By Micro.IT.Corporation
Cell# 03344500853
Abaid Ur Rehman

Date: 08-11-2010
Question # 1 of 10
Information hiding can be achieved through_____.
1.Encapsulation, Inheritance
2.Encapsulation, Polymorphism
3.Encapsulation, Abstraction
4.Overloading
Question # 2 of 10 (Start time: 01:11:21 AM) Total Marks: 1
A good model is ..... related to a real life problem.
Select correct option:
1.Loosely
2.Openly
3.Closely
Question # 3 of 10 (Start time: 01:12:33 AM) Total Marks: 1
Which of the following features of OOP is used to derive a class from another?
Select correct option:
1.Encapsulation
2.Polymorphism
3.Data hiding
4. Inheritance
Question # 4 of 10 (Start time: 01:13:51 AM) Total Marks: 1
Which of the following is a weak relationship between two objects?
Select correct option:
1. Inheritance
2.Composition
3.Aggregation
4.None of given
Question # 5 of 10 (Start time: 01:14:56 AM) Total Marks: 1
Data items in a class must be private.
Select correct option:
1.True
2.False
Question # 6 of 10 (Start time: 01:15:52 AM) Total Marks: 1

Which one is a class association
Select correct option:
1.Simple Association
2. Inheritance
3.Composition
4.Aggregation
Question # 7 of 10 (Start time: 01:16:55 AM) Total Marks: 1
Suppose there is an object of type Person, which of the following can be considered as one of its attributes
Select correct option:
1.Name
2.Age
3.Work()
4.Both Name and Age
Question # 8 of 10 (Start time: 01:17:52 AM) Total Marks: 1
Which one is not an object association?
Select correct option:
1.Simple association
2. Inheritance
3.Aggregation
4.Association
Question # 9 of 10 (Start time: 01:18:50 AM) Total Marks: 1
Using encapsulation we can achieve
Select correct option:
1. Information hiding
2.Least interdependencies among modules
3. Implementation independence
4.All of given options
Question # 10 of 10 (Start time: 01:19:43 AM) Total Marks: 1
In constant member function the type of this pointer is:
Select correct option:
1.Constant pointer
2.Constant pointer to object
3.Constant pointer to class
4.Constant pointer to constant object
Question # 1 of 10
Which of the following is the way to extract common behavior and attributes from the given classes and make a separate class of those common behaviors and attributes?
1.Generalization

2.Sub-typing
3.Specialization
4.Extension
Question # 2 of 10
The ability to derive a class from more than one class is called
1.Single inheritance
2.Encapsulation
3.Multiple inheritance
4.Polymorphism
Question # 3 of 10:
If MyClass has a destructor what is the destructor named?
1.MyClass
2.~MyClass
3.My~Class
4.MyClass~
Question # 4 of 10:
Class abc{ ----- }; Is a valid class declaration?
1.yes
2.no
Question # 5of 10:
Without using Deep copy constructor, A _____ problem can occur
1.System crash
2.Memory Leakage
3.Dangling pointer
4.All of the given
Question # 6 of 10:
If only one behaviour of a derived class is incompatible with base class, then it is:
1.Generalization
2.Specialization
3.Extension
4. Inheritance
Question # 7 of 10:
Which of the following may not be an integral part of an object?
1. state
2.behavior
3.Protected data members
4.All of given
Question # 8 of 10:

Only tangible things can be chosen as an object.
1.True
2.False
1.
2. Question # 1 of 10
Information hiding can be achieved through_____.
Encapsulation, Inheritance
Encapsulation, Polymorphism
Encapsulation, Abstraction
Overloading
Question # 2 of 10 (Start time: 01:11:21 AM) Total Marks: 1
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Openly
Closely
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Polymorphism
Data hiding
Inheritance
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Composition
Aggregation
None of given
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Select correct option:
True
False
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Inheritance

Composition
Aggregation
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Select correct option:
Name
Age
Work()
Both Name and Age
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Select correct option:
Simple association
Inheritance
Aggregation
Association
Question # 9 of 10 (Start time: 01:18:50 AM) Total Marks: 1
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Select correct option:
Information hiding
Least interdependencies among modules
Implementation independence
All of given options
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Select correct option:
Constant pointer
Constant pointer to object
Constant pointer to class
Constant pointer to constant object
Question # 1 of 10
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given classes and make a separate class of those common behaviors and attributes?
Generalization
Sub-typing
Specialization
Extension

Question # 2 of 10
The ability to derive a class from more than one class is called
Single inheritance
Encapsulation
Multiple inheritance
Polymorphism
Question # 3 of 10:
If MyClass has a destructor what is the destructor named?
MyClass
~MyClass
My~Class
MyClass~
Question # 4 of 10:
Class abc{ ----- }; Is a valid class declaration?
yes
no
Question # 5of 10:
Without using Deep copy constructor, A _____ problem can occur
System crash
Memory Leakage
Dangling pointer
All of the given
Question # 6 of 10:
If only one behaviour of a derived class is incompatible with base class, then it is:
Generalization
Specialization
Extension
Inheritance
Question # 7 of 10:
Which of the following may not be an integral part of an object?
state
behavior
Protected data members
All of given
Question # 8 of 10:
Only tangible things can be chosen as an object.
True
False
Class is not a mechanism to create objects and define user data types.
1. true

2. false

Memory is allocated to non static members only, when:

1. Class is created
2. Object is defined
3. Object is initialized
4. Object is created

The sub-object's life is not dependent on the life of master class in _____.

1. Composition
2. Aggregation
3. Separation
4. non of the given

Unary operators and assignment operator are right associative.

1. true
2. false

The >= operator can't be overloaded.

1. true
2. false

_____ is creating objects of one class inside another class.

1. Association
2. Composition
3. Aggregation
4. Inheritance

If we are create array of objects through new operator, then

1. We can call overloaded constructor through new
2. We can't call overloaded constructor through new
3. We can call default constructor through new
4. None of the given

Object can be declared constant with the use of Constant keyword.

1. true
2. false

_____ Operator will take only one operand.

1. New
2. int
3. object
4. none of the given

Which of the following operator(s) take(s) one or no argument if overloaded?

1. ++
2. *
3. %
4. All of the given choices

this pointer does not pass implicitly to _____ functions.
1. Static Member
2. Non-Static Member
3. Instance Number
4. None of the given
Operator overloading is
1. making C++ operators work with objects.
2. giving C++ operators more than they can handle.
3. giving new meanings to existing Class members.
4. making new C++ operators
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left

Question # 1 of 10 (Start time: 09:57:41 AM) Total Marks: 1
Consider the code below, class class1{ public: void func1(); }; class class2 : private
class1 { }; Function func1 of class1 is
_____ in class2,
Select correct option:
public
protected
private
none of the given options
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left

Question # 2 of 10 (Start time: 09:59:01 AM) Total Marks: 1
User can make virtual table explicitly.
Select correct option:
True
False
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left

Question # 3 of 10 (Start time: 10:00:15 AM) Total Marks: 1

In private inheritance derived class pointer can be assigned to base class pointer in,
Select correct option:
Main function
In derived class member and friend functions
In base class member and friend functions
None of the given options
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left

Question # 4 of 10 (Start time: 10:01:15 AM) Total Marks: 1
In C++, we declare a function virtual by preceding the function header with keyword
"Inline"
Select correct option:
True
False
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left

Question # 5 of 10 (Start time: 10:02:45 AM) Total Marks: 1
Outside world can access only _____ members of a class using its object.
Select correct option:
Public
Private
Protected
No member is accessible.
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left

Question # 6 of 10 (Start time: 10:03:10 AM) Total Marks: 1
Friend Functions of a class are _____ members of that class.
Select correct option:
Public
Private

Protected
None of the given options.
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Time Left

Quiz Start Time: 09:57 AM
Question # 7 of 10 (Start time: 10:03:54 AM) Total Marks: 1
Consider the following two lines of code written for a class Student, 1. Student sobj1,sobj2; 2. sobj2 = sobj1; In line No.2 what
constructor of Student class will be called,
Select correct option:
Default constructor of Student class.
Copy constructor of student class
Both default and copy constructer of Student class
No constructor will be called.
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left Class is not a mechanism to create objects and define user data types.
1. true
2. false
Memory is allocated to non static members only, when:
1. Class is created
2. Object is defined
3. Object is initialized
4. Object is created
The sub-object's life is not dependent on the life of master class in _____.
1. Composition
2. Aggregation
3. Separation
4. non of the given
Unary operators and assignment operator are right associative.
1. true
2. false
The >= operator can't be overloaded.
1. true
2. false
_____ is creating objects of one class inside another class.
1. Association

2. Composition
3. Aggregation
4. Inheritance

If we are create array of objects through new operator, then
1. We can call overloaded constructor through new
2. We can't call overloaded constructor through new
3. We can call default constructor through new
4. None of the given

Object can be declared constant with the use of Constant keyword.
1. true
2. false

_____ Operator will take only one operand.
1. New
2. int
3. object
4. none of the given

Which of the following operator(s) take(s) one or no argument if overloaded?
1. ++
2. *
3. %
4. All of the given choices

this pointer does not pass implicitly to _____ functions.
1. Static Member
2. Non-Static Member
3. Instance Number
4. None of the given

Operator overloading is
1. making C++ operators work with objects.
2. giving C++ operators more than they can handle.
3. giving new meanings to existing Class members.
4. making new C++ operators

BC080400849 : Nimra Qamar
Quiz Start Time: 10:39 PM
Time Left 88
sec(s)
Question # 1 of 8 (Start time: 10:39:47 PM) Total Marks: 1
Which of the following operator(s) take(s) one or no argument if overloaded?
Select correct option:
++
*

%
All of the given choices
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 10:39 PM
Time Left 89
sec(s)
Question # 2 of 8 (Start time: 10:40:38 PM) Total Marks: 1
Object can be declared constant with the use of Constant keyword.
Select correct option:
True
False
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 10:39 PM
Time Left 89
sec(s)
Question # 3 of 8 (Start time: 10:41:41 PM) Total Marks: 1
Static data members are called _____ variable
Select correct option:
Class
Object
Structure
none of the given
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 10:39 PM
Time Left 89
sec(s)
Question # 4 of 8 (Start time: 10:42:35 PM) Total Marks: 1
Associatively can be change in operator overloading.
Select correct option:
True
False
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 10:39 PM
Time Left 89
sec(s)
Question # 5 of 8 (Start time: 10:43:56 PM) Total Marks: 1

_____ and _____ methods may not be declared abstract.
Select correct option:
Private,static
private,public
static,public
none of the given
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 10:39 PM
Time Left 89
sec(s)
Question # 6 of 8 (Start time: 10:45:17 PM) Total Marks: 1
Let Suppose a class Student with objects std1, std2, and std3. For the statement
std3 =
std1 - std2 to work correctly, if the overloaded - operator must
Select correct option:
take two arguments.
None of the given choices
take single argument
take three arguments
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 10:39 PM
Time Left 88
sec(s)
Question # 7 of 8 (Start time: 10:46:48 PM) Total Marks: 1
To initialize an array of objects, only _____ will be called
Select correct option:
Defualt Constructor
Overloaded Constructor
Default Object
None of the above
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 10:39 PM
Time Left 87
sec(s)
Question # 8 of 8 (Start time: 10:47:49 PM) Total Marks: 1
_____ provide the facility to access the data member.
Select correct option:

accesser function
private function
inline function
None of the given
Click here to Save Answ er & Move to Next Question

Question # 8 of 10 (Start time: 10:04:41 AM) Total Marks: 1
Consider the following two lines of code written for a class Student, 1. Student sobj1; 2.
Student sobj2 = sobj1; In line No.1
what constructor of student class will be called,
Select correct option:
Default constructor of Student class.
Copy constructor of student class
Both default and copy constructer of student class
None the given options
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left

Question # 9 of 10 (Start time: 10:05:09 AM) Total Marks: 1
Consider the code below, class class1{ protected: void func1(); }; class class2 : protected
class1 { }; Function func1 of class1 is
_____ in class2,
Select correct option:
public
protected
private
none of the given options
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left

Question # 10 of 10 (Start time: 10:05:50 AM) Total Marks: 1
Virtual functions allow you to
Select correct option:

create an array of type pointer-to-base class that can hold pointers to derived classes.
create functions that can never be accessed.
group objects of different classes so they can all be accessed by the same function code.
use the same function call to execute member functions of objects from different classes.
Click here to Save Answer & Move to Next Question
Question # 1 of 10
Information hiding can be achieved through_____.
1. Encapsulation, Inheritance
2. Encapsulation, Polymorphism
3. Encapsulation, Abstraction
4. Overloading
Question # 2 of 10 (Start time: 01:11:21 AM) Total Marks: 1
A good model is ..... related to a real life problem.
Select correct option:
1. Loosely
2. Openly
3. Closely
Question # 3 of 10 (Start time: 01:12:33 AM) Total Marks: 1
Which of the following features of OOP is used to derive a class from another?
Select correct option:
1. Encapsulation
2. Polymorphism
3. Data hiding
4. Inheritance
Question # 4 of 10 (Start time: 01:13:51 AM) Total Marks: 1
Which of the following is a weak relationship between two objects?
Select correct option:
1. Inheritance
2. Composition
3. Aggregation
4. None of given
Question # 5 of 10 (Start time: 01:14:56 AM) Total Marks: 1
Data items in a class must be private.
Select correct option:
1. True
2. False
Question # 6 of 10 (Start time: 01:15:52 AM) Total Marks: 1

Which one is a class association
Select correct option:
1. Simple Association
2. Inheritance
3. Composition
4. Aggregation
Question # 7 of 10 (Start time: 01:16:55 AM) Total Marks: 1
Suppose there is an object of type Person, which of the following can be considered as
one of its attributes
Select correct option:
1. Name
2. Age
3. Work()
4. Both Name and Age
Question # 8 of 10 (Start time: 01:17:52 AM) Total Marks: 1
Which one is not an object association?
Select correct option:
1. Simple association
2. Inheritance
3. Aggregation
4. Association
Question # 9 of 10 (Start time: 01:18:50 AM) Total Marks: 1
Using encapsulation we can achieve
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1. Information hiding
2. Least interdependencies among modules
3. Implementation independence
4. All of given options
Question # 10 of 10 (Start time: 01:19:43 AM) Total Marks: 1
In constant member function the type of this pointer is:
Select correct option:
1. Constant pointer
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3. Constant pointer to class
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Which of the following is the way to extract common behavior and attributes from the
given classes and make a separate class of those common behaviors and attributes?

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2. Sub-typing
3. Specialization
4. Extension

Question # 2 of 10
The ability to derive a class from more than one class is called
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Question # 3 of 10:
If MyClass has a destructor what is the destructor named?
1. MyClass
2. ~MyClass
3. My~Class
4. MyClass~

Question # 4 of 10:
Class abc{ ----- }; Is a valid class declaration?
1. yes
2. no

Question # 5of 10:
Without using Deep copy constructor, A _____ problem can occur
1. System crash
2. Memory Leakage
3. Dangling pointer
4. All of the given

Question # 6 of 10:
If only one behaviour of a derived class is incompatible with base class, then it is:
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2. Specialization
3. Extension
4. Inheritance

Question # 7 of 10:
Which of the following may not be an integral part of an object?
1. state
2. behavior
3. Protected data members
4. All of given

Question # 8 of 10:
Only tangible things can be chosen as an object.

