copy constructor**
2) Matrix m1, m2;
m1 = m2; **assignment operator**
3) Matrix m1 = m2; **assignment operator**

Question No: 32 (Marks: 3)

What will be the output of following function if we call this function by passing int 5?

```
template T reciprocal(T x) {return (1/x); }
```

Ans:

1/5

Question No: 33 (Marks: 3)

Identify the errors in the following member operator function and also correct them.

```
math * operator(math m);
math * operator (math m)
{
    math temp;
    temp.number= number * number;
    return number;

}
```

ANS:

The errors are in the arguments of the member operation function and also in the body of operator member function.

Correct function should be

```
math *operator(math *m);
math *operator (math *m)
{
    math temp;
    temp = m;
    temp.number= number * number;
    return temp.number;

}
```

Question No: 34 (Marks: 5)

Write a program which defines three variables of type double which store three different values including decimal points, using setprecision manipulators to print all these values with different number of digits after the decimal number.

Ans:

```
#include

#include

int main ()

{
  double x1 = 12345624.72345
double x2 =  987654.12345
double x3 =  1985.23456
  cout << setprecision (3) << x1<< endl;
  cout << setprecision (4) << x2 << endl;
cout << setprecision (5) << x3<< endl;
  return 0;
}
```

Question No: 35   (Marks: 5)

What are the advantages and disadvantages of using templates?

Ans:

Many thing can be possible without using templates but it do offer several clear advantages not offered by any other techniques:

Advanatages:

• Templates are easier to write than writing several versions of your similar code for different types. You create only one generic version of your class or function instead of manually creating specializations.

• Templates are type-safe. This is because the types that templates act upon are known at compile time, so the compiler can perform type checking before errors occur.

• Templates can be easier to understand, since they can provide a straightforward way of abstracting type information.

• It help in utilizing compiler optimizations to the extreme. Then of course there is room for misuse of the templates. On one hand they provide an excellent mechanism to create specific type-safe classes from a generic definition with little overhead.

Disadvantages:

On the other hand, if misused

• Templates can make code difficult to read and follow depending upon coding style.

• They can present seriously confusing syntactical problems esp. when the code is large and spread over several header and source files.

• Then, there are times, when templates can "excellently" produce nearly meaningless compiler errors thus requiring extra care to enforce syntactical and other design constraints. A common mistake is the angle bracket problem.

Question No: 36   (Marks: 5)

Suppose a program has a math class having only one data member **number**.
Write the declaration and definition of operator function to overload + operator for the statements of main function.

```
        math obj1, obj2;
        obj2= 10 + obj1  ;
```

Ans:

```
#include
math
{
mth operator + (obj1,obj2)
mth operator + (obj1,obj2)
{
 mth operator + (obj1,obj2)
mth operator + (obj1,obj2)
}
}
```

Paper # 03

FINALTERM EXAMINATION
FALL 2011 (session_03)
CS201- Introduction to Programming

Question No: 1 (Marks: 1) - Please choose one

All A template function must have at least ---------- generic data type

► Zero

► One (Page 499)

► Two

► Three

Question No: 2 (Marks: 1) – Please choose one

Which of the following statement is best regarding declaration of friend function?

► Friend function must be declared after public keyword

. ► Friend function must be declared after private keyword.

► Friend function must be declared at the top within class definition.

► It can be declared anywhere in class as these are not affected by the public and private keywords. (Page 346)

Question No: 3 (Marks: 1) - Please choose one
Which one of the following is the declaration of overloaded pre-increment operator implemented as
member function?
► Class-name operator +() ;
► Class-name operator +(int) ;
► Class-name operator ++() ; (Page 389)
► Class-name operator ++(int) ;

Question No: 4 (Marks: 1) - Please choose one
Class is a user defined___________.
► data type (Page 317)
► memory referee
► value
► none of the given options.

Question No: 5 (Marks: 1) - Please choose one
How many bytes will the pointer intPtr of type int move in the following statement? intPtr += 3 ;
2
► 3 bytes
► 6 bytes
► 12 bytes
► 24 bytes

Question No: 6 (Marks: 1) - Please choose one
Which of the following is the correct C++ syntax to allocate space dynamically for an array of 10 int?
► new int(10) ;
► new int[10] ;
► int new(10) ;
► int new[10];

Question No: 7 (Marks: 1) - Please choose one
A Pointer is a special variable that contain
► Data values
► Memory Address (Page 267)
► Both data and values
► None of the given option

Question No: 8 (Marks: 1) - Please choose one
Reference Value Type Data The code is written to __________ the program.
► implement

► design
► analysis
► none of the given options

Q1 what Automatic variable and why is called Automatic Variable? (5)
Q2 What is meant by inner class? Give example. (5)
Q 3What do you know about run time error? (3)
Q 4 what are the limitations of friendship relation between classes? (3)
Q 5 what is a converse constructor? (2)
Q 6 write declaration statements for any array of 10 elements of type float .Include an initializing statements for the first four elements to 1.0, 2.0, 3.0 and 4.0. (2)
Q 7 see the following code segment

```
Templet <class T>
Class myclass {
Private T
Tx;
Public;
Myclass (Ta) {
X=a;
}
};
```

Write the main function which create tow objects class for int and double data types. (3)
Q 8 which one of the (copy constructor or assignment operator) will be called in each the following code segment

```
1) Matrix m1 (m2)
2) Matrix m1,m2;
M1=m2;
3) Matrix m1=m2;
```

(Note: solution see in old papers) (3)
Q 9 what is the source and destination of cin stream? (2)

Paper # 04

FINALTERM EXAMINATION

CS201 - Introduction to programming

Final Term Spring 2010

Operator overloading can be performed through__________________.

► Classes

➢ **Functions**

► Operators

► Reference

Question No: 2 (Marks: 1) - Please choose one

When a value is referred by a normal variable then it is known as,

► Direct Reference

➢ **Indirect Reference**

► Partial Reference

► Proper Reference

When a value is referred by a normal variable is known as direct reference

Question No: 3 (Marks: 1) - Please choose one

Which of the following function is used to increase the size of already allocated memory chunk?

➢ **malloc**

► calloc

► realloc

► free

Question No: 4 (Marks: 1) - Please choose one

Which of the following is NOT a preprocessor directive?

► #error

► #define

► #line

➢ **#ndefine**

list of preprocessors

• #include • #include "filename" • #define • #undef • #ifdef • #ifndef • #if • #else • #elif • #endif • #error • #line • #pragma • #assert

Question No: 5 (Marks: 1) - Please choose one

The stream objects **cin** and **cout** are included in which header file?

➢ **iostream.h**

► fstream.h

► istream.h

► ostream.h

Question No: 6 (Marks: 1) - Please choose one

Overloaded delete operator function takes the same parameter as an argument returned by new operator function.

➢ **True**

► False

The same pointer that is returned by the new operator, is passed as an argument to the delete operator. These rules apply to both, if operators (new and delete) are overloaded as member or non-member operators (as global operators).

Question No: 7 (Marks: 1) - Please choose one

When an array of object is created dynamically then there is no way to provide parameterized constructors for array of objects.

➢ **True**

► False

if we are allocating an array of objects, there is no way to pass arguments to objects' constructors. Therefore it is required that the objects that are stored in such an array have a no-argument constructor.

Question No: 8 (Marks: 1) - Please choose one

C is widely known as development language of _______ operating system.

► Linux

► Windows

➢ **Unix**

► Mac OS

In the start C became widely known as the development language of the UNIX operating system, and the UNIX operating system was written by using this C language. The C language is so powerful that the compiler of C and other various operating systems are written in C.

Question No: 9 (Marks: 1) - Please choose one

Computer can understand only machine language code.

➢ **True**

► False

Question No: 10 (Marks: 1) - Please choose one

We can not define a function as a friend of a Template class.

► True

➢ **False**

Class templates can have friends. A class or class template, function, or function template can be a friend to a template class. Friends can also be specializations of a class template or function template, but not partial specializations.

Question No: 11 (Marks: 1) - Please choose one

What will be the value of 'a' and 'b' after executing the following statements?

a = 3;

b = a++;

► 3, 4

► 4, 4

► 3, 3

➢ **4, 3**

Question No: 12 (Marks: 1) - Please choose one

Consider the following code segment. What will be the output of following code?

```
int addValue (int *a){

int b = (*a) + 2;

return b ;

}

main () {

int x =6 ;

cout <<  x << "," ;

cout << addValue(&x) << "," ;

cout <<  x ;

}
```

➢ **6,8,6**

► 6,6,8

► 6,8,8

► 6,6,6

Question No: 13 (Marks: 1) - Please choose one

________ is used to trace the logic of the program and correct the logical errors.

► Compiler

► Editor

► Linker

➢ **Debugger**

Question No: 14 (Marks: 1) - Please choose one

new and delete are _____ whereas malloc and free are _____.

► Functions, operators

► Classes, operators

➢ **Operators,Functions**

► Operators, classes

Hence, we can call new and delete operators, P# 342
we have allocated a memory space for our use by malloc function. P# 285

Question No: 15 (Marks: 1) - Please choose one

Like member functions, ______ can also access the private data members of a class.

► Non-member functions

➢ **Friend functions**

► Any function outside class

► None of the given options

Question No: 16 (Marks: 1) - Please choose one

Which situation would require the use of a non-member overloaded operator?

► The overloaded operator is an Assignment operator.

➢ **The left most operand is an object of a class.**

► The left operand is built-in data type.

► The operator returns a reference.

When an operator function is implemented as a non-member function, the left-most operand may be an object of the operator's class, an object of a different class, or a built-in type

Question No: 17 (Marks: 1) - Please choose one

The stream insertion and stream extraction operators are already overloaded for ______.

► User-defined data types

➢ **Built-in-data types**

► User-defined and built-in data types

► None of the given options

Question No: 18 (Marks: 1) - Please choose one

If we define an identifier with the statement **#define PI 3.1415926** then during the execution of the program the value of PI __________.

► can not be replaced

► None of the given options

➢ **Remain constant.**

► can be changed by some operation

Question No: 19 (Marks: 1) - Please choose one

Assignment operator is ------------------------associative.

➢ **right**

► left

► binary

► unary

You can assign values to several variables in a single statement. For example, the following code sets the contents of apples and oranges to the same value:

apples = oranges = 10;

The assignment operator is right associative, so this statement executes by first storing the value 10 in oranges and then storing the value in oranges in apples, so it is effectively

apples = (oranges = 10);

Question No: 20 (Marks: 1) - Please choose one

When ever dynamic memory allocation is made in C/C++, it is freed_____________.

► Explicitly

➢ **Implicitly**

► Both explicitly and implicitly

► None of the given options

Question No: 21 (Marks: 1) - Please choose one

The appropriate data type to store the number of rows and colums of the matrix is____________.

► float

➢ **int**

► char

► none of the given options.

Question No: 22 (Marks: 1) - Please choose one

Which of the following function do NOT initialize the chunk of memory to all zero?

► calloc() function

► Both malloc() and calloc()

► None of the above

➢ **malloc()function**

The **malloc** function differs from **calloc** in the way that the space allocated by **malloc** is not initialized and contains any values initially.

Question No: 23 (Marks: 1) - Please choose one

The function free() returns back the allocated memory got thorough calloc and malloc to _____ .

► stack

➢ **heap**

► stack and heap

► None of the given options

Question No: 24 (Marks: 1) - Please choose one

width() is member function of _____________

► cin object

► cout object

➢ **Both cin and cout object**

► None of the given option

Question No: 25 (Marks: 1) - Please choose one

Templates are not type safe.

► true

➢ **false**

Templates are type-safe. This is because the types that templates act upon are known at compile time, so the compiler can perform type checking before errors occur.

Question No: 26 (Marks: 1) - Please choose one

A Matrix can be composed of ints, floats or doubles as their elements. Best way is to handle this , __________________

► Write a separate class to handle each

➢ **Use templates**

► Use strings to store all types

► None of the given options

A *Matrix* can be composed of *int*s, *float*s or *double*s as their elements. Instead of handling these data types separately, we can write *Matrix* class as a template class and write code once for all native data types. While writing this template class, the better approach to write will be, to go with a simple data type (e.g. *double*) first to write a *Matrix* class and then extend it to a template class later.

Question No: 27 (Marks: 2)

Give the general syntax of class template.

template

class myclass { ---} ;

Question No: 28 (Marks: 2)

What is a truth Table?

There are some areas where the decision structures become very complicated. Sometimes, we find it difficult to evaluate a complicated logical expression. Sometimes the logic becomes extremely complicated so that even writing it as a simple syntax statement in any language. It becomes complicated to determine what will be evaluated in what way. We know the concept of truth table. The truth tables are very important. These are still a tool available for analyzing logical expressions. We will read logic design in future, which is actually to do with chips and gates. How we put these things together.

Question No: 29 (Marks: 2)

What will be the output of following code, if user input a number **123**?

```
int input ;

cin >> oct >> input;

cout << hex << input ;
```

53

Rational: it will take 123 as octal and print it in hex form which is 53.

Question No: 30 (Marks: 2)

What is principle of friendship in the context of functions and classes?

Class can declare a friend function and someone from outside the class cannot declare itself friend of a class.

A friend function can access the private variables of class just like a member function

Question No: 31 (Marks: 3)

What are the limitations of the friendship relation between classes?

Class can declare a friend class from inside and someone from outside the class cannot declare itself friend of a class.

Question No: 32 (Marks: 3)

Suppose an object of class A is declared as data member of class B.

(i) The constructor of which class will be called first? a

(ii) The destructor of which class will be called first?b

Question No: 33 (Marks: 3)

Define static variable. Also explain life time of static variable?

When you declare a static variable (native data type or object) inside a function, it is created and initialized only once during the lifetime of the program

Question No: 34 (Marks: 5)

Write a program which defines three variables of type double which store three different values including decimal points, using setprecision manipulators to print all these values with different number of digits after the decimal number.

```
#include

#include

main () {

double a = 12.12345;

double b = 13.123456;

double c = 14.1234567;

cout << setprecision (5) << a << endl;

cout << setprecision (2) << a << endl;

cout << setprecision (3) << a << endl;

}
```

Question No: 35 (Marks: 5)

Let we have a class,

```
class String

{

private:

char  buf[25];

};
```

Write code for assignment (=) operator function which assign one String object to other object. Your code should also avoid self assignment

Answer:

```
void String::operator = ( const String &other )

 { int length ;

 length = other.length();

delete buf;

 buf = new char [length + 1];

 strcpy( buf, other.buf ); }
```

Question No: 36 (Marks: 5)

Read the given below code and explain what task is being performed by this function

```
Matrix :: Matrix ( int row , int col )

{

    numRows = row ;

    numCols = col ;

    elements = new ( double * ) [ numRows ] ;

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

{

        elements [ i ] = new double [ numCols ] ;

        for ( int j = 0 ; j < numCols ; j ++ )

                elements [ i ] [ j ] = 0.0 ;

    }

}
```

Hint : This function belong to a matrix class, having

Number of Rows = numRows

Number of Columns = numCols

Paper # 05

FINALTERM EXAMINATION
FALL 2010 (session_02)
CS201- Introduction to Programming

If it is required to copy an array to another array then,

➢ **Both arrays must be the same size and data type**

► Both arrays may be of different size

► Both arrays may be of different data type

► Both arrays may be of different size and type

Dealing with structures and functions passing by reference is the most economical method

➢ **True**

► False

eof( ), bad( ), good( ), clear( ) all are manipulators.

➢ **True**

► False

Overloaded new operator function takes parameter of type size_t and returns

► void (nothing)

➢ **Void pointer**

► object pointer

► int pointer

When new operator is overloaded at global level then corresponding built-in new operator will not be visible to whole of the program.

➢ **True**

► False

If there is more than one statement in the block of a for loop, which of the following must be placed at the beginning and the ending of the loop block?

► parentheses ( )

➢ **Braces { }**

► brackets [ ]

► arrows < >

The return type of a function that do not return any value must be _________

► float

► int

➢ **void**

► double

UNIX has been developed in _________ language.