1. True
2. False
BC080400849 : Nimra Qamar
Quiz Start Time: 08:14 PM
Time Left 79
sec(s)
Question # 1 of 10 (Start time: 08:14:14 PM) Total Marks: 1
When we create objects, then space is allocated to:
Select correct option:
Member functions
Access specifier
Data members
None of the given
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 08:14 PM
Time Left 87
sec(s)
Question # 2 of 10 (Start time: 08:15:18 PM) Total Marks: 1
Constructor and destructor can be declared constant
Select correct option:
True
False
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 08:14 PM
Time Left 88
sec(s)
Question # 3 of 10 (Start time: 08:16:04 PM) Total Marks: 1
Information hiding can be achieved through_____.
Select correct option:
Encapsulation, Inheritance
Encapsulation, Polymorphism
Encapsulation, Abstraction
Encapsulation, Overloading
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 08:14 PM
Time Left 88
sec(s)

Question # 4 of 10 (Start time: 08:16:47 PM) Total Marks: 1
A real world object can be transformed into programming entity by defining its respective
Select correct option:
Class
Function
Only states
Only behaviour
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 08:14 PM
Time Left 88
sec(s)
Question # 5 of 10 (Start time: 08:17:50 PM) Total Marks: 1
Which of the following is a weak relationship between two objects?
Select correct option:
Inheritance
Composition
Aggregation
None of given
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 08:14 PM
Time Left 88
sec(s)
Question # 6 of 10 (Start time: 08:18:45 PM) Total Marks: 1
Which of the following is a necessary ingredient in an object model?
Select correct option:
Class
Objects
Association
All of given
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 08:14 PM
Time Left 88
sec(s)
Question # 7 of 10 (Start time: 08:19:48 PM) Total Marks: 1
If a class A inherits from class B, then class A is called.
Select correct option:

Child class
Derived class
Parent class
Child and derived class
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 08:14 PM
Time Left 88
sec(s)
Question # 8 of 10 (Start time: 08:20:54 PM) Total Marks: 1
Which of the following is the way to extract common behaviour and attributes from the
given classes and make a separate class of those common behaviours and attributes?
Select correct option:
Generalization
Sub-typing
Specialization
Extension
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 08:14 PM
Time Left 87
sec(s)
Question # 9 of 10 (Start time: 08:21:27 PM) Total Marks: 1
The _____ keyword tells the compiler to substitute the code within the function definition for every instance of a function call
Select correct option:
virtual
inline
instance
none of the given
Click here to Save Answ er & Move to Next Question
BC080400849 : Nimra Qamar
Quiz Start Time: 08:14 PM
Time Left 88
sec(s)
Question # 10 of 10 (Start time: 08:22:16 PM) Total Marks: 1
The process of hiding unwanted details from users is called _____.
Select correct option:

Protection
Encapsulation
Argumentation
Abstraction
Click here to Save Answ er & Move to Next Question
BC090401541 : Azmat Ur Rehman
Quiz Start Time: 12:40 PM
Time Left

Question # 1 of 10 (Start time: 12:40:20 PM) Total Marks: 1
Which of the following is the way to extract common behaviour and attributes from the
given classes and make a separate class of those common behaviours and attributes?
Select correct option:
Generalization
Sub-typing
Specialization
Extension
Click here to Save Answ er & Move to Next Question
BC090401541 : Azmat Ur Rehman
Quiz Start Time: 12:40 PM
Time Left

Question # 2 of 10 (Start time: 12:41:52 PM) Total Marks: 1
"A fan has wings". Which type of relation exists between fan and wings in this sentence?
Select correct option:
Aggregation
Association
Generalization
Composition
Click here to Save Answ er & Move to Next Question
BC090401541 : Azmat Ur Rehman
Quiz Start Time: 12:40 PM
Time Left

Question # 3 of 10 (Start time: 12:42:46 PM) Total Marks: 1
A good model is ..... related to a real life problem.
Select correct option:

Loosely
Openly
Closely
Not
Click here to Save Answ er & Move to Next Question
BC090401541 : Azmat Ur Rehman
Quiz Start Time: 12:40 PM
Time Left

Question # 5 of 10 (Start time: 12:44:45 PM) Total Marks: 1
When we create objects, then space is allocated to:
Select correct option:
Member functions
Access specifier
Data members
None of the given
Click here to Save Answ er & Move to Next Question
BC090401541 : Azmat Ur Rehman
Quiz Start Time: 12:40 PM
Time Left

Question # 6 of 10 (Start time: 12:45:21 PM) Total Marks: 1
There is only one form of copy constructor.
Select correct option:
True
False
Click here to Save Answ er & Move to Next Question
BC090401541 : Azmat Ur Rehman
Quiz Start Time: 12:40 PM
Time Left 22
sec(s)
Question # 7 of 10 (Start time: 12:45:38 PM) Total Marks: 1
Which of the following features of OOP is used to deal with only relevant details?
Select correct option:
Abstraction
Information hiding
Object
Inheritance
Click here to Save Answ er & Move to Next Question
BC090401541 : Azmat Ur Rehman

Quiz Start Time: 12:40 PM
Time Left 59
sec(s)
Question # 8 of 10 (Start time: 12:48:26 PM) Total Marks: 1
Suppose there is an object of type Person, which of the following can be considered as
one of its attributes
Select correct option:
Age
Work()
Both Name and Age
Click here to Save Answ er & Move to Next Question
BC090401541 : Azmat Ur Rehman
Quiz Start Time: 12:40 PM
Time Left

Question # 9 of 10 (Start time: 12:56:04 PM) Total Marks: 1
Through interface we access object_____.
Select correct option:
States
Data members
Behaviour
None of the given
Click here to Save Answ er & Move to Next Question
BC090401541 : Azmat Ur Rehman
Quiz Start Time: 12:40 PM
Time Left

Question # 10 of 10 (Start time: 12:57:00 PM) Total Marks: 1
If a class A inherits from class B, then class A is called.
Select correct option:
Child class
Derived class
Parent class
Child and derived class
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Quiz Start Time: 12:59 PM
Time Left

Question # 1 of 10 (Start time: 12:59:51 PM) Total Marks: 1
If some of objects exhibit identical characteristics, then they belong to:
Select correct option:
Different classes
Multiple classes
Same class
None of the given
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Quiz Start Time: 12:59 PM
Time Left 82
sec(s)
Question # 2 of 10 (Start time: 01:00:41 PM) Total Marks: 1
_____ is automatically called when the object is created.
Select correct option:
member function
object
constructor
None of the given
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Quiz Start Time: 12:59 PM
Time Left

Question # 3 of 10 (Start time: 01:03:09 PM) Total Marks: 1
Which is true about sub-typing in case of inheritance?
Select correct option:
In sub-typing a new class is derived from existing w
extended behavior of its parent.
In sub-typing a new class is derived from existing w
In sub-typing a class is derived from existing one wh
None of the given.
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Quiz Start Time: 12:59 PM
Time Left

Question # 4 of 10 (Start time: 01:04:28 PM) Total Marks: 1
If a class involves dynamic memory allocation, then:
Select correct option:

Default copy constructor, shallow copy is implement
User defined copy constructor, shallow copy is impl
Default copy constructor, deep copy is implemented
User defined copy constructor, deep copy is implem
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Quiz Start Time: 12:59 PM
Time Left

Question # 5 of 10 (Start time: 01:05:37 PM) Total Marks: 1
Which one is a class association
Select correct option:
Simple Association
Inheritance
Composition
Aggregation
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Quiz Start Time: 12:59 PM
Time Left

Question # 6 of 10 (Start time: 01:06:50 PM) Total Marks: 1
Data items in a class must be private.
Select correct option:
True
False
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Quiz Start Time: 12:59 PM
Time Left

Question # 7 of 10 (Start time: 01:07:16 PM) Total Marks: 1
Three main characteristics of "Object Oriented programming" are,
Select correct option:
Encapsulation,dynamic binding,polymarhpishm
polymorphism, overloading, overriding
encapsulation, inheritance, dynamic binding
encapsulation, inheritance, polymorphism
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam

Quiz Start Time: 12:59 PM
Time Left

Question # 8 of 10 (Start time: 01:08:14 PM) Total Marks: 1
Which of the following is the way to extract common behaviour and attributes from the
given classes and make a separate class of those common behaviours and attributes?
Select correct option:
Generalization
Sub-typing
Specialization
Extension
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Quiz Start Time: 12:59 PM
Time Left 69
sec(s)
Question # 9 of 10 (Start time: 01:09:04 PM) Total Marks: 1
The sentence “Object Oriented Programming book in bookshelf” is an example of:
Select correct option:
Association
Multiple association
Aggregation
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Quiz Start Time: 12:59 PM
Time Left

Question # 10 of 10 (Start time: 01:16:05 PM) Total Marks: 1
Data members are the attributes of objects.
Select correct option:
True
False
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Quiz Start Time: 01:18 PM
Time Left

Question # 1 of 10 (Start time: 01:18:48 PM) Total Marks: 1

Constructor have same name as the class name.
Select correct option:
True
False
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Quiz Start Time: 01:18 PM
Time Left

Question # 2 of 10 (Start time: 01:19:03 PM) Total Marks: 1
Which of the following features of OOP is used to derive a class from another?
Select correct option:
Encapsulation
Polymorphism
Data hiding
Inheritance
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Quiz Start Time: 01:18 PM
Time Left 81
sec(s)
Question # 3 of 10 (Start time: 01:19:29 PM) Total Marks: 1
Class abc{ ----- }; Is a valid class declaration?
Select correct option:
Yes
No
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Quiz Start Time: 01:18 PM
Time Left

Question # 6 of 10 (Start time: 01:22:47 PM) Total Marks: 1
Which of the following is a weak relationship between two objects?
Select correct option:
Inheritance
Composition
Aggregation
None of given
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas

Quiz Start Time: 01:18 PM
Time Left

Question # 4 of 10 (Start time: 01:20:47 PM) Total Marks: 1
Without using Deep copy constructor, A _____ problem can occur
Select correct option:
System crash
Memory Leakage
Dangling pointer
All of the given
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Quiz Start Time: 01:18 PM
Time Left

Question # 5 of 10 (Start time: 01:21:20 PM) Total Marks: 1
An abstract class shows _____ behaviour.
Select correct option:
Overriding
Specific
General
None of the given
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Quiz Start Time: 01:18 PM
Time Left

Question # 7 of 10 (Start time: 01:22:59 PM) Total Marks: 1
Which of the following are benefits of encapsulation?
Select correct option:
All variables can be manipulated as Objects instead
by making all variables protected they are protected
The implementation of a class can be changed witho
Making all methods protected prevents accidental co
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Quiz Start Time: 01:18 PM
Time Left

Question # 8 of 10 (Start time: 01:24:19 PM) Total Marks: 1

If a class A inherits from class B, then class A is called.
Select correct option:
Child class
Derived class
Parent class
Child and derived class
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Quiz Start Time: 01:18 PM
Time Left

Question # 9 of 10 (Start time: 01:24:44 PM) Total Marks: 1
Consider the statement "room has chair" Which of the following type of association
exists between room and chair?
Select correct option:
Inheritance
Composition
There is no association
Aggregation
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Quiz Start Time: 01:18 PM
Time Left

Question # 10 of 10 (Start time: 01:25:05 PM) Total Marks: 1
The dot operator (or class member access operator) connects the following two entities
(reading from left to right):
Select correct option:
A class member and a class object
A class object and a class
A class and a member of that class
A class object and a member of that class
Click here to Save Answ er & Move to Next Question

–

–

FINALTERM EXAMINATION
Spring 2010
CS304- Object Oriented Programming (Session - 4)
Question No: 1 (Marks: 1) - Please choose one
Classes like TwoDimensionalShape and ThreeDimensionalShape would normally be
concrete, while classes like Sphere and Cube would normally be abstract.
_ True
_ False
Question No: 2 (Marks: 1) - Please choose one
Virtual functions allow you to
_ create an array of type pointer-to-base class that can hold pointers to derived classes.
_ create functions that can never be accessed.
_ group objects of different classes so they can all be accessed by the same function
code.
_ use the same function call to execute member functions of objects from different classes
Question No: 3 (Marks: 1) - Please choose one
A pointer to a base class can point to objects of a derived class.
_ True
_ False
Question No: 4 (Marks: 1) - Please choose one
A copy constructor is invoked when
_ a function do not returns by value.
_ an argument is passed by value.

_

_
_ a function returns by reference.
_ an argument is passed by reference.
Question No: 5 (Marks: 1) - Please choose one
Each try block can have _____ no. of catch blocks.
_ 1
_ 2
_ 3
_ As many as necessary.
Question No: 6 (Marks: 1) - Please choose one

Non Template Friend functions of a class are friends of _____instance/s of that class.
_ All
_ One specific
_ All instances of one date type
_ None of the given options
Question No: 7 (Marks: 1) - Please choose one
Template functions use _____ than ordinary functions.
_ Greater Memory
_ Lesser Memory
_ Equal Memory
_ None of the given options
Question No: 8 (Marks: 1) - Please choose one
The find() algorithm
_ finds matching sequences of elements in two containers.
_ finds a container that matches a specified container.
_ takes iterators as its first two arguments.
_ takes container elements as its first two arguments.
Question No: 9 (Marks: 1) - Please choose one
The copy() algorithm returns an iterator to

_

_
_ the last element copied from.
_ the last element copied to.
_ the element one past the last element copied from.
_ the element one past the last element copied to.
Question No: 10 (Marks: 1) - Please choose one
If you define a vector v with the default constructor, and define another vector w with a
one-argument constructor to a size of 11, and insert 3 elements into each of these vectors
with push_back(), then the size() member function will return _____ for v and _____ for
w.
_ 11 for v and 3 for w.
_ 0 for v and 0 for w.
_ 0 for v and 3 for w.
_ 3 for v and 11 for w.

Question No: 11 (Marks: 1) - Please choose one
Which is not the Advantage of inheritance?
_ providing class growth through natural selection.
_ facilitating class libraries.
_ avoiding the rewriting of code.
_ providing a useful conceptual framework.
Question No: 12 (Marks: 1) - Please choose one

```
class DocElement
{
public:
virtual void Print() { cout << "Generic element"; }
};
class Heading : public DocElement
{
public:
void Print() { cout << "Heading element"; }
};
```

_

_

```
class Paragraph : public DocElement
{
public:
void Print() { cout << "Paragraph element"; }
};
void main()
{
DocElement * p = new Paragraph();
p->Print();
}
```

When you run this program, it will print out a single line to the console output.
What will be in that line?
Select one correct answer from the following list:
_ Generic element
_ Heading element
_ Paragraph element
_ Nothing will be printed.
Question No: 13 (Marks: 1) - Please choose one
Which type of inheritance is being represented by the following statement,

class X : public A, public B { ... ... };
_ Single inheritance
_ Multiple inheritance
_ Double inheritance
_ None of the given options
Question No: 14 (Marks: 1) - Please choose one
When we write a class template the first line must be:

_

_
_ template < class class_name>
_ template < class data_type>
_ template < class T >
Here T can be replaced with any name but it is preferable.
_ class class-name()
class template<class_name>
Question No: 15 (Marks: 1) - Please choose one
Function templates should be used where code and behavior must be identical.
_ True
_ False
Question No: 16 (Marks: 1) - Please choose one
Which of the following is/are advantage[s] of generic programming?
_ Reusability
_ Writability
_ Maintainability
_ All of given
Question No: 17 (Marks: 1) - Please choose one
The specialization pattern <T*> after the name says that this specialization is to be used
for every,
_ data type
_ meta type
_ virtual type

_

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

A range is often supplied to an algorithm by two _____ values.
_ italic
_ iteration
_ iterator
_ None of given
Question No: 19 (Marks: 1) - Please choose one
Which of the following is an integral part of an object?
_ State
_ Behavior
_ Unique identity
_ All of the given
Question No: 20 (Marks: 1) - Please choose one
Consider the following statement
Cupboard has books
What is the relationship between Cupboard and books?
_ Composition
_ Aggregation
_ Inheritance
_ None of the given options
Question No: 21 (Marks: 1) - Please choose one
Which sentence clearly defines an object?

_

_
_ one instance of a class.
_ another word for a class.
_ a class with static methods.
_ a method that accesses class attributes.
Question No: 22 (Marks: 1) - Please choose one
_____, which means if A declares B as its friend it does NOT mean that A can
access private data of B. It only means that B can access all data of A.
_ Friendship is one way only
_ Friendship is two way only
_ NO Friendship between classes
_ Any kind of friendship
Question No: 23 (Marks: 1) - Please choose one
The statement objA=objB; will cause a compiler error if the objects are of different classes.

_ True
_ False
Question No: 24 (Marks: 1) - Please choose one
Consider the call given below of an overloaded operator "+",
Rational_number_1 + Rational_number_2
Where Rational_number_1 and Rational_number_2 are the two objects of Rational_number class (a user defined class). Identify which of the above two objects
will be passed as an argument to the overloaded operator function?

_

_
_ Rational_number_1
_ Rational_number_2
_ Both Rational_number_1 & Rational_number_2
_ any of the two objects, randomly
Question No: 25 (Marks: 1) - Please choose one
If a class D has been derived using protected inheritance from class B (If B is a protected
base and D is derived class) then public and protected members of B -------- accessed by
member functions and friends of class D and classes derived from D
_ can be
_ cannot be
_ does restirct to be
_ not given
Question No: 26 (Marks: 1) - Please choose one
In Private ---------- only member functions and friend classes or functions of a derived class can convert pointer or reference of derived object to that of parent object
_ specialization
_ inheritance
_ abstraction
_ composition
Question No: 27 (Marks: 2)
Give two uses of a destructor.
Question No: 28 (Marks: 2)
Describe the way to declare a template class as a friend class of any other class.
Question No: 29 (Marks: 2)

Give the name of two basic types of containers collectively called First class containers?

Question No: 30 (Marks: 2)

State any conflict that may rise due to multiple inheritance?

Question No: 31 (Marks: 3)

What will be the output after executing the following code?

```
class c1{
public:
virtual void function(){
cout<<"I am in c1"<<endl;


_


_
}
};
class c2: public c1{
public:
void function(){
cout<<"I am in c2"<<endl;
}
};
class c3: public c1 {
public:
void function(){
cout<<"I am in c3"<<endl;
}
};
int main(){
c1 * test1 = new c2();
c1 * test2 = new c3();
test1->function();
test2->function();
system("PAUSE");
return 0;
}
```

Question No: 32 (Marks: 3)

If we declare a function as friend of a template class will it be a friend for a particular
data type or for all data types of that class.

Question No: 33 (Marks: 3)
Tell the logical error/s in the code given below with reference to resource management;
also describe how we can correct that error/s.

```
class Test{
public:
int function1(){
try{

_

_
FILE *fileptr = fopen("filename.txt","w");
throw exception();
fclose(fileptr);
return 0;
}
catch(Exception e){
...
}
}
};
```

Question No: 34 (Marks: 5)
What is the output produced by the following program?

```
#include<iostream.h>
void sample_function(double test) throw (int);
int main()
{
try
{
cout <<"Trying.\n";
sample_function(98.6);
cout << "Trying after call.\n";
}
catch(int)
{
cout << "Catching.\n";
}
cout << "End program.\n";
return 0;
```

```
}
void sample_function(double test) throw (int)
{
cout << “Starting sample_function.\n”;
if(test < 100)
throw 42;
}
```

Question No: 35 (Marks: 5)

The code given below has one template function as a friend of a template class,

1. You have to identify any error/s in this code and describe the reason for error/s.
2. Give the correct code after removing the error/s.

_

_

```
template<typename U>
void Test(U);
template< class T >
class B {
int data;
public:
friend void Test<>( T );
};
template<typename U>
void Test(U u){
B < int> b1;
b1.data = 7;
}
int main(int argc, char *argv[])
{
char i;
Test(i);
system("PAUSE");
return 0;
}
```

Question No: 36 (Marks: 5)

Consider the following class,

```
class Base
{
char * p;
```

```
public:
Base() { p = new char[10]; }
~Base() { delete [] p; }
};
class Derived : public Base
{
char * q;
public:
Derived() { q = new char[20]; }
~Derived() { delete [] q; }
};
void foo()
{
Base* p = new Derived();


_


_
delete p;
}
```

With this program, every time function foo is called, some memory will leak. Explain why memory will leak. Also, explain how to fix this problem.

FINALTERM EXAMINATION
Fall 2009
CS304- Object Oriented Programming (Session - 1)
Time: 120 min
Marks: 75

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

Which one of the following terms must relate to polymorphism?

_ Static allocation
_ Static typing
_ Dynamic binding
_ Dynamic allocation

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

Multiple inheritance can be of type

_ Public
_ Private

_

_
_ Protected
_ All of the given
Question No: 3 (Marks: 1) - Please choose one
When a subclass specifies an alternative definition for an attribute or method of its superclass, it is _____ the definition in the superclass.
_ overload
_ overriding
_ copy riding
_ none of given
Question No: 4 (Marks: 1) - Please choose one
Like template functions, a class template may not handle all the types successfully.
_ True
_ False
Question No: 5 (Marks: 1) - Please choose one
It is sometimes useful to specify a class from which no objects will ever be created.
_ True
_ False
Question No: 6 (Marks: 1) - Please choose one
Assume a class Derv that is privately derived from class Base. An object of class Derv
located in main() can access
_ public members of Derv.
_ protected members of Derv.

_

_
_ private members of Derv.
_ protected members of Base.
Question No: 7 (Marks: 1) - Please choose one
A pointer to a base class can point to objects of a derived class.
_ True
_ False
Question No: 8 (Marks: 1) - Please choose one
A copy constructor is invoked when
_ a function do not returns by value.
_ an argument is passed by value.
_ a function returns by reference.
_ an argument is passed by reference.

Question No: 9 (Marks: 1) - Please choose one
A function call is resolved at run-time in_____
_ non-virtual member function.
_ virtual member function.
_ Both non-virtual member and virtual member function.
_ None of given
Question No: 10 (Marks: 1) - Please choose one
When the base class and the derived class have a member function with the same name,
you must be more specific which function you want to call (using _____).

_

_
_ scope resolution operator
_ dot operator
_ null operator
_ Operator overloading
Question No: 11 (Marks: 1) - Please choose one
Each try block can have _____ no. of catch blocks.
_ 1
_ 2
_ 3
_ As many as necessary.
Question No: 12 (Marks: 1) - Please choose one
Two important STL associative containers are _____ and _____.
_ set,map
_ sequence,mapping
_ setmet,multipule
_ sit,mat
Question No: 13 (Marks: 1) - Please choose one
The mechanism of selecting function at run time according to the nature of calling object
is called,
_ late binding
_ static binding
_ virtual binding
_ None of the given options
Question No: 14 (Marks: 1) - Please choose one
An abstract class is useful when,

_

_
_ We do not derive any class from it.
_ There are multiple paths from one derived class to another.
_ We do not want to instantiate its object.
_ You want to defer the declaration of the class.
Question No: 15 (Marks: 1) - Please choose one
Which of the following is incorrect line regarding function template?
_ template<class T>
_ template <typename U>
_ Class<template T>
_ template < class T, class U>
Question No: 16 (Marks: 1) - Please choose one
Which of the following is/are advantage[s] of generic programming?
_ Reusability
_ Writability
_ Maintainability
_ All of given
Question No: 17 (Marks: 1) - Please choose one
By default the vector data items are initialized to ____
_ 0
_ 0.0
_ 1
_ null

_

_
Question No: 18 (Marks: 1) - Please choose one
Which one of the following functions returns the total number of elements in a vector.
_ length();
_ size();
_ ele();
_ veclen();
Question No: 19 (Marks: 1) - Please choose one
Suppose you create an uninitialized vector as follows:
vector<int> evec;

After adding the statment,
evec.push_back(21);
what will happen?
_ The following statement will add an element to the start (the back) of evec and will initialize it with the value 21.
_ The following statement will add an element to the center of evec and will reinitialize it with the value 21.
_ The following statement will delete an element to the end (the back) of evec and will reinitialize it with the value 21.
_ The following statement will add an element to the end (the back) of evec and initialize it with the value 21.
Question No: 20 (Marks: 1) - Please choose one
An STL container can not be used to,
_ hold objects of class employee.
_ store elements in a way that makes them quickly accessible.
_ compile c++ programs.
_ organize the way objects are stored in memory
Question No: 21 (Marks: 1) - Please choose one
Algorithms can only be implemented using STL containers.
_ True
_ False
Question No: 22 (Marks: 1) - Please choose one
The main function of scope resolution operator (::) is,

_

_
_ To define an object
_ To define a data member
_ To link the definition of an identifier to its declaration
_ To make a class private
Question No: 23 (Marks: 1) - Please choose one
When is a constructor called?
_ Each time the constructor identifier is used in a program statement
_ During the instantiation of a new object
_ During the construction of a new class
_ At the beginning of any program execution
Question No: 24 (Marks: 1) - Please choose one
Consider the code below,
class Fred {

```
public:
Fred();
...
};
int main()
{
Fred a[10];
Fred* p = new Fred[10];
...
}
```

Select the best option,

_ Fred a[10]; calls the default constructor 09 times
Fred* p = new Fred[10]; calls the default constructor 10 times

_ Produce an error

_ Fred a[10]; calls the default constructor 11 times
Fred* p = new Fred[10]; calls the default constructor 11 times

_ Fred a[10]; calls the default constructor 10 times
Fred* p = new Fred[10]; calls the default constructor 10 times

_

_

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

Associativity can be changed in operator overloading.

_ True

_ False

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

A normal C++ operator that acts in special ways on newly defined data types is said to
be

_ glorified.

_ encapsulated.

_ classified.

_ overloaded.

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

Which operator can not be overloaded?

_ The relation operator (>=)

_ Assignment operator (=)

_ Script operator ([])

_ Conditional operator (? :)

Question No: 28 (Marks: 1) - Please choose one
Suppose obj1 and obj2 are two objects of a user defined class A. An + operator is overloaded to add obj1 and obj2 using the function call obj1+obj2.
Identify the correct function prototype against the given call?

_

_
_ A operator + (A &obj);
_ int + operator();
_ int operator (plus) ();
_ A operator(A &obj3);
Question No: 29 (Marks: 1) - Please choose one
Default constructor is such constructor which either has no ---------or if it has some parameters these have -------- values
_ Parameter, temporary
_ Null, Parameter
_ Parameter, default
_ non of the given
Question No: 30 (Marks: 1) - Please choose one
Public methods of base class can --------- be accessed in its derived class
_ directly
_ inderectly
_ simultaniously
_ non of the given
Question No: 31 (Marks: 1)
Is Deque a Birectional Container?
Yes, deque behaves like queue (line) such that we can add elements on both sides of it.
Question No: 32 (Marks: 1)
What is meant by Generic Programming?
Generic programming refers to programs containing generic abstractions general code
that is same in logic for all data types like printArray function), then we instantiate that
generic program abstraction (function, class) for a particular data type, such abstractions
can work with many different types of data.
Question No: 33 (Marks: 2)
Sort the following data in the order in which compiler searches a function?

Complete Specialization, Generic Template, Partial Specialization, Ordinary Function.

Specializations of this function template, instantiations with specific types, can be called
just like an ordinary function:
cout << max(3, 7); // outputs 7

_

_

The compiler examines the arguments used to call max and determines that this is a call
to max(int, int). It then instantiates a version of the function where the parameterizing
type T is int, making the equivalent of the following function:

```
int max(int x, int y)
{
return x < y ? y : x;
}
```

the C++ Standard Template Library contains the function template max(x, y) which
creates functions that return either x or y, whichever is larger. max() could be defined like
this:

```
template <typename T>
T max(T x, T y)
{
return x < y ? y : x;
}
```

Question No: 34 (Marks: 2)

State any conflict that may rise due to multiple inheritance?

The conflict may arise is the diamond problem, which our author likes to call the "diamond of doom". This occurs when a class multiply inherits from two classes which
each inherit from a single base class. This leads to a diamond shaped inheritance pattern.
For example, consider the following set of classes:

```
classPoweredDevice
{
};
```

```
classScanner: publicPoweredDevice
{
};
classPrinter: publicPoweredDevice
{
};
classCopier: publicScanner, publicPrinter
{
};
```

_

_

Scanners and printers are both powered devices, so they derived from PoweredDevice.
However, a copy machine incorporates the functionality of both Scanners and Printers.
Ambiguity also cause problem.

Question No: 35 (Marks: 3)

Describe three properties necessary for a container to implement Generic Algorithms.

If you declare a container as holding pointers, you are responsible for managing the
memory for the objects pointed to. The container classes will not automatically free
memory for these objects when an item is erased from the container.
Container classes are expected to implement methods to do the following:
• create a new empty container (constructor),
• report the number of objects it stores (size),
• delete all the objects in the container (clear),
• insert new objects into the container,
• remove objects from it,
• provide access to the stored objects.

Question No: 36 (Marks: 3)

Write three important features of virtual functions.

With virtual functions, derived classes can provide new implementations of functions
from their base classes. When someone calls a virtual function of an object of the derived

class, this new implementation is called, even if the caller uses a pointer to the base class,
and doesn't even know about the particular derived class.
The virtual function is an option, and the language defaults to non virtual, which is the
fastest configuration.
The derived class can completely "override" the implementation or "augment" it (by
explicitly calling the base class implementation in addition to the new things it does).

_

_
Question No: 37 (Marks: 3)
Consider the code below,

```
#include <iostream>
#include <stdlib.h>
using namespace std;
class Shape{
public:
void Draw(){cout<<"shape"<<endl;}
};
class Line : public Shape{
public:
void Draw(){cout<<"Line"<<endl;}
};
class Circle : public Shape{
public:
void Draw(){cout<<"Circle"<<endl;}
};
int main(int argc, char *argv[])
{
Shape * ptr1 = new Shape();
Shape * ptr2 = new Line();
Shape * ptr3 = new Circle();
ptr1->Draw();
ptr2->Draw();
ptr3->Draw();
system("PAUSE");
```

return 0;
}
This code shows output,
Shape
Shape
Shape
Give the reason for this output
Suppose we want to show the output,
Shape
Line
Circle

_

_
How we can change the code to do that?

```
class shape { public:
void draw();
};
class circle : public shape { };
int main(int argc, char **argv){
circle my_circle;
my_circle.draw();
}
```

While this has all the usual advantages, e.g., code reuse, the real power of polymorphism
comes into play when draw is declared to be virtual or pure virtual, as follows:

```
class shape{ public:
virtual void draw()=0;
};
class circle : public shape { public:
void draw();
}
```

Here, circle has declared its own draw function, which can define behavior appropriate
for a circle. Similarly, we could define other classes derived from shape, which provide
their own versions of draw. Now, because all the classes implement the shape interface,

we can create collections of objects that can provide different behavior invoked in a
consistent manner (calling the draw member function). An example of this is shown here.

```
shape *shape_list[3]; // the array that will
// pointer to our shape objects
shape[0] = new shape; // three types of shapes
shape[1] = new line; // we have defined
shape[2] = new circle;
for(int i = 0; i < 3; i++){
shape_list[i].draw();
}
```

When we invoke the draw function for each object on the list, we do not need to know
anything about each object; C++ handles the details of invoking the correct version of
draw. This is a very powerful technique, allowing us to provide extensibility in our designs. Now we can add new classes derived from shape to provide whatever behavior
we desire. The key here is that we have separated the interface (the prototype for shape)
from the implementation.

Question No: 38 (Marks: 5)

There are some errors in the code given below, you have to

1. Indicate the line no. with error/s
2. Give the reason for error/s
3. Correct the error/s.

_

_

1. #include <iostream> this will be #include <iostream.h>
2. #include <stdlib.h>
3. using namespace std;
4. template <typename T>
5. class MyClass{
6. public:
7. MyClass(){
8. cout<<"This is class1"<<endl;
9. }

```
10. };
11. template <typename T>
12. class MyClass<int*>{
13. public:
14. MyClass(){
15. cout<<"This is class2"<<endl;
16. }
17. };
18. int main(int argc, char *argv[])
19. {
20. MyClass<int> c1;
21. MyClass<int*> c2;
22. system("PAUSE");
23. return 0;
24. }
```

Question No: 39 (Marks: 5)

Given are two classes A and B. class B is inherited from class A. Write a code snippet(for main function) that polymorphically call the method of class B. Also what
changes do you suggest in the given code segment that are required to call the class B
method polymorphically.

```
class A
{
public:
void method() { cout<<"A's method \n"; }
};
class B : public A
{
public:
void method() { cout<<"B's method\n"; }


_


_
};
```

Ans:

```
public class Test
{
public class A {}
```

```
public class B extends A {}
private void test(A a)
{
System.out.println("test(A)");
}
private void test(B b)
{
System.out.println("test(B)");
}
public static void main(String[] args)
{
Test t = new Test();
A a = t.new A();
A b = t.new B();
t.test(a);
t.test(b);
}
}
```

Question No: 40 (Marks: 10)

Create built-in STL (Standard Template Library) vector class object for strings and add in it some words by taking input from user, then apply the sort() algorithm to array of words stored in this vector class object.

Hint:Use push_back() to add the words in vector class object, and the [] operator and size() to display these sorted words.

The STL is the containers, iterators and algorithms component of the proposed C++
Standard Library [ANSI95]. It represents a novel application of principles which have
their roots in styles of programming other than Object-orientation.

```
void listWords(istream& in, ostream& out)


_


_
{
string s;
while (!in.eof() && in >> s) {
add s to some container
}
sort the strings in the container
```

```
remove the duplicates
for (each string t in container) {
out << t;
}
}
```

For now, assume that a word is defined as a whitespace-separated string as delivered by the stream extraction operator. Later on we will consider ways of refining this definition.