► JAVA

► B

➢ **C**

► FORTRAN

Like member functions, _______ can also access the private data members of a class.

► Non-member function

➢ **Friend functions**

► Any function outside class

► None of the given options

Which of the following statement is best regarding declaration of friend function?

► Friend function must be declared after public keyword.

► Friend function must be declared after private keyword.

► Friend function must be declared at the top within class definition.

➢ **It can be declared anywhere in class as these are not affected by the public and private keywords.**

The operator function overloaded for an Assignment operator (=) must be

► Non-member function of class

➢ **Member function of class**

► Friend function of class

► None of the given options

The endl and flush are ________

► Functions

► Operators

➢ **Manipulators**

► Objects

If a symbolic constant has been defined, it will be an error to define it again.

➢ **True**

► False

The operator used for casting, in C, is standard ________ operator.

► none of the given options.

➢ Cast

► cost

► const

Constructors can not be overloaded like ordinary functions.

► True

➢ **False**

Which of the following function call is correct for the function prototype?

defaultParameters (int a, int b = 7, char z = '*');

► defaultParameters (5);

► defaultParameters (5, '8');

► defaultParameters (6, '#');

► defaultParameters (0, 0, '*', 0);

When an operator function is defined as member function for a binary Plus (+) operator then the number of argument it take is/are.

► Zero ► One ► Two ► N arguments

Wecan not define a variable of user-defined data type in the class.

► True ► False

When an object of a class is defined inside an other class then,

➢ **Constructor of enclosing class will be called first**

► Constructor of inner object will be called first

► Constructor and Destructor will be called simultaneously

► None of the given options

The appropriate data type to store the number of rows and colums of the matrix is______________.

► float

- ➢ ***Int***

► char

► none of the given options.

Class is a user defined_____________.

- ➢ **Data type**

► memory referee

► value

► none of the given options.

A class is a user defined data type

Question No: 22 (Marks: 1) - Please choose one

A pointer variable can be,

► Decremented

► Incremented

► Multiplied

- ➢ **Both decremented and incremented**

Question No: 23 (Marks: 1) - Please choose one

NULL value has been defined in _______ and __________ header files.

► strings.h and iostream.h

► ctype.h and conio.c

► conio.c and conio.h

- ➢ **Stdlib.h and stddef.h**

NULL has been defined in the header files stdlib.h and stddef.h.

Question No: 24 (Marks: 1) - Please choose one

A Matrix can be composed of ints, floats or doubles as their elements. Best way is to handle this , ________________

- ► Write a separate class to handle each
- ➢ **Use templates**
- ► Use strings to store all types
- ► None of the given options

Question No: 25 (Marks: 1) - Please choose one

"setprecision" manipulator will set

- ➢ **The number of digits after the decimal point**
- ► The number of digits before the decimal point
- ► The number of digits in a number
- ► None of the given options

setprecision. This is the parameterized, inline- manipulator that sets the places after the decimal point.

Question No: 26 (Marks: 1) - Please choose one

Which of the following option will be true, if we overload "-=" operator?

- ➢ **Only _ operator needs to be overloaded (notsure)**
- ► Minus (-) and = operators need to be overloaded
- ► the -= operator need to be overloaded explicitly
- ► the - and = operators need to be overloaded implicitly

Question No: 27 (Marks: 2)

Suppose there is a template function '**func**' having argument of type U and return type T. What will be the C++ syntax to call this function, passing a variable '**x**' of type double and returning an int type?

Question No: 28 (Marks: 2)

Which variable will be used in inner code block if we have the same names of variable at outer code block and inner code block?

Question No: 29 (Marks: 2)

What is the benefit of reference and where can we use it?

Question No: 30 (Marks: 2)

Write the C++ code for the declaration of overloaded stream insertion and stream extraction operator for the object **d** of type **Date**.

Question No: 31 (Marks: 3)

What will be the output of following functions if we call these functions three times?

1)

```
void func1(){

int x = 0;

x++;

cout << x << endl;

}
```

2)

```
void func2(){

static int x = 0 ;

x++;

cout << x << endl ;

}
```

Question No: 32 (Marks: 3)

If the requested memory is not available in the system then what does**calloc/malloc** and **new** operator return?

Question No: 33 (Marks: 3)

Suppose an object of class A is declared as data member of class B.

(i) The constructor of which class will be called first?

(ii) The destructor of which class will be called first?

Question No: 34 (Marks: 5)

What is difference between Unary and binary operators and how they can be overloaded?

Question No: 35 (Marks: 5)

Suppose we have the following class.

```
class Matrix

{

private:

int Elements[3][3];

};
```

Write the operator function of stream extraction operator (>>) for this class.

Question No: 36 (Marks: 5)

What is meant by user interface and class interface in C++ ? And what role a class interface can play in user interface [Marks 5]

Paper # 06

FINALTERM EXAMINATION
FALL 2010 (session_03)
CS201- Introduction to Programming

Question No: 1 (Marks: 1) - Please choose one
If it is required to copy an array to another array then,
► **Both arrays must be of the same size and data type (Page 105)**
► Both arrays may be of different size
► Both arrays may be of different data type
► Both arrays may be of different size and type

Question No: 2 (Marks: 1) - Please choose one
Dealing with structures and functions passing by reference is the most economical method
► **True**

► False
http://mathbits.com/MathBits/CompSci/Structures/Functions.htm

Question No: 3 (Marks: 1) - Please choose one
eof( ), bad( ), good( ), clear( ) all are manipulators.
► True (Page 433)
► False

Question No: 4 (Marks: 1) - Please choose one
Overloaded new operator function takes parameter of type *size_t* and returns
► void (nothing)
► void pointer (Page 415)
► object pointer
► int pointer

Question No: 5 (Marks: 1) - Please choose one
When new operator is overloaded at global level then corresponding built-in new operator will not be
visible to whole of the program.
► True (Page 413)
► False

Question No: 6 (Marks: 1) - Please choose one
If there is more than one statement in the block of a for loop, which of the following must be placed at the
beginning and the ending of the loop block?

► parentheses ( )
► braces { } (Page 37)
► brackets [ ]
► arrows < >

Question No: 7 (Marks: 1) - Please choose one
The return type of a function that do not return any value must be ________
► float
► int
► void (Page 79)
► double

Question No: 8 (Marks: 1) - Please choose one
UNIX has been developed in ________ language.

► JAVA

► B
► C (Page 12)
► FORTRAN

Question No: 9 (Marks: 1) - Please choose one
Like member functions, ______ can also access the private data members of a class.
► Non-member functions
► Friend functions (Page 346)
► Any function outside class
► None of the given options

Question No: 10 (Marks: 1) - Please choose one
Which of the following statement is best regarding declaration of friend function?
► Friend function must be declared after public keyword.
► Friend function must be declared after private keyword.
► Friend function must be declared at the top within class definition.
► It can be declared anywhere in class as these are not affected by the public and private keywords. (Page 346)

Question No: 11 (Marks: 1) - Please choose one
The operator function overloaded for an Assignment operator (=) must be
► Non-member function of class
► Member function of class (Page 372)
► Friend function of class
► None of the given options

Question No: 12 (Marks: 1) - Please choose one
The **endl** and **flush** are _______
► Functions
► Operators
► Manipulators (Page 434)
► Objects

Question No: 13 (Marks: 1) - Please choose one
If a symbolic constant has been defined, it will be an error to define it again.
► True (Page 273) 15
► False

Question No: 14 (Marks: 1) - Please choose one
The operator used for casting, in C, is standard ________ operator.

► none of the given options.
► cast (Page 281)

► cost
► const

Question No: 15 (Marks: 1) - Please choose one
Constructors can not be overloaded like ordinary functions.
► True
► **False (Page 323)**

Question No: 16 (Marks: 1) - Please choose one
Which of the following function call is correct for the function prototype?
defaultParameters (int a, int b = 7, char z = '*');
► **defaultParameters (5);**
► defaultParameters (5, '8');
► defaultParameters (6, '#');
► defaultParameters (0, 0, '*', 0);

Question No: 17 (Marks: 1) - Please choose one
When an operator function is defined as member function for a binary Plus (+) operator then the number of
argument it take is/are.
► Zero
► One
► **Two (Page 371)**
► N arguments

Question No: 18 (Marks: 1) - Please choose one
We can not define a variable of user-defined data type in the class.
► True
► **False (Page 320)**

Question No: 19 (Marks: 1) - Please choose one
When an object of a class is defined inside an other class then,
► **Constructor of enclosing class will be called first (Page 464)**
► Constructor of inner object will be called first
► Constructor and Destructor will be called simultaneously
► None of the given options

Question No: 20 (Marks: 1) - Please choose one
The appropriate data type to store the number of rows and colums of the matrix is____________.
► float
► **int (Not sure)**
► char

► none of the given options.

Question No: 21 (Marks: 1) - Please choose one
Class is a user defined___________.

► data type (page 317)
► memory referee
► value
► none of the given options.

Question No: 22 (Marks: 1) - Please choose one
A pointer variable can be,

► Decremented
► Incremented
► Multiplied
► Both Iecremented and Decremented (Page 366)

Question No: 23 (Marks: 1) - Please choose one
NULL value has been defined in ______ and _________ header files.

► strings.h and iostream.h
► ctype.h and conio.c
► conio.c and conio.h
► stdlib.h and stddef.h (Page 281)

Question No: 24 (Marks: 1) - Please choose one
A Matrix can be composed of ints, floats or doubles as their elements. Best way is to handle this ,

____

► Write a separate class to handle each
► Use templates (Page 527)
► Use strings to store all types
► None of the given options

Question No: 25 (Marks: 1) - Please choose one
"setprecision" manipulator will set

► The number of digits after the decimal point (Page 440)
► The number of digits before the decimal point
► The number of digits in a number
► None of the given options

Question No: 26 (Marks: 1) - Please choose one
Which of the following option will be true, if we overload "-=" operator?

► only - operator needs to be overloaded

► Minus (-) and = operators need to be overloaded
► **the -= operator need to be overloaded explicitly**
► the - and = operators need to be overloaded implicitly

Paper # 07

FINALTERM EXAMINATION

Spring 2010 (session-05)

CS201- Introduction to Programming

Marks: 58

Question No: 1 (Marks: 1) - Please choose one

In if structure the block of statements is executed only,

► When the condition is false

► When it contain arithmetic operators

► When it contain logical operators

► ***When the condition is true***

Question No: 2 (Marks: 1) - Please choose one

Header file: **fstream.h** includes the definition of the stream classes __________.

► ifstream, fstream, cout

► ***ifstream, fstream, ofstream***

► fstream, cin, cout

► None of the above

Question No: 3 (Marks: 1) - Please choose one

To access the data members of structure _______ is used.

► ***dot operator (.)***

► * operator

► operatorà

► None of given.

Question No: 4 (Marks: 1) - Please choose one

eof( ), bad( ), good( ), clear( ) all are manipulators.

► True

► **False**

Question No: 5 (Marks: 1) - Please choose one

Which kind of functions can access private member variables of a class?

► ***Friend functions of the class***

► Private member functions of the class

► Public member functions of the class

► Friend, private and public functions

Question No: 6 (Marks: 1) - Please choose one

The return type of operator function must always be void.

► True

► ***False***

Question No: 7 (Marks: 1) - Please choose one

Friend function of a class is ______________ .

► Member function

► ***Non-member function***

► Private function

► Public function

Question No: 8 (Marks: 1) - Please choose one

Function implementation of friend function must be defined outside the class.

► True

► ***False (any where in the class)***

Question No: 9 (Marks: 1) - Please choose one

The normal source of **cin** object is,

► File

► Disk

► ***Keyboard***

► RAM

Question No: 10 (Marks: 1) - Please choose one

Which of the following is correct way to initialize a variable x of int type with value 10?

► int x ; x = 10;

► int x = 10;

► int x, x = 10;

► ***x = 10;***

Question No: 11 (Marks: 1) - Please choose one

Consider the following code segment. What will be the output of the following program?

int func(int) ;

```
int num = 10 ;

int main(){

int num ;

num = 5 ;

cout num ;

cout func(num) ;

}

int func(int x){

return num ;

}
```

► 5, 5

► 10, 5

► 5, 10

► 10, 10

Question No: 12   (Marks: 1) - Please choose one

With template function, the compiler automatically detects the passed data and generates a new copy of function using passed data.

► True

► False

Question No: 13   (Marks: 1) - Please choose one

What will be the correct syntax to declare two-dimensional array of float data type?

► float arr{2}{2} ;

► ***float arr[2][2] ;***

► float arr[2,2] ;

► float[2][2] arr ;

Question No: 14 (Marks: 1) - Please choose one

The first parameter of operator function for operator,

► Must be passed by value

► ***Must be passed by reference***

► Can be passed by value or reference

► Must be object of class

Question No: 15 (Marks: 1) - Please choose one

Heap is constantly changing in size.

► ***True***

► False

Question No: 16 (Marks: 1) - Please choose one

While calling function, the arguments are assigned to the parameters from

► ***left to right.***

► right to left

► no specific order is followed

► none of the given options.

Question No: 17 (Marks: 1) - Please choose one

Classes defined inside other classes are called ________ classes

► looped

► ***nested***

► overloaded

► none of the given options.

Question No: 18 (Marks: 1) - Please choose one

If we define an identifier with the statement **#define PI 3.1415926** then during the execution of the program the value of PI __________

► can not be replace

► None of the given options

► ***Remain constant.***

► can be changed by some operation

Question No: 19 (Marks: 1) - Please choose one

Which value is returned by the destructor of a class?

► A pointer to the class.

► An object of the class.

► A status code determining whether the class was destructed correctl

► ***Destructors do not return a value.***

Question No: 20 (Marks: 1) - Please choose one

Every class contains _______________.

► Constructor

► Destructor

► ***Both a constructor and a destructor***

► None of the given options

Question No: 21 (Marks: 1) - Please choose one

A template function must have

► **One or more than one arguments**

► Only one argument

► Zero argument

► None of the given options

Question No: 22 (Marks: 1) - Please choose one

Structured Query Language is used for ______________

► ***Databases Management***

► Networks

► Writing Operating System

► none of the given options

Question No: 23 (Marks: 1) - Please choose one

When a call to a user-defined function finishes, the variable defined inside the function is still in existence.

► True

► **False**

Question No: 24 (Marks: 1) - Please choose one

The precedence of an operator can be changed through operator overloading.

► True

► ***False***

Question No: 25 (Marks: 1) - Please choose one

A Matrix can be composed of ints, floats or doubles as their elements. Best way is to handle this , _______________

► Write a separate class to handle each

► Use templates

► Use strings to store all types

► None of the given options

A *Matrix* can be composed of *int*s, *float*s or *double*s as their elements. Instead of handling these data types separately, we can write *Matrix* class as a template class and write code once for all native data types.

Write *Matrix* class as a template class and write code once for all native data types

Question No: 26 (Marks: 1) - Please choose one

"delete" operator is used to return memory to free store, which is allocated by the "**new"** operator.

► ***True***

► False

Question No: 27 (Marks: 2)

What is the difference between **switch** statement and **if** statement.

Question No: 28 (Marks: 2)

How can we initialize data members of contained object at construction time?

Question No: 29 (Marks: 2)

How the data members of a class are initialized with meaningful values?

Question No: 30 (Marks: 2)

Can we overload ***new*** and ***delete*** operators?

Question No: 31 (Marks: 3)

What will be the output of following functions if we call these functions three times?

1)

```
void func1(){

int x = 0;

x++;

cout x endl;

}
```

2)

```
void func2(){

static int x = 0 ;

x++;

cout x endl ;

}
```

Question No: 32 (Marks: 3)

What is the keyword '**this**' and what are the uses of '**this'** pointer?

Question No: 33 (Marks: 3)

Suppose an object of class A is declared as data member of class B.

(i) The constructor of which class will be called first?

(ii) The destructor of which class will be called first?

Question No: 34 (Marks: 5)

Write the general syntax of a class that has one function as a friend of a class along with definition of friend function.

Question No: 35 (Marks: 5)

Write down the disadvantages of the templates.