Given the way this problem is expressed, we can implement this program directly, if naïvely. The STL container class vector will suffice to hold the words: applying the algorithms sort and unique provides the required result.

```
void listWords(istream& in, ostream& out)
{
string s;
vector<string> v;
while (!in.eof() && in >> s)
v.push_back(s); // (1)
sort(v.begin(), v.end());
vector<string>::iterator e
= unique(v.begin(), v.end()); // (2)
for (vector<string>::iterator b = v.begin();
b != e;
b++) {
out << *b << endl;
}
}
```

At (1) the vector member function push_back() is used to add to the end of the vector.

This can also be done using the insert member, which takes as a parameter an iterator identifying the position in the vector at which to place the added element:

```
v.insert(v.end(), s);
```

This allows us to add at any position in the vector. Be aware, though, that adding anywhere other than the end implies the overhead of physically shifting all elements from the insertion point to the end to make room for the new value. For this reason, and given

the choices made in this example, attempts to optimise this code by maintaining the

_

_
vector in sorted order are unwise. Replace vector with list and this becomes possible -
although in both cases a search over the container will be necessary to determine the
correct position of insertion.
The unique algorithm has the surprising property of not changing the length of the container to which it is applied (it can hardly do this, as it has access not to the underlying container, but only to the pair of iterators it is passed). Instead, it guarantees
that duplicates are removed by moving unique entries towards the beginning of the container, returning an iterator indicating the new end of the container. This can be used
directly (as here, at (2)), conversely it can be passed to the erase member with the old end
iterator, to truncate the container.

Question No: 41 (Marks: 10)

Q. Write a detailed note on Exceptions in Destructors with the help of a coding example.

Exceptions in Destructors:
An object is presumably created to do something. Some of the changes made by an object
should persist after an object dies (is destructed) and some changes should not. Take an
object implementing a SQL query. If a database field is updated via the SQL object then
that change should persist after the SQL objects dies. To do its work the SQL object
probably created a database connection and allocated a bunch of memory. When the SQL
object dies we want to close the database connection and deallocate the memory, otherwise if a lot of SQL objects are created we will run out of database connections
and/or memory.
The logic might look like:

```
Sql::~Sql()
{
delete connection;
delete buffer;
}
```

Let's say an exception is thrown while deleting the database connection. Will the buffer
be deleted? No. Exceptions are basically non-local gotos with stack cleanup. The code for
deleting the buffer will never be executed creating a gaping resource leak.
Special care must be taken to catch exceptions which may occur during object destruction. Special care must also be taken to fully destruct an object when it throws an
exception.
Example code for exception ……

```
#include<iostream.h>
#include<conio.c>
class Exception {
private:


_


_
char message[30] ;
public:
Exception() {strcpy(message,"There is not enough stock");}
char * get_message() { return message; }
};
class Item {
private:
int stock ;
int required_quantity;
public:
Item(int stk, int qty)
{
stock = stk;
required_quantity = qty;
}
int get_stock()
{
```

```
return stock;
}
int get_required_quantity()
{
return required_quantity;
}
void order()
{
if (get_stock()< get_required_quantity())
throw Exception();
else
cout<<"The required quantity of item is available in the stock";
}
~Item(){}
};
void main()
{
Item obj(10, 20);
try


_


_
{
obj.order();
}
catch(Exception & exp2)
{
getch();
cout << "Exception: " << exp2.get_message() << endl;
}
getch();
```

FINALTERM EXAMINATION
Fall 2009
CS304- Object Oriented Programming (Session - 4)
Ref No: 1130772
Time: 120 min
Marks: 75
Question No: 1 (Marks: 1) - Please choose one
A template provides a convenient way to make a family of

_ variables and data members
_ functions and classes
_ classes and exceptions
_ programs and algorithms
Question No: 2 (Marks: 1) - Please choose one
Which one of the following terms must relate to polymorphism?
_ Static allocation
_ Static typing
_ Dynamic binding
_ Dynamic allocation

_

_
Question No: 3 (Marks: 1) - Please choose one
What is true about function templates?
_ The compiler generates only one copy of the function template
_ The compiler generates a copy of function respective to each type of data
_ The compiler can only generate copy for the int type data
_ None of the given.
Question No: 4 (Marks: 1) - Please choose one
Which of the following is the best approach if it is required to have more than one functions having exactly same functionality and implemented on different data types?
_ Templates
_ Overloading
_ Data hiding
_ Encapsulation
Question No: 5 (Marks: 1) - Please choose one
template <>
class Vector<char*> { }
This is an example of partial specialization.
_ True
_ False
Question No: 6 (Marks: 1) - Please choose one
Classes like TwoDimensionalShape and ThreeDimensionalShape would normally be
concrete, while classes like Sphere and Cube would normally be abstract.
_ True
_ False

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

_

_
A non-virtual member function is defined in a base class and overridden in a derived
class; if that function is called through a base-class pointer to a derived class object, the
derived-class version is used.
_ True
_ False
Question No: 8 (Marks: 1) - Please choose one
Assume a class Derv that is privately derived from class Base. An object of class Derv
located in main() can access
_ public members of Derv.
_ protected members of Derv.
_ private members of Derv.
_ protected members of Base.
Question No: 9 (Marks: 1) - Please choose one
In order to define a class template, the first line of definition must be:
_ template <typename T>
_ typename <template T>
_ Template Class <ClassName>
_ Class <Template T>
Question No: 10 (Marks: 1) - Please choose one
If there is a pointer p to objects of a base class, and it contains the address of an object of
a derived class, and both classes contain a nonvirtual member function, ding(), then the
statement p->ding(); will cause the version of ding() in the _____ class to be executed.
_ Base
_ Derived

_

_
_ Abstract

_ virtual
Question No: 11 (Marks: 1) - Please choose one
When the base class and the derived class have a member function with the same name,
you must be more specific which function you want to call (using _____).
_ scope resolution operator
_ dot operator
_ null operator
_ Operator overloading
Question No: 12 (Marks: 1) - Please choose one
Non Template Friend functions of a class are friends of _____instance/s of that class.
_ All
_ One specific
_ All instances of one date type
_ None of the given options
Question No: 13 (Marks: 1) - Please choose one
The find() algorithm
_ finds matching sequences of elements in two containers.
_ finds a container that matches a specified container.
_ takes iterators as its first two arguments.
_ takes container elements as its first two arguments.
Question No: 14 (Marks: 1) - Please choose one
If you define a vector v with the default constructor, and define another vector w with a
one-argument constructor to a size of 11, and insert 3 elements into each of these vectors
with push_back(), then the size() member function will return _____ for v and _____ for
w.
_ 11 for v and 3 for w.

_

_
_ 0 for v and 0 for w.
_ 0 for v and 3 for w.
_ 3 for v and 11 for w.
Question No: 15 (Marks: 1) - Please choose one
Which of the following may not be an integral part of an object?

_ State
_ Behavior
_ Protected data members
_ All of given
Question No: 16 (Marks: 1) - Please choose one
Which is not the Advantage of inheritance?
_ providing class growth through natural selection.
_ facilitating class libraries.
_ avoiding the rewriting of code.
_ providing a useful conceptual framework.
Question No: 17 (Marks: 1) - Please choose one

```
class DocElement
{
public:
virtual void Print() { cout << "Generic element"; }
};
class Heading : public DocElement
{
public:
void Print() { cout << "Heading element"; }
};
class Paragraph : public DocElement
{
public:
void Print() { cout << "Paragraph element"; }
};
```

_

_

```
void main()
{
DocElement * p = new Paragraph();
p->Print();
}
```

When you run this program, it will print out a single line to the console output. What will be in that line?
Select one correct answer from the following list:
_ Generic element
_ Heading element

_ Paragraph element
_ Nothing will be printed.
Question No: 18 (Marks: 1) - Please choose one
When a virtual function is called by referencing a specific object by name and using the
dot member selection operator (e.g., squareObject.draw()), the reference is resolved at
compile time.
_ True
_ False
Question No: 19 (Marks: 1) - Please choose one
In case of multiple inheritance a derived class inherits,
_ Only the public member functions of its base classes
_ Only the public data members of its base classes
_ Both public data members and member functions of all its base classes
_ Data members and member functions of any two base classes
Question No: 20 (Marks: 1) - Please choose one
When we write a class template the first line must be:

_

_
_ template < class class_name>
_ template < class data_type>
_ template < class T >
Here T can be replaced with any name but it is preferable.
_ class class-name()
class template<class_name>
Question No: 21 (Marks: 1) - Please choose one
Which of the following is incorrect line regarding function template?
_ template<class T>
_ template <typename U>
_ Class<template T>
_ template < class T, class U>
Question No: 22 (Marks: 1) - Please choose one
An STL container can not be used to,
_ hold objects of class employee.
_ store elements in a way that makes them quickly accessible.
_ compile c++ programs.
_ organize the way objects are stored in memory

Question No: 23 (Marks: 1) - Please choose one
Algorithms can only be implemented using STL containers.
_ True
_ False
Question No: 24 (Marks: 1) - Please choose one
Consider a class named Vehicle, which of the following can be the instance of class
Vehicle?

_

_
1. Car
2. Computer
3. Desk
4. Ahmed
5. Bicycle
6. Truck
_ 1, 4, 5
_ 2, 5, 6
_ 1, 2, 3, 6
_ 1, 5, 6
Question No: 25 (Marks: 1) - Please choose one
Consider the code below,

```
class Fred {
public:
Fred();
...
};
int main()
{
Fred a[10];
Fred* p = new Fred[10];
...
}
```

Select the best option,
_ Fred a[10]; calls the default constructor 09 times
Fred* p = new Fred[10]; calls the default constructor 10 times
_ Produce an error
_ Fred a[10]; calls the default constructor 11 times

Fred* p = new Fred[10]; calls the default constructor 11 times
_ Fred a[10]; calls the default constructor 10 times
Fred* p = new Fred[10]; calls the default constructor 10 times
Question No: 26 (Marks: 1) - Please choose one
When a variable is define as static in a class then all object of this class,

_

_
_ Have different copies of this variable
_ Have same copy of this variable
_ Can not access this variable
_ None of given
Question No: 27 (Marks: 1) - Please choose one
The life of sub object is dependant on the life of master class in _____.
_ Separation
_ Composition
_ Aggregation
_ None of the given
Question No: 28 (Marks: 1) - Please choose one
_____, which means if A declares B as its friend it does NOT mean that A can
access private data of B. It only means that B can access all data of A.
_ Friendship is one way only
_ Friendship is two way only
_ NO Friendship between classes
_ Any kind of friendship
Question No: 29 (Marks: 1) - Please choose one
Which of the following operators always takes no argument if overloaded?
_ /
_ -
_ +
_ ++

_

_
Question No: 30 (Marks: 1) - Please choose one
In Private ---------- only member functions and friend classes or functions of a

derived class can convert pointer or reference of derived object to that of parent object

_ specialization
_ inheritance
_ abstraction
_ composition

Question No: 31 (Marks: 1)

Write the syntax of declaring a pure virtual function in a class?

Ans:

Pure Virtual Function is a Virtual function with no body.

Declaration of Pure Virtual Function:

Since pure virtual function has no body, the programmer must add the notation =0 for
declaration of the pure virtual function in the base class.

General Syntax of Pure Virtual Function takes the form:

```
class classname //This denotes the base class of C++ virtual function
{
public:
virtual void virtualfunctioname() = 0 //This denotes the pure virtual function in C++
};
```

Question No: 32 (Marks: 1)

What is meant by direct base class ?

Ans

When a class-type is included in the class-base, it specifies the direct base class of the
class being declared. If a class declaration has no class-base, or if the class-base lists only
interface types, the direct base class is assumed to be object. A class inherits members
from its direct base class,

Deriving a class from more than one direct base class is called multiple inheritance.

Question No: 33 (Marks: 2)

Describe the way to declare a template class as a friend class of any other class.

Ans

The following example is use of a class template:

_

_
template<class L> class Key
{
L k;
L* kptr;
int length;
public:
Key(L);
// ...
};
Suppose the following declarations appear later:
Key<int> i;
Key<char*> c;
Key<mytype> m;
The compiler would create three objects.
Question No: 34 (Marks: 2)
What is the purpose of template parameter?
Ans:
There are three kinds of template parameters:
• type
• non-type
• template
You can interchange the keywords class and typename in a template parameter declaration. You cannot use storage class specifiers (static and auto) in a template parameter declaration.
Question No: 35 (Marks: 3)
Describe in simple words how we can use template specialization to enforce case sensitive specialization in String class.
Ans”
The act of creating a new definition of a function, class, or member of a class from a
template declaration and one or more template arguments is called template instantiation.
The definition created from a template instantiation is called a specialization. A primary
template is the template that is being specialized.
create function objects to do the case-insensitive compares, and
then reuse them when also wanting to do case-insensitive sorting
or searching.
Question No: 36 (Marks: 3)

_

_

Can we use compiler generated default assignment operator in case our class is using
dynamic memory? Justify your answer.

Ans:

the compiler does not make a separate copy of the object. Even if the types are not the
same, the compiler is usually able to do a better job with initialization lists than with
assignments.

Consider the following constructor that initializes member object x_ using an initialization list: square::square() : x_(whatever) { }. The most common benefit of doing
this is improved performance. For example, if the expression whatever is the same type
as member variable x_, the result of the whatever expression is constructed directly inside
x_ — the compiler does not make a separate copy of the object. Even if the types are not
the same, the compiler is usually able to do a better job with initialization lists than with
assignments.

As if that wasn't bad enough, there's another source of inefficiency when using assignment in a constructor: the member object will get fully constructed by its default
constructor, and this might, for example, allocate some default amount of memory or
open some default file. All this work could be for naught if the whatever expression
and/or assignment operator causes the object to close that file and/or release that memory
(e.g., if the default constructor didn't allocate a large enough pool of memory or if it
opened the wrong file).

Question No: 37 (Marks: 3)

Give the names of three ways to handle errors in a program.

Ans:

The function will throw DivideByZero as an exception that can then be caught by an
exception-handling catch statement that catches exceptions of type int. The necessary
construction for catching exceptions is a try catch system. If you wish to have your program check for exceptions, you must enclose the code that may have exceptions thrown in a try block.
The catch statement catches exceptions that are of the proper type. You can, for example,
throw objects of a class to differentiate between several different exceptions. As well,
once a catch statement is executed, the program continues to run from the end of the
catch.
the errors can be handled outside of the regular code. This means that it is easier to structure the program code, and it makes dealing with errors more centralized. Finally,
because the exception is passed back up the stack of calling functions, you can handle
errors at any place you choose.

Question No: 38 (Marks: 5)

Consider the following code,

_

_

```
class Base{
private:
void base1();
protected:
void base2();
public:
void base3();
};
class Derived: public Base{
private:
void derived1();
protected:
void derived2();
public:
```

```
void derived3();
};
int main(){
Derived * derived = new Derived();
return 0;
}
```

Fill the table below to tell which member functions of Base and Derived classes we can access using the Derived pointer in the code indicated in bold.

Ans:

Function Name Availability (Yes / No)?

base2() no

base3() yes

derived1() No

derived2() No

derived3() Yes

Question No: 39 (Marks: 5)

What is the output produced by the following program?

```
#include<iostream.h>
void sample_function(double test) throw (int);


_


_
int main()
{
try
{
cout <<"Trying.\n";
sample_function(98.6);
cout << "Trying after call.\n";
}
catch(int)
{
cout << "Catching.\n";
}
cout << "End program.\n";
return 0;
}
void sample_function(double test) throw (int)
{
```

```
cout << “Starting sample_function.\n”;
if(test < 100)
throw 42;
}
```

Ans:

Starting sample_function
Trying
Trying after call
Catching
End program

Question No: 40 (Marks: 10)

Write a publicly derived class “Employee” that is derived from base class named “Company”. Both classes will have function “create()”. Make virtual function of base class and override same function in derived class. Function create will have an
output statement of your own choice.
In “main” Create an object of base class and call both functions with same object type.