Question No: 36 (Marks: 5)

Write a program which defines five variables which store the salaries of five employees, using setw and setfill manipulators to display all these salaries in a column.

Note: Display all data with in a particular width and the empty space should be filled with character x

Output should be displayed as given below:

```
xxxxxx1000

xxxxxx1500

xxxxx20000

xxxxx30000

xxxxx60000
```

Paper # 08

FINALTERM EXAMINATION

Spring 2009

CS201- Introduction to Programming (Session - 1)

Time: 120 min

Marks: 75

Question No: 1 (Marks: 1) - Please choose one

To access the data members of structure _______ is used.

► **dot operator (.)**

► * operator

► à operator

► None of given.

Question No: 2 (Marks: 1) - Please choose one

What does 5 ^ 6 , evaluate to in decimal where '^' is Exclusive OR operator?

► 1

► 2

► **3**

► 4

Question No: 3 (Marks: 1) - Please choose one

If constructor contains a return statement in its body then compiler will give __________

► **No error**

► Syntax error

► Logical error

► Run time error

Question No: 4 (Marks: 1) - Please choose one

We can use New keyword inside of Class Constructor.

► True

► **False**

Question No: 5 (Marks: 1) - Please choose one

When an operator function is define as member function for a Unary operator then the number of argument it take is/are,

► Zero

► **One**

► Two

► N arguments

Question No: 6 (Marks: 1) - Please choose one

The declarator of Plus (+) member operator function is

► **Class-Name operator + (Class-Name rhs)**

► operator Class-Name + ( )

► operator Class-Name + (rhs)

► Class-Name operator + ( )

Question No: 7 (Marks: 1) - Please choose one

Friend function of a class is ______________ .

► Member function

► **Non-member function**

► Private function

► Public function

Question No: 8 (Marks: 1) - Please choose one

We can also create an array of user define data type.

► True

► **False**

Question No: 9 (Marks: 1) - Please choose one

What is the sequence of event(s) when deallocating memory using delete operator?

► Only block of memory is deallocated for objects

► Only destructor is called for objects

► **Memory is deallocated first before calling destructor**

► Destructor is called first before deallocating memory

Question No: 10 (Marks: 1) - Please choose one

Deleting an array of objects without specifying [] brackets may lead to memory leak

► True

► **False**

Question No: 11 (Marks: 1) - Please choose one

Which of the following data type(s) can operate on modulus operator '%'?

► float, int

► float, double

► **int**

► char

Question No: 12 (Marks: 1) - Please choose one

Array is passed by value to a function by default.

► **True**

►False

Question No: 13 (Marks: 1) - Please choose one

With template function, the compiler automatically detects the passed data and generates a new copy of function using passed data.

► **True**

►False

Question No: 14 (Marks: 1) - Please choose one

What will be the correct syntax to initialize all elements of two-dimensional array to value 0?

► **int arr[2][3] = {0,0} ;**

► int arr[2][3] = {{0},{0}} ;

► int arr[2][3] = {0},{0} ;

► int arr[2][3] = {0} ;

Question No: 15 (Marks: 1) - Please choose one

When an operator function is define as member function then operand on the left side of operator must be an object.

► **True**

►False

Question No: 16 (Marks: 1) - Please choose one

break statement can be used outside a loop or switch statement.

► **True**

►False

Question No: 17 (Marks: 1) - Please choose one

The keyword_______ is used to return some value from a function.

► **return**

► break

► continue

► goto

Question No: 18 (Marks: 1) - Please choose one

Every data member or function inside the structure is ___ by default whereas everything declared inside a class is ____ by default.

► private, public

► public, private

► private, protected

► public, protected

Question No: 19 (Marks: 1) - Please choose one

Which of the following is true for the C++ statement given below?

int &ref = val ;

► It creates a synonym for variable 'val'

► It creates an alias for variable 'val'

► It's a new name for variable 'val'

► All of the given options

Question No: 20 (Marks: 1) - Please choose one

If overloaded plus operator is implemented as non-member function then which of the following statement will be true for the statement given below?

obj3 = obj1 + obj2 ;

► obj2 will be passed as an argument to + operator whereas obj2 will drive the + operator

► obj1 will drive the + operator whereas obj2 will be passed as an argument to + operator

► **Both objects (obj1, obj2) will be passed as arguments to the + operator**

► Any of the objects (obj1, obj2) can drive the + operator

Question No: 21 (Marks: 1) - Please choose one

Unary operator implemented as member function takes ____ arguments whereas non-member function takes _____ arguments.

► One, zero

► **Zero, one**

► One, two

► Two, one

Question No: 22 (Marks: 1) - Please choose one

The input/output streams cin and cout are ________ therefore have _______.

► Structures, function

► Objects, member functions

► Functions, objects

► **None of the given options**

Question No: 23 (Marks: 1) - Please choose one

If a symbolic constant has been defined, it will be an error to define it again.

► **True**

► False

Question No: 24 (Marks: 1) - Please choose one

Every class contains _______________.

► **Constructor**

► Destructor

► Both a constructor and a destructor

► None of the given options

Question No: 25 (Marks: 1) - Please choose one

new and delete keywords are _____________ in C++ language.

► Built-in- Function

► Operators

► **Memory Allocation Function**

► None of the given options

Question No: 26 (Marks: 1) - Please choose one

Consider the following code segment.

```
class M {
public:
  M &operator+(const M &);
...
};
```

p + q //code of line implies that p.operator+(q)

...

Let assume if p and q are class objects then function is implemented as _______

► **Member function**

► Non-member function

► Friend function

► None of the given options

Question No: 27 (Marks: 1) - Please choose one

Assignment operator is ------------------------associative.

► right

► left

► **binary**

► unary

Question No: 28 (Marks: 1) - Please choose one

Static variable which is defined in a function is initialized __________.

► **Only once during its life time**

► Every time the function call

► Compile time of the program

► None of the above

Question No: 29 (Marks: 1) - Please choose one

We can not define a variable of user-defined data type in the class.

► True

►**False**

Question No: 30 (Marks: 1) - Please choose one

A constructor that will create a new object with a full copy of the other object, is copy is known as ___________

► **deep copy**

- shallow copy
- constructor copy
- none of the options

Question No: 31 (Marks: 1)

What is the use of reference data type?

Ans:

A reference data type is a variable that can contain an address. The reference data types in Java are arrays, classes and interfaces. You'll hear often say that Java does not have pointers. Yet, you could consider a reference data type to be a pointer

Question No: 32 (Marks: 1)

What are the main types of operators in terms of number of arguments they take?

Ans:

The difference is in the number of arguments used by the function. In the case of binary operator overloading, when the function is a member function then the number of arguments used by the operator member function is one (see below example). When the function defined for the binary operator overloading is a friend function, then it uses two arguments.

Question No: 33 (Marks: 2)

What is the **this** pointer? Give an example of its use

Ans:

In a C++ program, if you create object A of class X, you can then obtain the address of A by using the "this" pointer. The address is available as a local variable in the non-static member functions of X, and its type is const X*. The "this" pointer works because C++ creates instances of its data members, and it keeps one copy of each member function.

Question No: 34 (Marks: 2)

What are manipulators? Give one example.

Ans: Manipulators are operators used in C++ for formatting output. The data is manipulated by the programmer's choice of displayed endl manipulator. This manipulator has the same functionality as the '\n' newline character.

Question No: 35 (Marks: 3)

What will be the output of following functions if we call these functions three times?

Ans:

1)

```
void func1(){

int x = 0;

x++;

cout x endl;

}
```

Output will be:

```
1
1
1
```

2)

```
void func2(){

static int x = 0 ;

x++;

cout x endl ;

}
```

Output will be:

1
2
3

Question No: 36 (Marks: 3)

If the requested memory is not available in the system then what does **calloc/malloc** and **new** operator return?

Ans:

malloc returns a void pointer to the allocated space or NULL if there is insufficient memory available. To return a pointer to a type other than void, use a type cast on the return value. The storage space pointed to by the return value is guaranteed to be suitably aligned for storage of any type of object. If size is 0, malloc allocates a zero-length item in the heap and returns a valid pointer to that item.

By default, malloc does not call the new handler routine on failure to allocate memory. You can override this default behavior so that, when malloc fails to allocate memory, malloc calls the new handler routine in the same way that the new operator does when it fails for the same reason.

Question No: 37 (Marks: 3)

If we want to send the data by reference and don't want that original data should be affected then what can we do to prevent any change?

Question No: 38 (Marks: 5)

Write down the disadvantages of the templates.

Ans:

The disadvantages of templates are:

• Templates can make code difficult to read and follow depending upon coding style.

• They can present seriously confusing syntactical problems esp. when the code is large and spread over several header and source files.

• Then, there are times, when templates can "excellently" produce nearly meaningless compiler errors thus requiring extra care to enforce syntactical and other design constraints. A common mistake is the angle bracket problem.

Question No: 39 (Marks: 5)

The following code segment has errors. Locate as many as you can and explain briefly.

```
class Circle // no need to enter colon here , so I removed it
{
private : //colon missing
double centerX;
double centerY;
double radius;
public: //colon missing
void setCenter(double, double);
void setRadius(int);
};//semi colon missing
```

Question No: 40 (Marks: 10)

Write a program which consists of two classes, **Date** and **Person.**

Date class should contain three data members **day**, **month**, **year** and setter and getter function for these data members. Date class should also contain **showdate()** member function to display date.

Person class should contain three data members **Name, Address,** and **Bday**, where Name and Address are char pointer while Bday(Date of birth) is of type Date, Person class should further contain two member functions **Display()** and **setdate().**

In main program Create an object of Class person and call the member functions with it.

Please find the Answer in following Box

```
#include <stdio.h>

#include <iostream>

#include <cstring>

using namespace std;


class Date

{

public:

        int day;

        int month;

        int year;


public:

        Date()

                {

                        day=0;

                        month=0;

                        year=0;

                }

        void setDay(int);

        void setMonth (int);
        void setYear(int);


        int getDay();

        int getMonth();

        int getYear();


        void showDate();

};

void Date: :setDay(int d)

{

        if{d<1 || d>31)

        cout"Invalid month Renter it";

        cin>>d;

}

        day=d;

}


void Date: :setMonth (int m)

{

        if(m<1 || m>12)

{
        cout"Invalid month Renter it";

        cin>>m;

}

        month=m;

}

        void Date: :setYear (int y)

{

        year=y;


        int Date: :getDay()

{

        return day;

}

        int Date: :getMonth()

{

        return month:

}

        int Date: :getYear()

{

        return year;

}
```

```
        void Date: :showDate()
{
        coutday"-"month"-"yearend1;
}
Class Person
{
public:
        char *Name;
  char *Address
        Date Bday;

public:
        Student()
        {
        Name=new char[20];
        Address=new char[10];
        cin.getline(Name,20);
        cout"Enter Address:";
        cin.getline(Address,10);
        }
void setDate()
```

```
{
        cout"Enter Day:";
        cin>>Ad_date.day;
        cout"Enter month:";
        cin>>Ad_date.month;
        cout"Enter Year:";
        cin>>Ad_date.year;
        }
void Display()
        {
        cout"Name: "end1;
        cout"Address: "Addressend1;
        cout"Date of Birth: ";
        Ad-date.showDate();
        }
};
void main()
{
        Person object;
        object.setDate();
        object.Display();



        system("pause");

}
```

Question No: 41   (Marks: 10)

Write a C++ program that contains a class 'myClass' having two data members of type int.

The class must have

- A default constructor which must initialize all the data members to their meaningful values.
- A destructor with no implementation.
- Setter member functions to set all data members of class
- Getter member functions to get all data members of class

In main function of the program

1. Prompt the user to enter the number of objects to be created.
2. Dynamically allocate memory to objects according to the size entered by user.
3. De-allocate memory that was allocated to objects

Find solution in following box:

```
#include <stdio.h>

#include <iostream>

#include <cstring>
```

```
using namespace std;


class myclass

{

public:

int a;

int b;

int *iptr, *sptr;


construct{int,int.int}


        void seta(int);

        void setb(int);

        void setc(int);


        int geta();

        int getb();

        int getc();

};

void Person: :seta(int aa)

{
        a=aa;
}
void Person: :setb (int bb)
{
        b=bb;
}
        void Person: :setc (int cc)
{
        c=cc;
}
main()

{
int num;

cout<< "Enter the number of objects to be created";

cin>>num;

for (int i =1;i==num;i++)
{
```

```
Person i_


}

}
```

Paper # 9

FINALTERM EXAMINATION
FALL 2009 (session_02)
CS201- Introduction to Programming

Time: 120 min

Marks: 75

If we write a statement like s2 = s1; ___ will be the calling object and ____ will be passed to the = operator as an argument.

□ s1, s1

□ s1, s2

□ **s2, s1**

□ s2, s2

If we write a statement like *s2* = *s1*; *s2* will be the calling object and *s1* will be passed to the = operator as an argument. P# 397

cout < < setfill('0') < < setw(7) < < 128 ;

□ **0000128**

□ 0128128

□ 1280000

□ 0012800

default alignment is from left due to this it first prints 4 Zeros(setw=7, digit=3 i.e 1-2-8,) 7-3=4 Zeros

The stream insertion and extraction operators are not already overloaded for ______

□ Built-in data types

□ **User-defined data types**

□ Both built-in and user-defined types

□ None of the given options

Constructors can not be overloaded like ordinary functions.

□ True

□ **False**

The constructors can be overloaded. We can write as many constructors as we require. At one time, the compiler will call the correct version of the constructor".P# 323 these solutions are meant to host at vuzs site only

Overloaded new operator function takes parameter of type *size_t* and returns

□ void (nothing)

□ **void pointer**

□ object pointer

 int pointer

Also note that the *new* operator returns a *void* pointer. Any *new* operator we write must have this parameter and return type.

Which of the following is the correct way to declare a variable x of integer type?

 x int ;

 integer x ;

**** int x;****

 x integer

Reserve words cannot be used as a variable name.

**** True****

 False

There are few data types in C language. These data types are reserved words of C language. The reserve words can not be used as a variable manes. P# 17

A template function must have at least ---------- generic data type

 Zero

**** One****

 Two

 Three

The function arguments must contain at least one generic data type. P# 499

Template functions can also be overloaded

 True

□ **False**

We can write overloaded template functions as long as there is use of different number or type of arguments.. P # 503

We can not make a member function of a class as template function.

□ True

□ **False not sure**

When break statement is encountered in switch statement, it

□ Stops the entire program

□ **Stops the execution of current statement**

□ Exits from switch statement

□ None of the given options

We can also define a variable of user define data type (object) as static.

□ **True**

□ False

The declarator of Plus (+) member operator function is

□ **Class-Name operator + (Class-Name rhs)**

□ operator Class-Name + ( )

□ operator Class-Name + (rhs)

□ Class-Name operator + ( )

Let suppose

int a, b, c, d, e;

a = b = c = d = e = 42;

This can be interpreted by the complier as:

□ a = (b = (c = (d = (e = 42))));

□ (a = b = (c = (d = (e = 42))));

□ **a = b = (c = (d = (e = 42)));**

□ (a = b) = (c = d) = (e = 42);

What will be the range of numbers generated by function rand () % 9?

□ 0 to 9

□ 1 to 9

□ **0 to 8**

□ 1 to 8

When 6 divides any number, the remainder will always be less than 6. There

result will be between therefore we will add 1. 1 + rand ( ) % 6;

Which of the following is the correct function call having array named *student* of 10 elements as a parameter.

□ **addRecord(student[]) ;**

□ addRecord(student) ;

□ addRecord(student[10]) **;**

□ addRecord(*student) ;

when we pass array we don't give limit of array

Example:

Pass array to function

```
#include<stdio.h>
   #include<conio.h>
   void read(int *,int);
   void dis(int *,int);

   void main()
   {
    int a[5],b[5],c[5],i;

    printf("Enter the elements of first list \n");
    read(a,5);
    printf("The elements of first list are \n");
    dis(a,5);
   }

   void read(int c[],int i)
   {
    int j;
    for(j=0;j<i;j++)
      scanf("%d",&c[j]);
    fflush(stdin);
   }

   void dis(int d[],int i)
   {
    int j;
    for(j=0;j<i;j++)
    printf("%d ",d[j]);
    printf("\n");
   }
```

Declaring structures does not mean that memory is allocated.