_

_

Question No: 41 (Marks: 10)

Write a program in C++ which creates three classes named as
1. Equation
2. Linear
3. Quadratic
Where Linear and Quadratic are inherited from Equation
Each class has the method Graph. Graph method should be pure virtual in Equation class.
This method should be overridden in both the inherited classes. It is meant to display the
Graph shape of its respective class. Graph method of Linear will display the message;
Straight line
Similarly, the Graph method of Quadratic will display the message;
Parabola
In main, call the Graph method of both the Linear and Quadratic equations polymorphically through the parent class (Equation).
Ans:

```
#include "fraction.h"
#include <iostream>
#include <string>
#include <string.h>
#include <stdlib.h>
class equation;
class equation {
int a, b;
public:
int c ()
{return (c);}
void convert (Cequation);
};
class linear {
private:
int side;
public:
void set_side (int a)
{side=a;}
friend class equation;
};


_


_
void equation::convert (Cequation) {
a = 23;
b = 45;
}
int main () {
cequation sqr;
CRectangle rect;
sqr.set_side(4);
rect.convert(sqr);
cout << rect.area();
return 0;
}
```

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

Which one of the following terms must relate to **polymorphism?**

► Static allocation

► Static typing

► **Dynamic binding**

► Dynamic allocation

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

Multiple inheritance can be of type

► Public

► Private

► Protected

► **All of the given**

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

When a subclass specifies an alternative definition for an attribute or method of its superclass, it is _____ the definition in the superclass.

► overload

► **overriding**

► copy riding

► none of given

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

Like template functions, a class template may not handle all the types successfully.

► **True**

► False

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

_____ It is sometimes useful to specify a class from which no objects will ever be created.

► True

► **False**

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

_____

Assume a class Derv that is privately derived from class Base. An object of class Derv located in main() can access

► public members of Derv.

► protected members of Derv.

► private members of Derv.

► **protected members of Base.**

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

A pointer to a base class can point to objects of a derived class.

► **True**

► False

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

A copy constructor is invoked when

► a function do not returns by value.

► an argument is passed by value.

► **a function returns by reference.**

► an argument is passed by reference.

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

_____ A function call is resolved at run-time in_____

► non-virtual member function.

► **virtual member function.**

► Both non-virtual member and virtual member function.

► None of given

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

When the base class and the derived class have a member function with the same name, you must be more specific which function you want to call (using _____).

► **scope resolution operator**

► dot operator

► null operator

► Operator overloading

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

Each try block can have _____ no. of catch blocks.

► 1

► 2

► 3

► **As many as necessary.**

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

Two important STL associative containers are _____ and _____.

- ► set,map
- ► **sequence,mapping**
- ► setmet,multipule
- ► sit,mat

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

The mechanism of selecting function at run time according to the nature of calling object is called,

► late binding

► static binding

► virtual binding

► **None of the given options**

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

An abstract class is useful when,

► We do not derive any class from it.

► There are multiple paths from one derived class to another.

► **We do not want to instantiate its object.**

► You want to defer the declaration of the class.

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

Which of the following is incorrect line regarding function template?

► template<class T>

► template <typename U>

► **Class<template T>**

► template < class T, class U>

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

Which of the following is/are advantage[s] of generic programming?

► Reusability

► Writability

► Maintainability

► **All of given**

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

_____ By default the vector data items are initialized to ____

► **0**

► 0.0

► 1

► null

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

Which one of the following functions returns the total number of elements in a vector.

► length();

► **size();**

► ele();

► veclen();

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

Suppose you create an uninitialized vector as follows:

vector<int> evec;

After adding the statment,

evec.push_back(21);

what will happen?

► The following statement will add an element to the start (the back) of evec and will initialize it with the value 21.

► The following statement will add an element to the center of evec and will reinitialize it with the value 21.

► The following statement will delete an element to the end (the back) of evec and will reinitialize it with the value 21.

► The following statement will add an element to the end (the back) of evec and initialize it with the value 21.

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

An STL container can not be used to,

► hold objects of class employee.

► store elements in a way that makes them quickly accessible.

► **compile c++ programs.**

► organize the way objects are stored in memory

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

Algorithms can only be implemented using STL containers.

► True

► **False**

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

The main function of scope resolution operator (**::**) is,

► **To define an object**

► To define a data member

► To link the definition of an identifier to its declaration

► To make a class private

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

When is a constructor called?

- ► Each time the constructor identifier is used in a program statement
- ► **During the instantiation of a new object**
- ► During the construction of a new class
- ► At the beginning of any program execution

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

Consider the code below,

```
class Fred {
public:
Fred();
...
};
int main()
```

{

Fred a[10];

Fred* p = new Fred[10];

...

}

Select the best option,

► Fred a[10]; calls the default constructor 09 times

Fred* p = new Fred[10]; calls the default constructor 10 times

► **Produce an error**

► Fred a[10]; calls the default constructor 11 times

Fred* p = new Fred[10]; calls the default constructor 11 times

► Fred a[10]; calls the default constructor 10 times

Fred* p = new Fred[10]; calls the default constructor 10 times

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

Associativity can be changed in operator overloading.

► True

► **False**

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

_____ A normal C++ operator that acts in special ways on newly defined data types is said to be

► glorified.

► encapsulated.

► **classified.**

► overloaded.

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

Which operator can not be overloaded?

- ► The relation operator (>=)
- ► Assignment operator (=)
- ► Script operator ([])
- ► **Conditional operator (? :)**

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

Suppose obj1 and obj2 are two objects of a user defined class A. An + operator is overloaded to add obj1 and obj2 using the function call obj1+obj2.

Identify the correct function prototype against the given call?

- A operator + (A &obj);
- int + operator();
- **int operator (plus) ();**
- A operator(A &obj3);

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

Default constructor is such constructor which either has no ---------or if it has some parameters these have -------- values

- Parameter, temporary
- Null, Parameter
- **Parameter, default**
- non of the given

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

Public methods of base class can --------- be accessed in its derived class

- directly
- **inderectly**
- simultaniously
- non of the given

Question No: 31 (Marks: 1)

Is **Deque** a Birectional Container?

Yes, deque behaves like queue (line) such that we can add elements on both sides of it.

Question No: 32 (Marks: 1)

What is meant by Generic Programming?

Generic programming refers to programs containing generic abstractions general code that is same in logic for all data types like printArray function), then we instantiate that generic program abstraction (function, class) for a particular data type, such abstractions can work with many different types of data.

Question No: 33 (Marks: 2)

Sort the following data in the order in which compiler searches a function?

Complete Specialization, Generic Template, Partial Specialization, Ordinary Function.

Specializations of this function template, instantiations with specific types, can be called just like an ordinary function:
cout << max(3, 7); // outputs 7
The compiler examines the arguments used to call max and determines that this is a call to max(int, int). It then instantiates a version of the function where the parameterizing type T is int, making the equivalent of the following function:

```
int max(int x, int y)
{
   return x < y ? y : x;
}
```

the C++ Standard Template Library contains the function template max(x, y) which creates functions that return either *x* or *y*, whichever is larger. max() could be defined like this:

```
template <typename T>
T max(T x, T y)
{
   return x < y ? y : x;
}
```

Question No: 34 (Marks: 2)

State any conflict that may rise due to multiple inheritance?

The conflict may arise is the diamond problem, which our author likes to call the "diamond of doom". This occurs when a class multiply inherits from two classes which each inherit from a single base class. This leads to a diamond shaped inheritance pattern.

For example, consider the following set of classes:

```
classPoweredDevice

{

};

classScanner: publicPoweredDevice

{

};
```

classPrinter: publicPoweredDevice

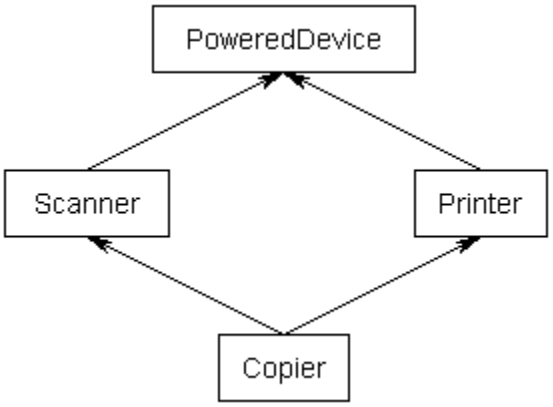
{

};

classCopier: publicScanner, publicPrinter

{

};



Scanners and printers are both powered devices, so they derived from PoweredDevice. However, a copy machine incorporates the functionality of both Scanners and Printers.

Ambiguity also cause problem.

Question No: 35 (Marks: 3)

Describe three properties necessary for a container to implement Generic Algorithms.

If you declare a container as holding pointers, you are responsible for managing the memory for the objects pointed to. The container classes will not automatically free memory for these objects when an item is erased from the container.
Container classes are expected to implement methods to do the following:

- create a new empty container (constructor),
- report the number of objects it stores (size),
- delete all the objects in the container (clear),
- insert new objects into the container,
- remove objects from it,
- provide access to the stored objects.

Question No: 36 (Marks: 3)

Write three important features of virtual functions.

With virtual functions, derived classes can provide new implementations of functions from their base classes. When someone calls a virtual function of an object of the derived class, this new implementation is called, even if the caller uses a pointer to the base class, and doesn't even know about the particular derived class.
The virtual function is an option, and the language defaults to non virtual, which is the fastest configuration.
The derived class can completely "override" the implementation or "augment" it (by explicitly calling the base class implementation in addition to the new things it does).

Question No: 37 (Marks: 3)

Consider the code below,

```
#include <iostream>
#include <stdlib.h>
using namespace std;
class Shape{
        public:
        void Draw(){cout<<"shape"<<endl;}
    };
class Line : public Shape{
        public:
        void Draw(){cout<<"Line"<<endl;}
        };
class Circle : public Shape{
        public:
        void Draw(){cout<<"Circle"<<endl;}
        };
int main(int argc, char *argv[])
{
  Shape * ptr1 = new Shape();
  Shape * ptr2 = new Line();
  Shape * ptr3 = new Circle();
```

```
  ptr1->Draw();
  ptr2->Draw();
  ptr3->Draw();
  system("PAUSE");
  return 0;
}
```

This code shows output,

Shape

Shape

Shape

Give the reason for this output

Suppose we want to show the output,

Shape

Line

Circle

How we can change the code to do that?

```
class shape { public:
  void draw();
};
class circle : public shape { };
int main(int argc, char **argv){
  circle my_circle;
  my_circle.draw();
}
```

While this has all the usual advantages, e.g., code reuse, the real power of polymorphism comes into play when draw is declared to be virtual or pure virtual, as follows:

```
class shape{ public:
  virtual void draw()=0;
};
class circle : public shape { public:
  void draw();
}
```

Here, circle has declared its own draw function, which can define behavior appropriate for a circle. Similarly, we could define other classes derived from shape, which provide their own versions of draw. Now, because all the classes implement the shape interface, we can create collections of objects that can provide different behavior invoked in a consistent manner (calling the draw member function). An example of this is shown here.

```
shape *shape_list[3];   // the array that will
                        // pointer to our shape objects
shape[0] = new shape;  // three types of shapes
shape[1] = new line;  // we have defined
shape[2] = new circle;
for(int i = 0; i < 3; i++){
  shape_list[i].draw();
}
```

When we invoke the draw function for each object on the list, we do not need to know anything about each object; C++ handles the details of invoking the correct version of draw. This is a very powerful technique, allowing us to provide extensibility in our designs. Now we can add new classes derived from shape to provide whatever behavior we desire. The key here is that we have separated the interface (the prototype for shape) from the implementation.

Question No: 38 (Marks: 5)

There are some errors in the code given below, you have to

1. Indicate the line no. with error/s
2. Give the reason for error/s
3. Correct the error/s.

1. #include <iostream> this will be #include <iostream.h>
2. #include <stdlib.h>

3. using namespace std;
4. template <typename T>
5. class MyClass{
6. public:
7. MyClass(){
8. cout<<"This is class1"<<endl;
9. }
10. };
11. template <typename T>
12. class MyClass<int*>{
13. public:
14. MyClass(){
15. cout<<"This is class2"<<endl;
16. }
17. };
18. int main(int argc, char *argv[])
19. {
20. MyClass<int> c1;
21. MyClass<int*> c2;
22. system("PAUSE");
23. return 0;
24. }

Question No: 39 (Marks: 5)

Given are two classes A and B. class B is inherited from class A. Write a code snippet(for main function) that polymorphically call the method of class B. Also what changes do you suggest in the given code segment that are required to call the class B method polymorphically.

```
class A

{

public:

void method() { cout<<"A's method \n"; }


};


class B : public A

{


public:

void method() { cout<<"B's method\n"; }


};
```

Ans:

```
public class Test
{
public class A {}

public class B extends A {}

private void test(A a)
{
System.out.println("test(A)");
}

private void test(B b)
{
System.out.println("test(B)");
}

public static void main(String[] args)
{
Test t = new Test();
A a = t.new A();
A b = t.new B();

t.test(a);
t.test(b);
}
}
```

Question No: 40 (Marks: 10)

Create built-in STL (Standard Template Library) **vector class object** for **strings** and add in it some words by taking input from user, then apply the sort() algorithm to array of words stored in this vector class object.

Hint:Use push_back() to add the words in vector class object, and the [] operator and size() to display these sorted words.

The STL is the containers, iterators and algorithms component of the proposed C++ Standard Library [ANSI95]. It represents a novel application of principles which have their roots in styles of programming other than Object-orientation.

```
void listWords(istream& in, ostream& out)
{
	string s;

	while (!in.eof() && in >> s) {
		add s to some container
	}

	sort the strings in the container
	remove the duplicates

	for (each string t in container) {
		out << t;
	}
}
```

For now, assume that a word is defined as a whitespace-separated string as delivered by the stream extraction operator. Later on we will consider ways of refining this definition.

Given the way this problem is expressed, we can implement this program directly, if naïvely. The STL container class vector will suffice to hold the words: applying the algorithms sort and unique provides the required result.

```
void listWords(istream& in, ostream& out)
{
	string s;
	vector<string> v;

	while (!in.eof() && in >> s)
		v.push_back(s);		// (1)
```

```
    sort(v.begin(), v.end());

    vector<string>::iterator e
        = unique(v.begin(), v.end());   // (2)

    for (vector<string>::iterator b = v.begin();
        b != e;
        b++) {
        out << *b << endl;
    }
}
```

At (1) the vector member function push_back() is used to add to the end of the vector. This can also be done using the insert member, which takes as a parameter an iterator identifying the position in the vector at which to place the added element:

```
    v.insert(v.end(), s);
```

This allows us to add at any position in the vector. Be aware, though, that adding anywhere other than the end implies the overhead of physically shifting all elements from the insertion point to the end to make room for the new value. For this reason, and given the choices made in this example, attempts to optimise this code by maintaining the vector in sorted order are unwise. Replace vector with list and this becomes possible - although in both cases a search over the container will be necessary to determine the correct position of insertion.

The unique algorithm has the surprising property of not changing the length of the container to which it is applied (it can hardly do this, as it has access not to the underlying container, but only to the pair of iterators it is passed). Instead, it guarantees that duplicates are removed by moving unique entries towards the beginning of the container, returning an iterator indicating the new end of the container. This can be used directly (as here, at (2)), conversely it can be passed to the erase member with the old end iterator, to truncate the container.

Question No: 41 (Marks: 10)

Q.

Write a detailed note on Exceptions in Destructors with the help of a coding example.

Exceptions in Destructors:

An object is presumably created to do something. Some of the changes made by an object should persist after an object dies (is destructed) and some changes should not. Take an object implementing a SQL query. If a database field is updated via the SQL object then that change should persist after the SQL objects dies. To do its work the SQL object probably created a database connection and allocated a bunch of memory. When the SQL object dies we want to close the database connection and deallocate the memory, otherwise if a lot of SQL objects are created we will run out of database connections and/or memory.

The logic might look like:

```
Sql::~Sql()
{
  delete connection;
  delete buffer;
}
```

Let's say an exception is thrown while deleting the database connection. Will the buffer be deleted? No. Exceptions are basically non-local gotos with stack cleanup. The code for deleting the buffer will never be executed creating a gaping resource leak.

Special care must be taken to catch exceptions which may occur during object destruction. Special care must also be taken to fully destruct an object when it throws an exception.