□ True

□ False

structures do not occupy any memory until it is associated with the structure variable

Identifier is a name that can be given to variables, labels and functions.

□ True

□ False

An 'Identifier' means any name that the user creates in his/her program. These names can be of variables, functions and labels

If a class A declares itself a friend of class B and a class B declares itself a friend of class C then

□ Class A is also a friend of class C.

□ Class B is also a friend of class A.

□ Class A is also a friend of class C if A declares C as its friend.

□ Class A is also a friend of class C if C declares A as its friend.

If we want a two-way relationship, OtherClass will have to declare ClassOne as a friend class, resulting in a complete two-way relationship

Which of the following statement is best regarding declaration of friend function?

□ Friend function must be declared after public keyword.

□ Friend function must be declared after private keyword.

□ Friend function must be declared at the top within class definition.

□ It can be declared anywhere in class as these are not affected by the public and private keywords.

Friend is a very strong statement. It is too strong to be affected by public or private we can put it anywhere in the class

A pointer is a special type of variable that contain ___________

□ Memory Address

□ Data values

□ Both Values and Memory

□ None of given of options

Pointer is a special type of variable that contains a memory address.

When memory for a program is allocated at run time then it is called ________

□ static memory allocation

□ dynamic memory allocation

□ stack memory allocation

□ virtual memory allocation

When we create an object of the class at run time, it will allocate memory according to our requirement. So there is no waste of memory and the situations in which we want to store large data in small memory or vice versa are prevented. So we do dynamic memory allocation inside these classes.

What purpose do classes serve?

□ Data encapsulation

□ Providing a convenient way of modeling real-world objects

□ Simplifying code reuse

□ All of the given options

Which of the following function cannot be overloaded?

□ Member functions

□ Utility functions

□ Constructor

□ Destructor

The destructors can be summarized as The destructors cannot be overloaded. The destructors take no arguments. The destructors don't return a value.

The following prototype of unary operator function indicates that it is __________ .

Date operator++(int)

- **□ Member functions of post increment operator**
- □ Member functions of pre increment operator
- □ Non-member functions of post increment operator
- □ Non-member functions of pre increment operator

Overloading Unary Operators

```
// Preincrement operator overloaded as a member function.
Date Date::operator++()
{
   helpIncrement();
   return *this;  // value return; not a reference return
}

// Postincrement operator overloaded as a member function.
// Note that the dummy integer parameter does not have a
// parameter name.
Date Date::operator++(int)
{
   Date temp = *this;
   helpIncrement();

   // return non-incremented, saved, temporary object
   return temp;   // value return; not a reference return
```

Static variable which is defined in a function is initialized _________.

□ **Only once during its life time**

□ Every time the function call

□ Compile time of the program

□ None of the above

Once the static variables are created, they exist for the life of the program. They do not die.

In the member initialize list, the data members are initialized,

□ **From left to right**

□ From right to left

□ In the order in which they are defined within class

□ None of the given options

If we do not indent the code properly it will ________________

□ Be a syntax error

□ Be a logical error

□ **Not be an error at all**

□ None of the given options

we Indent the code for better readability and understanding

Truth tables are used for analyzing __________.

□ **logical expressions**

 arithmetic expressions

 both logical and arithmetic expressions

 none of the given options.

The truth tables are very important. These are still a tool available for analyzing logical expressions.

Static memory allocation is also known as ____________

 Dynamic allocation

 Compile time allocation

 Run time allocation

 None of the given options

This type of memory static allocation. It is also known as compile time allocation.

(Marks: 1)

What does *getline()* member function of cin stream do?

Another member function of *cin* is *getline()*. It reads a complete buffer i.e. the number of character specified up to a delimiter we specify. We can write something like:

cin.getline(char *buffer, int buff_size, char delimiter = '\n')

(Marks: 1)

When memory is allocated dynamically using new operator within the constructor of class then what is an appropriate place to de-allocate the memory?

Whenever we allocate memory with the *new* operator, it is our responsibility to de-allocate this memory after the termination of the program. To do this de-allocation, we have an operator *delete*. To de-allocate the memory, allocated with *p = new int ;* we will write delete

(p) ;

It will not delete the *p* rather, it will send the memory gotten and pointed by *p* back to the free store.

(Marks: 2)

What will be the output of following code, if user input a number **123**?

int input ;

cin >> oct >> input;

cout << hex << input ;

(Marks: 2)

What is memory leak?

suppose, the heap size is decreased as we had allocated memory from it despite the fact that it was never utilized. If this step of allocating memory and then destroy the pointer to this memory carries on then the size of the heap will going on to decrease. It may become of zero size. When there is no memory on heap, the computer will stop running and there may be a system crash. This situation is called a memory leak.

(Marks: 3)

When we call calloc function to allocate memory and its return a NULL pointer what does it mean?

Calloc function takes two arguments. The first argument is the required space in terms of numbers while the second one is the size of the space

Now we have to see what happens when either we ask for too much memory at a time of non-availability of enough memory on the heap or we ask for memory that is available on the heap , but not available as a single chunk?. In this case, the call to calloc will fail. When a call to memory allocation functions fails, it returns a NULL pointer.

(Marks: 3)

Read the given code and explain code functionality.

```
Matrix :: Matrix ( const Matrix & m )

{

   numRows = m.numRows ;
   numCols = m.numCols ;

   elements = new ( double * ) [ numRows ] ;

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

{

      elements [ i ] = new double [ numCols ] ;

      for ( int j = 0 ; j < numCols ; j ++ )

            elements [ i ] [ j ] = m.elements [ i ] [ j ] ;

   }

}
```

(Marks: 3)

What is the keyword 'this' and what are the uses of 'this' pointer?

Whenever an object calls a member function, the function implicitly gets a pointer from the calling object. That pointer is known as *this* pointer. '*this'* is a key word. We cannot use it as a variable name. '*this'* pointer is present in the function, referring to the calling object.

this pointer points to the current object.

(Marks: 5)

What do you mean by garbage collection and how it works in JAVA and C++ ?

JAVA gives the concept of garbage collection with the use of references. Due to this garbage collection, we are free from the headache of de- allocating the memory. We allocate and use the memory. When it is no longer in use, JAVA automatically deletes (frees) it through garbage collection But in C and C++ languages, we have to take care of de-allocating the memory. In classes where we use dynamic memory, we have to provide destructors to free this memory. The languages keep evolving, new constructs will keep evolving in existing or new languages.

(Marks: 5)

Explain the concept of separation of interface from the implementation in the context of classes, using a real world example.

(Marks: 10)

Write a simple program using the **get()** member function of **cin** object reading a text of **30** characters from the keyboard, store them in an array and then using **put()** member function of **cout** object to display them on the screen.

(Marks: 10)

Overload the Binary Assignment (=) Operator.

Write a program which has a class **List**, This class should have Two data members, an array of integers **list[]** and an integer variable **length** (i.e. number of elements in the list).The class should further contain a default constructor, a **Print()** function which display the list and a Function **insert()** which insert an element in the list and Assignment (=) Operator function, which contain code for the assignment of one object to other. .

In main function define two objects **list1** and **list2** and use the statement **list2 = list1;** and use (call) **print** function with both objects.

Paper # 10

FINALTERM EXAMINATION

FALL (2008)

CS201- Introduction to Programming

Time: 120 min

Marks: 75

Question No: 1 (Marks: 1) - Please choose one

There are mainly ------------------- types of software

- ► **Two**
- ► Three
- ► Four
- ► Five

Question No: 2 (Marks: 1) - Please choose one

seekg() and write() are functionally _________________ .

- ► **Different**
- ► Identical
- ► Two names of same function
- ► None of the above

Question No: 3 (Marks: 1) - Please choose one

When a pointer is incremented, it actually jumps the number of memory addresses

- ► **According to data type**
- ► 1 byte exactly
- ► 1 bit exactly
- ► A pointer variable can not be incremented

Question No: 4 (Marks: 1) - Please choose one

setw is a parameterized manipulator.

► **True**

► False

Question No: 5 (Marks: 1) - Please choose one

____ eof( ), bad( ), good( ), clear( ) all are manipulators.

► True

► **False**

Question No: 6 (Marks: 1) - Please choose one

In functions that return reference, use ___________variables.

► Local

► **Global**

► **Global or static (not sure)**

► None of the given option

Question No: 7 (Marks: 1) - Please choose one

____The declarator of Plus (+) member operator function is

► **Class-Name operator + (Class-Name rhs)**

► operator Class-Name + ( )

► operator Class-Name + (rhs)

► Class-Name operator + ( )

Question No: 8 (Marks: 1) - Please choose one

The compiler does not provide a copy constructor if we do not provide it.

► **True**

► False

Question No: 9 (Marks: 1) - Please choose one

What is the functionality of the following syntax to delete an array of 5 objects named *arr* allocated using new operator?

delete arr ;

► Deletes all the objects of array

► Deletes one object of array

► Do not delete any object

► **Results into syntax error**

Question No: 10 (Marks: 1) - Please choose one

What is the sequence of event(s) when allocating memory using new operator?

► Only block of memory is allocated for objects

► Only constructor is called for objects

► **Memory is allocated first before calling constructor**

► Constructor is called first before allocating memory

Question No: 11 (Marks: 1) - Please choose one

What is the sequence of event(s) when deallocating memory using delete operator?

► Only block of memory is deallocated for objects

► Only destructor is called for objects

► Memory is deallocated first before calling destructor

► **Destructor is called first before deallocating memory**

Question No: 12 (Marks: 1) - Please choose one

new and delete operators cannot be overloaded as member functions.

► True

► **False**

Question No: 13 (Marks: 1) - Please choose one

The operator function of << and >> operators are always the member function of a class.

► True

► **False**

Question No: 14 (Marks: 1) - Please choose one

____A template function must have at least ---------- generic data type

► Zero

► One

► **Two**

► Three

Question No: 15 (Marks: 1) - Please choose one

If we do not mention any *return_value_type* with a function, it will return an _____ value.

► int

► void

► double

► float

Such function which do not return any value are called:

► int

► **void**

► double

► float

Question No: 16 (Marks: 1) - Please choose one

Suppose a program contains an array declared as **int arr[100];** what will be the size of array?

► 0

► 99

► **100**

► 101

Question No: 17 (Marks: 1) - Please choose one

The name of an array represents address of first location of array element.

► **True**

► False

Question No: 18 (Marks: 1) - Please choose one

Reusing the variables in program helps to save the memory

► **True**

► False

Question No: 19 (Marks: 1) - Please choose one

Which of the following option is true about new operator to dynamically allocate memory to an object?

► The new operator determines the size of an object

► **Allocates memory to object and returns pointer of valid type**

► Creates an object and calls the constructor to initialize the object

► All of the given options

Question No: 20 (Marks: 1) - Please choose one

new and delete are _____ whereas malloc and free are _____.

► Functions, operators

► Classes, operators

► **Operators, functions**

► Operators, classes

Question No: 21 (Marks: 1) - Please choose one

Like member functions, ______ can also access the private data members of a class.

► Non-member functions

► **Friend functions**

► Any function outside class

► None of the given options

Question No: 22 (Marks: 1) - Please choose one

Which of the following statement is best regarding declaration of friend function?

► Friend function must be declared after public keyword.

► Friend function must be declared after private keyword.

► **Friend function must be declared at the top within class definition. (not sure)**

► **It can be declared anywhere in class as these are not affected by the public and private keywords. (not sure)**

Question No: 23 (Marks: 1) - Please choose one

The operator function overloaded for an Assignment operator (=) must be

► Non-member function of class

► **Member function of class**

► Friend function of class

► None of the given options

Question No: 24 (Marks: 1) - Please choose one

For non-member operator function, object on left side of the operator may be

► Object of operator class

► Object of different class

► **Built-in data type**

► All of the given options

Question No: 25 (Marks: 1) - Please choose one

The operator function will be implemented as _____, if obj1 drive the - operator whereas obj2 is passed as arguments to - operator in the statement given below.

obj3 = obj1 - obj2;

► Member function

► Non-member function

► Friend function

► None of the given options

Question No: 26 (Marks: 1) - Please choose one

Which one of the following is the declaration of overloaded pre-increment operator implemented as member function?

► Class-name operator +() ;

► Class-name operator +(int) ;

► Class-name operator ++() ;

► Class-name operator ++(int) ;

Question No: 27 (Marks: 1) - Please choose one

The static data members of a class are initialized _______

► at file scope

► within class definition

► within member function

► within main function

Question No: 28 (Marks: 1) - Please choose one

Class is a user defined___________.

► data type

► memory referee

► value

► none of the given options.

Question No: 29 (Marks: 1) - Please choose one

We can also define a user-defines manipulators.

► True

► False

Question No: 30 (Marks: 1) - Please choose one

Automatic variable are created on ________.

► Heap

► Free store

► **static storage**

► stack

Question No: 31 (Marks: 1)

How do we provide the default values of function parameters?

Answer:

The default value of a parameter is provided inside the function prototype or function definition. For example, we could declare the default function arguments for a function while declaring or defining it.

Question No: 32 (Marks: 1)

Why do java consider pointer as dangerous

Answer:

The concept of pointers is very important but quite limited to C and C++. The modern languages, for example JAVA, describe pointers as dangerous. We can go anywhere in the memory and can change a value. There is another problem with pointers, which is that these could be pointing to nowhere.

Question No: 33 (Marks: 2)

What is memory leak?

Answer:

size. When there is no memory on heap, the computer will stop running and there may be a system crash. This situation is called a memory leak.

Question No: 34 (Marks: 2)

What does optimization the of code means?

Answer:

Header file is a nice mechanism to put function prototypes and define constants (global constants) in a single file. That file can be included simply with a single line of code.

Question No: 35 (Marks: 3)

What is the difference between structure and class?

Answer:

In structures, some data variables are gathered, grouped and named as a single entity. Class and structure are very closely related. In classes, we group some data variables and functions. These functions normally manipulate these variables. Before going ahead, it is better to understand what a class is: "A class includes both data members as well as functions to manipulate that data"

Question No: 36 (Marks: 3)

See the following code segment.

```
template <class T>

class myclass {

private:

        T x;

public:

        myclass (T a) {

        x = a;

        }

};
```

Write the main function which creates two objects of class for int and double data types.

Question No: 37 (Marks: 3)

____ **Is it possible to define two functions as given below? Justify your answer.**

func(int x, int y)

func(int &x, int &y)

Solution:

No, it is impossible to define two functions as in the main function the way to call both functions is same. How does the compiler know that which functions is being called? There is no way for the compiler to find out. Therefore there is an ambiguity and that is not allowed. The only thing to realize is the side effect. Side effects are critical to take care of whenever you are doing call by reference.

Question No: 38 (Marks: 5)

Write a program using **getline()** member function to inputs a string up to delimiter character comma (,) and then display the string on the screen.

Question No: 39 (Marks: 5)

____ Do you think that friend functions violate encapsulation? Justify your answer.

Answer:

The friend functions of a class have access to the private data members of class. Despite being a good thing, there is possibility of vulnerability. We are opening our thoughts, inside view for somebody else. Without having 100% trust, it will be risky to make our thoughts and feelings public. We want that our private data is accessible to someone outside, not public for everybody. Otherwise, the data encapsulation and data-hiding concept will be violated. We keep the data members private and declare some specific functions that are not member of the class but friend of the class. As friends, they have access to the inside data structure of the class despite not being members.

Question No: 40 (Marks: 10)

____

Write a simple program using the **get()** member function of **cin** object reading a text of **30** characters from the keyboard, store them in an array and then using **put()** member function of **cout** object to display them on the screen.

Question No: 41 (Marks: 10)

____

Write a small program which defines two user-defined manipulators named **octal** and **hexadecimal**. These manipulators should display the decimal numbers into octal and hexadecimal.

In the main function, input a decimal number from the user and then display this decimal number into octal and hexadecimal using user-define manipulators named **octal** and **hexadecimal**.