Example code for exception ……

```
#include<iostream.h>
#include<conio.c>
class Exception {
private:
```

```
 char message[30]  ;
public:

 Exception() {strcpy(message,"There is not enough stock");}
 char * get_message() { return message; }
};
class Item {
private:

 int stock ;
 int required_quantity;
public:

 Item(int stk, int qty)
    {
     stock =  stk;
     required_quantity =  qty;
 }
    int get_stock()
    {
       return stock;
    }

    int get_required_quantity()
    {
       return required_quantity;
    }

    void order()
    {
        if (get_stock()< get_required_quantity())

        throw Exception();
                else
                cout<<"The required quantity of item is available in the stock";
    }

     ~Item(){}
};
```

```
void main()
{

   Item obj(10, 20);

 try
   {
  obj.order();
 }
 catch(Exception & exp2)
   {
    getch();
  cout << "Exception: " << exp2.get_message() << endl;
 }
 getch();
```

FINAL TERM EXAMINATION

SPRING 2010

CS304- OBJECT ORIENTED PROGRAMMING

Shared by IMRAN JEE

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

Classes like TwoDimensionalShape and ThreeDimensionalShape would normally be concrete, while classes like Sphere and Cube would normally be abstract.

► True

► **False**

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

Each try block can have _____ no. of catch blocks.

► 1

► 2

► 3

► **As many as necessary.**

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

Function templates should be used where code and behavior must be identical.

► True

► **False**

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

Consider the following statement

Cupboard has books

What is the relationship between Cupboard and books?

► Composition

► **Aggregation**

► Inheritance

► None of the given options

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

Identify the correct way of declaring an object of user defined template class **A** for char type members?

► A< char > obj;

► A obj;

► A obj;

Imrangee

► Obj A;

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

The user must define the operation of the copy constructor.

► **True**

► False

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

Default constructor is such constructor which either has no ---------or if it has some parameters these have -------- values

► Parameter, temporary

► Null, Parameter

► **Parameter, default**

► non of the given

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

The type that is used to declare a reference or pointer is called its ---------

► default type

► **static type**

► abstract type

► reference type

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

How the information hidden within an object can be accessed?

► Through its interface

► Through its private data members

► **Through its private member functions**

► Through both public and private members

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

The sub-object's life is not dependant on the life of master class in _____.

► Separation

► Composition

► **Aggregation**

► None of the given

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

Encapsulation means

Select correct option:

Imrangee

►Extending the behaviour of class in another class

►**Data and behaviour are tightly coupled within an entity**

►One entity takes all the attributes and operations of the other

►Taking out the common features and put those in a separate class

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

Algorithms can only be implemented using STL containers.

► True

► **False**

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

When we write a class template the first line must be:

► template < class *class_name*>

► template < class *data_type*>

► **template < class T >**

Here T can be replaced with any name but it is preferable.

► class class-name()

class template<*class_name*>

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

An STL container can not be used to,

► **hold objects of class employee.**

► store elements in a way that makes them quickly accessible.

► compile c++ programs.

► organize the way objects are stored in memory

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

_____, which means if A declares B as its friend it does NOT mean that

A can access private data of B. It only means that B can access all data of A.

► **Friendship is one way only**

► Friendship is two way only

► NO Friendship between classes

► Any kind of friendship

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

Which of the following may not be an integral part of an object?

► State

Imrangee

► Behavior

► **Protected data members**

► All of given

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

Public methods of base class can --------- be accessed in its derived class

► **directly**

► inderectly

► simultaniously

► non of the given

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

If a class D has been derived using protected inheritance from class B (If B is a protected base and D is derived class) then public and protected members of B ------- accessed by member functions and friends of class D and classes derived

from D

► **can be**

► cannot be

► does restirct to be

► not given

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

What is true about function templates?

► The compiler generates only one copy of the function template

► **The compiler generates a copy of function respective to each type of data**

► The compiler can only generate copy for the int type data

► None of the given.

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

Which of the following is an integral part of an object?

► State

► Behavior

► Unique identity

► **All of the given**

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

When the base class and the derived class have a member function with the

Imrangee

same name, you must be more specific which function you want to call (using

_____).

► scope resolution operator

► **dot operator**

► null operator

► Operator overloading

Question No: 22 (Marks: 2)

Describe the way to declare a template function as a friend of any class.

Question No: 23 (Marks: 2)

Explain two benefits of **constructor.**

Question No: 24 (Marks: 2)

Can a constructor throws an exception. How to handle error when the constructor fails?

Question No: 25 (Marks: 2)

Write the code for a function template

Question No: 26 (Marks: 3)

Write three advantages of Iterator.

Question No: 27 (Marks: 3)

What is the difference between Virtual and Multiple Inheritance?

Question No: 28 (Marks: 5)

What is random_iterator? What is relation between random_iterator and Vector?

Question No: 29 (Marks: 5)

The code given below has one template function as a friend of a template class,

1. You have to identify any error/s in this code and describe the reason for error/s.

2. Give the correct code after removing the error/s.

```
template




void Test(U);
template< class T >
class B {
```

Imrangee

```
int data;
public:
friend void Test<>( T );
};
template




void Test(U u){
B < int> b1;
b1.data = 7;
```

```
}
int main(int argc, char *argv[])
{
char i;
Test(i);
system("PAUSE");
return 0;
}
```

FINALTERM EXAMINATION

Spring 2010

CS304- Object Oriented Programming

Time: 90 min

Marks: 58

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

A template argument is preceded by the keyword _____.

► vector

► class

► template

► type*

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

Which of the following causes run time binding?

► Declaring object of abstract class

► Declaring pointer of abstract class

► Declaring overridden methods as non-virtual

► None of the given

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

A function template can not be overloaded by another function template.

► True

► False

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

Which of the following is the best approach if it is required to have more than one functions having exactly same functionality and implemented on different data types?

► Templates

► Overloading

► Data hiding

► Encapsulation

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

Identify the correct way of declaring an object of user defined template class **A** for char type members?

► A< char > obj;

► <char>A obj;

► A obj<char>;

► Obj <char> A;

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

The user must define the operation of the copy constructor.

► True

► False

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

Template functions use _____ than ordinary functions.

► Greater Memory

► Lesser Memory

► Equal Memory

► None of the given options

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

The find() algorithm

- ► finds matching sequences of elements in two containers.
- ► finds a container that matches a specified container.
- ► takes iterators as its first two arguments.
- ► takes container elements as its first two arguments.

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

Compiler performs _____ type checking to diagnose type errors,

- ► Static
- ► Dynamic
- ► Bound
- ► Unbound

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

Which of the following is/are advantage[s] of generic programming?

- ► Reusability
- ► Writability
- ► Maintainability
- ► All of given

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

Vectors contain contiguous elements stored as a[an] ___.

- ► variable
- ► array
- ► function
- ► datatype

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

Suppose you create an uninitialized vector as follows:

vector<int> evec;

After adding the statment,

evec.push_back(21);

what will happen?

► The following statement will add an element to the start (the back) of evec and will initialize it with the value 21.

► The following statement will add an element to the center of evec and will reinitialize it with the value 21.

► The following statement will delete an element to the end (the back) of evec and will reinitialize it with the value 21.

► The following statement will add an element to the end (the back) of evec and initialize it with the value 21.

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

In a de-queue, (chose the best option)

► data can be quickly inserted or deleted at any arbitrary location.

► data can be inserted or deleted at any arbitrary location, but the process is relatively slow.

► data can not be quickly inserted or deleted at either end.

► data can be inserted or deleted at either end, but the process is relatively slow.

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

Algorithms can only be implemented using STL containers.

► True

► False

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

What is a class?

► A class is a section of computer memory containing objects.

► A class is a section of the hard disk reserved for object oriented programs

► A class is the part of an object that contains the variables.

► A class is a description of a kind of object.

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

Inheritance is a way to

► organize data.

► pass arguments to objects of classes.

► add features to existing classes without rewriting them.

► improve data-hiding and encapsulation.

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

We can use **"this"** pointer in the constructor in the body and even in the initialization list of any class if we are careful,

► True

► False

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

_____ and _____ methods may not be declared abstract.

► private,static

► private,public

► static,public

► none of given

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

Default constructor is such constructor which either has no ---------or if it has some parameters these have -------- values

► Parameter, temporary

► Null, Parameter

► Parameter, default

► non of the given

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

Public methods of base class can --------- be accessed in its derived class

► directly

► inderectly

► simultaniously

► non of the given

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

The type that is used to declare a reference or pointer is called its ---------

► default type

► static type

► abstract type

► reference type

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

---------- members are somewhere between public and private members. They are used in inheritance

► protected

► public

► private

► global

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

Which of these are examples of error handling techniques ?

- ► Abnormal Termination
- ► Graceful Termination
- ► Return the illegal
- ► all of the given

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

---------- follow try block to catch the object thrown

- ► catch block
- ► throw block
- ► main block
- ► non of the given

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

Graphical representation of the classes and objects is called object model it shows -
---

► Class Name only

► Class Name and attributes

► Relationships of the objects and classes

► all of the given

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

Destructor can be overloaded

► True

► False

Question No: 27 (Marks: 2)

Describe the way to declare a template function as a friend of any class.

Template templatename

Class calssname

{

Friend void friend templatename (classname <templatename> astric const prt classname);

}

Question No: 28 (Marks: 2)

State any two reasons why the virtual methods can not be static?

1-virtual method can not be static as it is dynamic

2-as virtual method is dynamic so it works automatically that is also another reason

That virtual method can not be static.

Question No: 29 (Marks: 2)

Explain the statement below,

vector<int> ivec(4, 3);

Question No: 30 (Marks: 2)

Explain two benefits of **setter functions.**

1- It minimize the changes to move the objects in inconsistent states

2- You can write checks in your setter functions to check the validity of data entered by the user, for example age functions to check to calculate the age from date entered.

Question No: 31 (Marks: 3)

Consider the code below,

template< typename T >

class T1 {

```
public:
T i;
protected:
T j;
private:
T k;
friend void Test();
};
```

This code has a template class **T1** with three members **i,j and k** and a friend function **Test()**, you have to describe which member/s of **T1** will be available in function **Test()**.

```
public:
   T i;
   protected:
   T j;
```

Question No: 32 (Marks: 3)

What do you mean by Stack unwinding?

When we want to check what happens actually to the local variables in the try block when then an exception is thrown this concept is called stack unwinding.

Question No: 33 (Marks: 3)

Give the c++ code of case sensitive comparison function of string class.

Question No: 34 (Marks: 5)

What is random_iterator? What is relation between random_iterator and Vector?

Random_iterator: it provided both increment and decrement and also provide constant time methods for moving forward and backword in arbitrary sized steps. Ramdom iterator provide asentially all of the operations of ordinary c pointer arithmetic.

Vector class provide an stl style random access iterator for use with generic algorithm since neither the vactor nor the matrix classes are container classes in actuall. The iterator class is really an iterator of data object that is viewed by vector or matrix.

Question No: 35 (Marks: 5)

What would be the output of this code?

```
class mother {
  public:
    mother ()
      { cout << "mother: no parameters\n"; }
    mother (int a)
      { cout << "mother: int parameter\n"; }
};
class daughter : public mother {
  public:
    daughter (int a)
      { cout << "daughter: int parameter\n\n"; }
```

```
};
class son : public mother {
  public:
    son (int a) : mother (a)
      { cout << "son: int parameter\n\n"; }
};
int main () {
  daughter rabia (0);
  son salman(0);

  return 0;
}
```

Output will be

Mother

Daughter: rabia

Son: salman

Question No: 36 (Marks: 5)

The code given below has one template function as a friend of a template class,

1. You have to identify any error/s in this code and describe the reason for error/s.

2. Give the correct code after removing the error/s.

```
template<typename U>
```

```
void Test(U);
template< class T >
class B {
        int data;
        public:
        friend void Test<>( T );
};
template<typename U>
void Test(U u){
   B < int> b1;
   b1.data = 7;
   }
int main(int argc, char *argv[])
{
   char i;
   Test(i);
   system("PAUSE");
   return 0;
```

FINALTERM EXAMINATION

Spring 2010

CS304- Object Oriented Programming

Ref No: 1563375

Time: 90 min

Marks: 58

Student Info	
Student ID:	**MC090205532**
Center:	OPKST- Pakistani Student Abroad
Exam Date:	Saturday, August 07, 2010

For Teacher's Use Only									
Q No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Total**
Marks									
Q No.	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	
Marks									
Q No.	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	
Marks									
Q No.	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	
Marks									
Q No.	**33**	**34**	**35**	**36**					
Marks									

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

A template argument is preceded by the keyword _____.

► vector

► class

► template

► type*

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

Which of the following causes run time binding?

► Declaring object of abstract class

► Declaring pointer of abstract class

► Declaring overridden methods as non-virtual

► None of the given

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

A function template can not be overloaded by another function template.

► True

► False

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

Which of the following is the best approach if it is required to have more than one functions having exactly same functionality and implemented on different data types?

► Templates

► Overloading

► Data hiding

► Encapsulation

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

Identify the correct way of declaring an object of user defined template class **A** for char type members?

► A< char > obj;

► <char>A obj;

► A obj<char>;

► Obj <char> A;

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

The user must define the operation of the copy constructor.

► True

► False

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

Template functions use _____ than ordinary functions.

► Greater Memory

► Lesser Memory

► Equal Memory

► None of the given options

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

The find() algorithm

► finds matching sequences of elements in two containers.

► finds a container that matches a specified container.

► takes iterators as its first two arguments.

► takes container elements as its first two arguments.

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

Compiler performs _____ type checking to diagnose type errors,

► Static

► Dynamic

► Bound

► Unbound

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

Which of the following is/are advantage[s] of generic programming?

► Reusability

► Writability

► Maintainability

► All of given

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

Vectors contain contiguous elements stored as a[an] ___.

► variable

► array

► function

► datatype

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

Suppose you create an uninitialized vector as follows:

vector<int> evec;

After adding the statment,

evec.push_back(21);

what will happen?

► The following statement will add an element to the start (the back) of evec and will initialize it with the value 21.

► The following statement will add an element to the center of evec and will reinitialize it with the value 21.

► The following statement will delete an element to the end (the back) of evec and will reinitialize it with the value 21.

► The following statement will add an element to the end (the back) of evec and initialize it with the value 21.

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

In a de-queue, (chose the best option)

► data can be quickly inserted or deleted at any arbitrary location.

► data can be inserted or deleted at any arbitrary location, but the process is relatively slow.

► data can not be quickly inserted or deleted at either end.

► data can be inserted or deleted at either end, but the process is relatively slow.

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

Algorithms can only be implemented using STL containers.

► True

► False

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

What is a class?

► A class is a section of computer memory containing objects.

► A class is a section of the hard disk reserved for object oriented programs

► A class is the part of an object that contains the variables.

► A class is a description of a kind of object.

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

Inheritance is a way to

► organize data.

► pass arguments to objects of classes.

► add features to existing classes without rewriting them.

► improve data-hiding and encapsulation.

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

We can use **"this"** pointer in the constructor in the body and even in the initialization list of any class if we are careful,

► True

► False

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

_____ and _____ methods may not be declared abstract.

► private,static

► private,public

► static,public

► none of given

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► abstract type

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---------- members are somewhere between public and private members. They are used in inheritance

► protected

► public

► private

► global

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---------- follow try block to catch the object thrown

► catch block

► throw block

► main block

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Graphical representation of the classes and objects is called object model it shows -----

► Class Name only

► Class Name and attributes

► Relationships of the objects and classes

► all of the given

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

Destructor can be overloaded

► True

► False

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Describe the way to declare a template function as a friend of any class.

Template templatename

Class calssname

{

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Question No: 29 (Marks: 2)

Explain the statement below,

vector<int> ivec(4, 3);

Question No: 30 (Marks: 2)

Explain two benefits of **setter functions.**

1- It minimize the changes to move the objects in inconsistent states
2- You can write checks in your setter functions to check the validity of data entered by the user, for example age functions to check to calculate the age from date entered.

Question No: 31 (Marks: 3)

Consider the code below,

```
template< typename T >
class T1 {
   public:
   T i;
   protected:
   T j;
   private:
   T k;
   friend void Test();
   };
```

This code has a template class **T1** with three members **i,j and k** and a friend function **Test()**, you have to describe which member/s of **T1** will be available in function **Test()**.

public:

T i;

protected:

T j;

Question No: 32 (Marks: 3)

What do you mean by Stack unwinding?

When we want to check what happens actually to the local variables in the try block when then an exception is thrown this concept is called stack unwinding.

Question No: 33 (Marks: 3)

Give the c++ code of case sensitive comparison function of string class.

Question No: 34 (Marks: 5)

What is random_iterator? What is relation between random_iterator and Vector?

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Vector class provide an stl style random access iterator for use with generic algorithm since neither the vactor nor the matrix classes are container classes in actuall. The iterator class is really an iterator of data object that is viewed by vector or matrix.

Question No: 35 (Marks: 5)

What would be the output of this code?

```
class mother {
  public:
    mother ()
      { cout << "mother: no parameters\n"; }
    mother (int a)
      { cout << "mother: int parameter\n"; }
```

```
};

class daughter : public mother {
  public:
    daughter (int a)
      { cout << "daughter: int parameter\n\n"; }
};

class son : public mother {
  public:
    son (int a) : mother (a)
      { cout << "son: int parameter\n\n"; }
};

int main () {
  daughter rabia (0);
  son salman(0);

  return 0;
}
```

Output will be

Mother

Daughter: rabia

Son: salman

Question No: 36 (Marks: 5)

The code given below has one template function as a friend of a template class,

1. You have to identify any error/s in this code and describe the reason for error/s.
2. Give the correct code after removing the error/s.

```
template<typename U>
void Test(U);
template< class T >

class B {
        int data;
        public:
        friend void Test<>( T );
};
```

```
template<typename U>
void Test(U u){
   B < int> b1;
   b1.data = 7;
   }
int main(int argc, char *argv[])
{
   char i;
   Test(i);
   system("PAUSE");
   return 0;
}
```

MUHAMMAD AKRAM ZAHID

FINALTERM EXAMINATION

14 Feb, 2011

CS304- Object Oriented Programming (Session - 3)

Time: 120 min

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

Which of the following causes run time binding?

- ► Declaring object of abstract class
- ► Declaring pointer of abstract class

► Declaring overridden methods as non-virtual

► None of the given

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

Which of the following is the best approach if it is required to have more than one functions having exactly same functionality and implemented on different data types?

► Templates

► Overloading

► Data hiding

► Encapsulation

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

A copy constructor is invoked when

► a function do not returns by value.

► an argument is passed by value.

► a function returns by reference.

► an argument is passed by reference.

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

Like template functions, a class template may not handle all the types successfully.

► True

► False

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

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

A class template may inherit from another class template.

► True

► False

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

By default the vector data items are initialized to ____

► 0

► 0.0

► 1

► null

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

In Private ---------- only member functions and friend classes or functions of a derived class can convert pointer or reference of derived object to that of parent object

► specialization

► inheritance

► abstraction

► composition

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

Which of the following is/are advantage[s] of generic programming?

► Reusability

► Writability

► Maintainability

► All of given

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

Template functions use _____ than ordinary functions.

► Greater Memory

► Lesser Memory

► Equal Memory

► None of the given options

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

Non Template Friend functions of a class are friends of _____instance/s of that class.

► All

► One specific

► All instances of one date type

► None of the given options

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

A copy constructor is invoked when

► a function do not returns by value.

► an argument is passed by value.

► a function returns by reference.

► an argument is passed by reference.

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

A pointer to a base class can point to objects of a derived class.

► True

► False

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

A template argument is preceded by the keyword _____.

► vector

► class

► template

► type*

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

Which one of the following terms must relate to **polymorphism?**

► Static allocation

► Static typing

► **Dynamic binding**

► Dynamic allocation

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

Multiple inheritance can be of type

► Public

► Private

► Protected

► **All of the given**

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

Assume a class Derv that is privately derived from class Base. An object of class Derv located in main() can access

► public members of Derv.

► protected members of Derv.

► private members of Derv.

► **protected members of Base.**

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

A copy constructor is invoked when

► a function do not returns by value.

► an argument is passed by value.

► **a function returns by reference.**

► an argument is passed by reference.

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

A function call is resolved at run-time in_____

► non-virtual member function.

► **virtual member function.**

► Both non-virtual member and virtual member function.

► None of given

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

Two important STL associative containers are _____ and _____.

► set,map

► **sequence,mapping**

► setmet,multipule

► sit,mat

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

An abstract class is useful when,

► We do not derive any class from it.

► There are multiple paths from one derived class to another.

► **We do not want to instantiate its object.**

► You want to defer the declaration of the class.

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

Which of the following is/are advantage[s] of generic programming?

► Reusability

► Writability

► Maintainability

► **All of given**

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

By default the vector data items are initialized to ____

► **0**

► 0.0

► 1

► null

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

Suppose you create an uninitialized vector as follows:

vector<int> evec;

After adding the statment,

evec.push_back(21);

what will happen?

► The following statement will add an element to the start (the back) of evec and will initialize it with the value 21.

► The following statement will add an element to the center of evec and will reinitialize it with the value 21.

► The following statement will delete an element to the end (the back) of evec and will reinitialize it with the value 21.

► The following statement will add an element to the end (the back) of evec and initialize it with the value 21.

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

Default constructor is such constructor which either has no ---------or if it has some parameters these have -------- values

► Parameter, temporary

► Null, Parameter

► Parameter, default

► non of the given

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

Which of the following is the best approach if it is required to have more than one functions having exactly same functionality and implemented on different data types?

► Templates

► Overloading

► Data hiding

► Encapsulation

Question No: 27 (Marks: 1)

Describe the way to declare a template class as a friend of any class.

Question No: 28 (Marks: 1)

Classes like TwoDimensionalShape and ThreeDimensionalShape would normally be concrete, while classes like Sphere and Cube would normally be abstract.

► **True**

► False

Question No: 29 (Marks: 1)

In order to define a class template, the first line of definition must be:

► **template <typename T>**

► typename <template T>

► Template Class <ClassName>

► Class <Template T>

Question No: 30 (Marks: 1)

In case of multiple inheritance a derived class inherits,

► Only the public member functions of its base classes

► Only the public data members of its base classes

► **Both public data members and member functions of all its base classes**

► Data members and member functions of any two base classes

Question No: 31 (Marks: 1)

In Private ---------- only member functions and friend classes or functions of a derived class can convert pointer or reference of derived object to that of parent object

► specialization

► inheritance

► abstraction

► composition

Question No: 32 (Marks: 1)

Which of the following is the best approach if it is required to have more than one functions having exactly same functionality and implemented on different data types?

► **Templates**

► **Overloading**

► **Data hiding**

► **Encapsulation**

Question No: 33 (Marks: 1)

If we declare a function as friend of a template class will it be a friend for a particular data type or for all data types of that class.

Question No: 34 (Marks: 1)

Question No: 35 (Marks: 1)

Question No: 36 (Marks: 1)

Question No: 37 (Marks: 2)

Write three important features of virtual functions.

Question No: 38 (Marks: 5)

There are some errors in the code given below, you have to Indicate the line no. with error/s

Give the reason for error/s

Correct the error/s.

```
1. #include <iostream>
2. #include <stdlib.h>


3. using namespace std;
4. template <typename T>
5. class MyClass{
6. public:
7. MyClass(){
8. cout<<"This is class1"<<endl;
9. }
```

```
10.};
11.template <typename T>
12.class MyClass<int*>{
13.public:
14.MyClass(){
15.cout<<"This is class2"<<endl;
16.}
17.};
18.int main(int argc, char *argv[])
19.{
20.MyClass<int> c1;
21.MyClass<int*> c2;
22.system("PAUSE");
23.return 0;
24.}
```

Question No: 39 (Marks: 5)

What is random iterator? What is its relation with vectors?

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CS304 Solved By Ms.Shazia
Monday, 08 November 2010 10:40 Zubair Hussain
Date: 08-11-2010
Question # 1 of 10
Information hiding can be achieved through_____.
1.Encapsulation, Inheritance
2.Encapsulation, Polymorphism
3.Encapsulation, Abstraction
4.Overloading
Question # 2 of 10 (Start time: 01:11:21 AM) Total Marks: 1
A good model is ..... related to a real life problem.
Select correct option:
1.Loosely
2.Openly
3.Closely
Question # 3 of 10 (Start time: 01:12:33 AM) Total Marks: 1
Which of the following features of OOP is used to derive a class from another?
Select correct option:
1.Encapsulation
2.Polymorphism
Come & Join Us at www.vustudents.net
3.Data hiding
4. Inheritance
Question # 4 of 10 (Start time: 01:13:51 AM) Total Marks: 1
Which of the following is a weak relationship between two objects?
Select correct option:
1. Inheritance
2.Composition
3.Aggregation
4.None of given
Question # 5 of 10 (Start time: 01:14:56 AM) Total Marks: 1
Data items in a class must be private.
Select correct option:

1.True
2.False
Question # 6 of 10 (Start time: 01:15:52 AM) Total Marks: 1
Which one is a class association
Select correct option:
1.Simple Association
2. Inheritance
3.Composition
4.Aggregation
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Question # 7 of 10 (Start time: 01:16:55 AM) Total Marks: 1
Suppose there is an object of type Person, which of the following can be considered as one of its attributes
Select correct option:
1.Name
2.Age
3.Work()
4.Both Name and Age
Question # 8 of 10 (Start time: 01:17:52 AM) Total Marks: 1
Which one is not an object association?
Select correct option:
1.Simple association
2. Inheritance
3.Aggregation
4.Association
Question # 9 of 10 (Start time: 01:18:50 AM) Total Marks: 1
Using encapsulation we can achieve
Select correct option:
1. Information hiding
2.Least interdependencies among modules
3. Implementation independence
4.All of given options
Come & Join Us at www.vustudents.net
Question # 10 of 10 (Start time: 01:19:43 AM) Total Marks: 1
In constant member function the type of this pointer is:
Select correct option:
1.Constant pointer
2.Constant pointer to object
3.Constant pointer to class
4.Constant pointer to constant object

Question # 1 of 10
Which of the following is the way to extract common behavior and attributes from the given classes and make a separate class of those common behaviors and attributes?
1.Generalization
2.Sub-typing
3.Specialization
4.Extension
Question # 2 of 10
The ability to derive a class from more than one class is called
1.Single inheritance
2.Encapsulation
3.Multiple inheritance
4.Polymorphism
Question # 3 of 10:
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If MyClass has a destructor what is the destructor named?
1.MyClass
2.~MyClass
3.My~Class
4.MyClass~
Question # 4 of 10:
Class abc{ ----- }; Is a valid class declaration?
1.yes
2.no
Question # 5of 10:
Without using Deep copy constructor, A _____ problem can occur
1.System crash
2.Memory Leakage
3.Dangling pointer
4.All of the given
Question # 6 of 10:
If only one behaviour of a derived class is incompatible with base class, then it is:
1.Generalization
2.Specialization
3.Extension
Come & Join Us at www.vustudents.net
4. Inheritance

Question # 7 of 10:
Which of the following may not be an integral part of an object?
1. state
2.behavior
3.Protected data members
4.All of given
Question # 8 of 10:
Only tangible things can be chosen as an object.
1.True
2.False
1.
2. Question # 1 of 10
Information hiding can be achieved through_____.
Encapsulation, Inheritance
Encapsulation, Polymorphism
Encapsulation, Abstraction
Overloading
Question # 2 of 10 (Start time: 01:11:21 AM) Total Marks: 1
A good model is ..... related to a real life problem.
Select correct option:
Loosely
Openly
Closely
Question # 3 of 10 (Start time: 01:12:33 AM) Total Marks: 1
Which of the following features of OOP is used to derive a class from another?
Select correct option:
Encapsulation
Polymorphism
Data hiding
Come & Join Us at www.vustudents.net
Inheritance
Question # 4 of 10 (Start time: 01:13:51 AM) Total Marks: 1
Which of the following is a weak relationship between two objects?
Select correct option:
Inheritance
Composition
Aggregation
None of given
Question # 5 of 10 (Start time: 01:14:56 AM) Total Marks: 1
Data items in a class must be private.

Select correct option:
True
False
Question # 6 of 10 (Start time: 01:15:52 AM) Total Marks: 1
Which one is a class association
Select correct option:
Simple Association
Inheritance
Composition
Aggregation
Question # 7 of 10 (Start time: 01:16:55 AM) Total Marks: 1
Suppose there is an object of type Person, which of the following can be considered as
one of its attributes
Select correct option:
Name
Age
Work()
Both Name and Age
Question # 8 of 10 (Start time: 01:17:52 AM) Total Marks: 1
Which one is not an object association?
Select correct option:
Simple association
Inheritance
Aggregation
Association
Come & Join Us at www.vustudents.net
Question # 9 of 10 (Start time: 01:18:50 AM) Total Marks: 1
Using encapsulation we can achieve
Select correct option:
Information hiding
Least interdependencies among modules
Implementation independence
All of given options
Question # 10 of 10 (Start time: 01:19:43 AM) Total Marks: 1
In constant member function the type of this pointer is:
Select correct option:
Constant pointer
Constant pointer to object
Constant pointer to class

Constant pointer to constant object
Question # 1 of 10
Which of the following is the way to extract common behavior and attributes from the
given classes and make a separate class of those common behaviors and attributes?
Generalization
Sub-typing
Specialization
Extension
Question # 2 of 10
The ability to derive a class from more than one class is called
Single inheritance
Encapsulation
Multiple inheritance
Polymorphism
Question # 3 of 10:
If MyClass has a destructor what is the destructor named?
MyClass
~MyClass
My~Class
MyClass~
Question # 4 of 10:
Class abc{ ----- }; Is a valid class declaration?
yes
no
Question # 5of 10:
Without using Deep copy constructor, A _____ problem can occur
System crash
Memory Leakage
Dangling pointer
Come & Join Us at www.vustudents.net
All of the given
Question # 6 of 10:
If only one behaviour of a derived class is incompatible with base class, then it is:
Generalization
Specialization
Extension
Inheritance
Question # 7 of 10:
Which of the following may not be an integral part of an object?

state
behavior
Protected data members
All of given
Question # 8 of 10:
Only tangible things can be chosen as an object.
True
False
Class is not a mechanism to create objects and define user data types.
1. true
2. false
Memory is allocated to non static members only, when:
1. Class is created
2. Object is defined
3. Object is initialized
4. Object is created
The sub-object's life is not dependent on the life of master class in _____.
1. Composition
2. Aggregation
3. Separation
4. non of the given
Unary operators and assignment operator are right associative.
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1. true
2. false
The >= operator can't be overloaded.
1. true
2. false
_____ is creating obj
1. Association
2. Composition
3. Aggregation
4. Inheritance
ects of one class inside another class.
If we are create array of objects through new operator, then
1. We can call overloaded constructor through new
2. We can't call overloaded constructor through new
3. We can call default constructor through new
4. None of the given
Object can be declared constant with the use of Constant keyword.

1. true
2. false

_____ Operator will take only one operand.

1. New
2. int
3. object
4. none of the given

Which of the following operator(s)

1. ++
2. *
3. %

take(s) one or no argument if overloaded?

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4. All of the given choices

this pointer does not pass implicitly to _____ functions.

1. Static Member
2. Non-Static Member
3. Instance Number
4. None of the given

Operator overloading is

1. making C++ operators work with objects.
2. giving C++ operators more than they can handle.
3. giving new meanings to existing Class members.
4. making new C++ operators

MC100202262 : Muhammad Naveed Anjum

Quiz Start Time: 09:57 AM

Time Left

Question # 1 of 10 (Start time: 09:57:41 AM) Total Marks: 1

Consider the code below, class class1{ public: void func1(); }; class class2 : private
class1 { }; Function func1 of class1 is
_____ in class2,

Select correct option:

public
protected
private

none of the given options
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left
Question # 2 of 10 (Start time: 09:59:01 AM) Total Marks: 1
User can make virtual table explicitly.
Select correct option:
True
False
Click here to Save Answer & Move to Next Question
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MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left
Question # 3 of 10 (Start time: 10:00:15 AM) Total Marks: 1
In private inheritance derived class pointer can be assigned to base class pointer in,
Select correct option:
Main function
In derived class member and friend functions
In base class member and friend functions
None of the given options
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left
Question # 4 of 10 (Start time: 10:01:15 AM) Total Marks: 1
In C++, we declare a function virtual by preceding the function header with keyword
“Inline”
Select correct option:
True

False
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left
Question # 5 of 10 (Start time: 10:02:45 AM) Total Marks: 1
Outside world can access only _____ members of a class using its object.
Select correct option:
Public
Private
Protected
No member is accessible.
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left
Question # 6 of 10 (Start time: 10:03:10 AM) Total Marks: 1
Friend Functions of a class are _____ members of that class.
Select correct option:
Public
Private
Protected
None of the given options.
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Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Time Left
Quiz Start Time: 09:57 AM
Question # 7 of 10 (Start time: 10:03:54 AM) Total Marks: 1
Consider the following two lines of code written for a class Student, 1. Student sobj1,sobj2; 2. sobj2 = sobj1; In line No.2 what
constructor of Student class will be called,
Select correct option:
Default constructor of Student class.
Copy constructor of student class
Both default and copy constructer of Student class
No constructor will be called.

Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left Class is not a mechanism to create objects and define user data types.
1. true
2. false
Memory is allocated to non static members only, when:
1. Class is created
2. Object is defined
3. Object is initialized
4. Object is created
The sub-object's life is not dependent on the life of master class in _____.
1. Composition
2. Aggregation
3. Separation
4. non of the given
Unary operators and assignment operator are right associative.
1. true
2. false
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The >= operator can't be overloaded.
1. true
2. false
_____ is creating objects of one class inside another class.
1. Association
2. Composition
3. Aggregation
4. Inheritance
If we are create array of objects through new operator, then
1. We can call overloaded constructor through new
2. We can't call overloaded constructor through new
3. We can call default constructor through new
4. None of the given
Object can be declared constant with the use of Constant keyword.
1. true
2. false
_____ Operator will take only one operand.
1. New
2. int
3. object

4. none of the given
Which of the following operator(s) take(s) one or no argument if overloaded?
1. ++
2. *
3. %
4. All of the given choices
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this pointer does not pass implicitly to _____ functions.
1. Static Member
2. Non-Static Member
3. Instance Number
4. None of the given
Operator overloading is
1. making C++ operators work with objects.
2. giving C++ operators more than they can handle.
3. giving new meanings to existing Class members.
4. making new C++ operators
BC080400849 : Nimra Qamar
Time Left 88
sec(s)
Quiz Start Time: 10:39 PM
Question # 1 of 8 (Start time: 10:39:47 PM) Total Marks: 1
Which of the following operator(s) take(s) one or no argument if overloaded?
Select correct option:
*
%
++
Come & Join Us at www.vustudents.net
All i i
Cli i
of the g ven cho ces
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar Time Left 89 sec(s)
Quiz Start Time: 10:39 PM
Question # 2 of 8 (Start time: 10:40:38 PM) Total Marks: 1
Object can be declared constant with the use of Constant keyword.
Select correct option:
l
Cli i
True

Fa se
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar
Time Left 89
sec(s)
Quiz Start Time: 10:39 PM
Question # 3 of 8 (Start time: 10:41:41 PM) Total Marks: 1
Static data members are called _____ variable
Select correct option:
Cl
j
ass
Ob ect
Come & Join Us at www.vustudents.net
i
Cli i
Structure
none of the g ven
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar Time Left 89 sec(s)
Quiz Start Time: 10:39 PM
Question # 4 of 8 (Start time: 10:42:35 PM) Total Marks: 1
Associatively can be change in operator overloading.
Select correct option:
l
Cli i
True
Fa se
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar 89 Time Left sec(s)
Quiz Start Time: 10:39 PM
Question # 5 of 8 (Start time: 10:43:56 PM) Total Marks: 1
_____ and _____ methods may not be declared abstract.
Select correct option:
Private,static
Come & Join Us at www.vustudents.net
i lic
i lic
i
Cli i

pr vate,pub
stat c,pub
none of the g ven
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar
Time Left 89
sec(s)
Quiz Start Time: 10:39 PM
Question # 6 of 8 (Start time: 10:45:17 PM) Total Marks: 1
Let Suppose a class Student with objects std1, std2, and std3. For the statement
std3 =
std1 - std2 to work correctly, if the overloaded - operator must
Select correct option:
i i
i l
Cli i
take two arguments.
None of the g ven cho ces
take s ng e argument
take three arguments
ck here to Save Answ er & Move to Next Quest on
Come & Join Us at www.vustudents.net
BC080400849 : Nimra Qamar Time Left 88 sec(s)
Quiz Start Time: 10:39 PM
Question # 7 of 8 (Start time: 10:46:48 PM) Total Marks: 1
To initialize an array of objects, only _____ will be called
Select correct option:
l
l
l j
Cli i
Defua t Constructor
Over oaded Constructor
Defau t Ob ect
None of the above
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar 87 Time Left sec(s)
Quiz Start Time: 10:39 PM
Question # 8 of 8 (Start time: 10:47:49 PM) Total Marks: 1
_____ provide the facility to access the data member.

Select correct option:
accesser function
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i i
inli i
i
Cli i
pr vate funct on
ne funct on
None of the g ven
ck here to Save Answ er & Move to Next Quest on
Question # 8 of 10 (Start time: 10:04:41 AM) Total Marks: 1
Consider the following two lines of code written for a class Student, 1. Student sobj1; 2.
Student sobj2 = sobj1; In line No.1
what constructor of student class will be called,
Select correct option:
Default constructor of Student class.
Copy constructor of student class
Both default and copy constructer of student class
None the given options
Click here to Save Answer & Move to Next Question
MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left
Question # 9 of 10 (Start time: 10:05:09 AM) Total Marks: 1
Consider the code below, class class1{ protected: void func1(); }; class class2 : protected
class1 { }; Function func1 of class1 is
_____ in class2,
Select correct option:
public
protected
private
none of the given options
Click here to Save Answer & Move to Next Question

MC100202262 : Muhammad Naveed Anjum
Quiz Start Time: 09:57 AM
Time Left
Come & Join Us at www.vustudents.net

Question # 10 of 10 (Start time: 10:05:50 AM) Total Marks: 1
Virtual functions allow you to
Select correct option:
create an array of type pointer-to-base class that can hold pointers to derived classes.
create functions that can never be accessed.
group objects of different classes so they can all be accessed by the same function code.
use the same function call to execute member functions of objects from different classes.
Click here to Save Answer & Move to Next Question
Question # 1 of 10
Information hiding can be achieved through_____.
1. Encapsulation, Inheritance
2. Encapsulation, Polymorphism
3. Encapsulation, Abstraction
4. Overloading
Question # 2 of 10 (Start time: 01:11:21 AM) Total Marks: 1
A good model is ..... related to a real life problem.
Select correct option:
1. Loosely
2. Openly
3. Closely
Question # 3 of 10 (Start time: 01:12:33 AM) Total Marks: 1
Which of the following features of OOP is used to derive a class from another?
Select correct option:
1. Encapsulation
2. Polymorphism
3. Data hiding
4. Inheritance
Question # 4 of 10 (Start time: 01:13:51 AM) Total Marks: 1
Which of the following is a weak relationship between two objects?
Select correct option:
1. Inheritance
2. Composition

3. Aggregation
4. None of given
Question # 5 of 10 (Start time: 01:14:56 AM) Total Marks: 1
Data items in a class must be private.
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Select correct option:
1. True
2. False
Question # 6 of 10 (Start time: 01:15:52 AM) Total Marks: 1
Which one is a class association
Select correct option:
1. Simple Association
2. Inheritance
3. Composition
4. Aggregation
Question # 7 of 10 (Start time: 01:16:55 AM) Total Marks: 1
Suppose there is an object of type Person, which of the following can be considered as
one of its attributes
Select correct option:
1. Name
2. Age
3. Work()
4. Both Name and Age
Question # 8 of 10 (Start time: 01:17:52 AM) Total Marks: 1
Which one is not an object association?
Select correct option:
1. Simple association
2. Inheritance
3. Aggregation
4. Association
Question # 9 of 10 (Start time: 01:18:50 AM) Total Marks: 1
Using encapsulation we can achieve
Select correct option:
1. Information hiding
2. Least interdependencies among modules
3. Implementation independence
Come & Join Us at www.vustudents.net
4. All of given options
Question # 10 of 10 (Start time: 01:19:43 AM) Total Marks: 1

In constant member function the type of this pointer is:
Select correct option:
1. Constant pointer
2. Constant pointer to object
3. Constant pointer to class
4. Constant pointer to constant object
Question # 1 of 10
Which of the following is the way to extract common behavior and attributes from the
given classes and make a separate class of those common behaviors and attributes?
1. Generalization
2. Sub-typing
3. Specialization
4. Extension
Question # 2 of 10
The ability to derive a class from more than one class is called
1. Single inheritance
2. Encapsulation
3. Multiple inheritance
4. Polymorphism
Question # 3 of 10:
If MyClass has a destructor what is the destructor named?
1. MyClass
2. ~MyClass
3. My~Class
4. MyClass~
Question # 4 of 10:
Class abc{ ----- }; Is a valid class declaration?
1. yes
2. no
Question # 5of 10:
Without using Deep copy constructor, A _____ problem can occur
1. System crash
2. Memory Leakage
3. Dangling pointer
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4. All of the given
Question # 6 of 10:
If only one behaviour of a derived class is incompatible with base class, then it is:
1. Generalization

2. Specialization
3. Extension
4. Inheritance
Question # 7 of 10:
Which of the following may not be an integral part of an object?
1. state
2. behavior
3. Protected data members
4. All of given
Question # 8 of 10:
Only tangible things can be chosen as an object.
1. True
2. False
BC080400849 : Nimra Qamar
Time Left 79
sec(s)
Quiz Start Time: 08:14 PM
Question # 1 of 10 (Start time: 08:14:14 PM) Total Marks: 1
When we create objects, then space is allocated to:
Select correct option:
i
ifi
Member funct ons
Access spec er
Come & Join Us at www.vustudents.net
i
Cli i
Data members
None of the g ven
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar
Time Left 87
sec(s)
Quiz Start Time: 08:14 PM
Question # 2 of 10 (Start time: 08:15:18 PM) Total Marks: 1
Constructor and destructor can be declared constant
Select correct option:
l
Cli i
True

Fa se
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar Time Left 88 sec(s)
Quiz Start Time: 08:14 PM
Question # 3 of 10 (Start time: 08:16:04 PM) Total Marks: 1
Information hiding can be achieved through_____.
Select correct option:
Encapsulation, Inheritance
Come & Join Us at www.vustudents.net
l i l i
l i i
l i l i
Cli i
Encapsu at on, Po ymorph sm
Encapsu at on, Abstract on
Encapsu at on, Over oad ng
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar
Time Left 88
sec(s)
Quiz Start Time: 08:14 PM
Question # 4 of 10 (Start time: 08:16:47 PM) Total Marks: 1
A real world object can be transformed into programming entity by defining its respective
Select correct option:
Cl
i
l
l i
Cli i
ass
Funct on
On y states
On y behav our
ck here to Save Answ er & Move to Next Quest on
Come & Join Us at www.vustudents.net
BC080400849 : Nimra Qamar
Time Left 88
sec(s)
Quiz Start Time: 08:14 PM

Question # 5 of 10 (Start time: 08:17:50 PM) Total Marks: 1
Which of the following is a weak relationship between two objects?
Select correct option:
i
iti
i
i
Cli i
Inher tance
Compos on
Aggregat on
None of g ven
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar
Time Left 88
sec(s)
Quiz Start Time: 08:14 PM
Question # 6 of 10 (Start time: 08:18:45 PM) Total Marks: 1
Which of the following is a necessary ingredient in an object model?
Select correct option:
Class
Come & Join Us at www.vustudents.net
j
i i
All i
Cli i
Ob ects
Assoc at on
of g ven
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar
Time Left 88
sec(s)
Quiz Start Time: 08:14 PM
Question # 7 of 10 (Start time: 08:19:48 PM) Total Marks: 1
If a class A inherits from class B, then class A is called.
Select correct option:
il l
i l
l

il i l
Cli i
Ch d c ass
Der ved c ass
Parent c ass
Ch d and der ved c ass
ck here to Save Answ er & Move to Next Quest on
Come & Join Us at www.vustudents.net
BC080400849 : Nimra Qamar
Time Left 88
sec(s)
Quiz Start Time: 08:14 PM
Question # 8 of 10 (Start time: 08:20:54 PM) Total Marks: 1
Which of the following is the way to extract common behaviour and attributes from the
given classes and make a separate class of those common behaviours and attributes?
Select correct option:
li i
i
iali i
i
Cli i
Genera zat on
Sub-typ ng
Spec zat on
Extens on
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar
Time Left 87
sec(s)
Quiz Start Time: 08:14 PM
Question # 9 of 10 (Start time: 08:21:27 PM) Total Marks: 1
The _____ keyword tells the compiler to substitute the code within the function definition for every instance of a function call
Select correct option:
virtual
Come & Join Us at www.vustudents.net
inli
i

i
Cli i
ne
nstance
none of the g ven
ck here to Save Answ er & Move to Next Quest on
BC080400849 : Nimra Qamar
Time Left 88
sec(s)
Quiz Start Time: 08:14 PM
Question # 10 of 10 (Start time: 08:22:16 PM) Total Marks: 1
The process of hiding unwanted details from users is called _____.
Select correct option:
i
l i
i
i
Cli i
Protect on
Encapsu at on
Argumentat on
Abstract on
ck here to Save Answ er & Move to Next Quest on
Come & Join Us at www.vustudents.net
BC090401541 : Azmat Ur Rehman
Quiz Start Time: 12:40 PM
Question # 1 of 10 (Start time: 12:40:20 PM) Total Marks: 1

Time Left
Which of the following is the way to extract common behaviour and attributes from the
given classes and make a separate class of those common behaviours and attributes?
li i
i
iali i
i
Cli i
Select correct option:
Genera zat on

Sub-typ ng
Spec zat on
Extens on
ck here to Save Answ er & Move to Next Quest on
BC090401541 : Azmat Ur Rehman
Quiz Start Time: 12:40 PM
Question # 2 of 10 (Start time: 12:41:52 PM) Total Marks: 1

Time Left
"A fan has wings". Which type of relation exists between fan and wings in this sentence?
i
Select correct option:
Aggregat on
Come & Join Us at www.vustudents.net
i i
li i
iti
Assoc at on
Genera zat on
Compos on
Click here to Save Answ er & Move to Next Question
BC090401541 : Azmat Ur Rehman
Time Left

Quiz Start Time: 12:40 PM
Question # 3 of 10 (Start time: 12:42:46 PM) Total Marks: 1
A good model is ..... related to a real life problem.
ly
ly
Cl
Cli i
Select correct option:
Loose
Open
osely
Not
ck here to Save Answ er & Move to Next Quest on
Come & Join Us at www.vustudents.net
BC090401541 : Azmat Ur Rehman

Time Left
Quiz Start Time: 12:40 PM
Question # 5 of 10 (Start time: 12:44:45 PM) Total Marks: 1
When we create objects, then space is allocated to:
i
ifi
i
Cli i

Select correct option:
Member funct ons
Access spec er
Data members
None of the g ven
ck here to Save Answ er & Move to Next Quest on
BC090401541 : Azmat Ur Rehman
Time Left
Quiz Start Time: 12:40 PM
Question # 6 of 10 (Start time: 12:45:21 PM) Total Marks: 1
There is only one form of copy constructor.
Select correct option:
True
Come & Join Us at www.vustudents.net
l
Cli i
Fa se
ck here to Save Answ er & Move to Next Quest on
BC090401541 : Azmat Ur Rehman
Time Left 22
sec(s)
Quiz Start Time: 12:40 PM
Question # 7 of 10 (Start time: 12:45:38 PM) Total Marks: 1
Which of the following features of OOP is used to deal with only relevant details?
Select correct option:
i
i idi
j
i

Cli i
Abstract on
Informat on h ng
Ob ect
Inher tance
ck here to Save Answ er & Move to Next Quest on
BC090401541 : Azmat Ur Rehman
Time Left 59
sec(s)
Quiz Start Time: 12:40 PM
Question # 8 of 10 (Start time: 12:48:26 PM) Total Marks: 1
Suppose there is an object of type Person, which of the following can be considered as
one of its attributes
Select correct option:
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()
Age
Work
Both Name and Age
Click here to Save Answ er & Move to Next Question
BC090401541 : Azmat Ur Rehman
Time Left

Quiz Start Time: 12:40 PM
Question # 9 of 10 (Start time: 12:56:04 PM) Total Marks: 1
Through interface we access object_____.
i
i
Cli i
Select correct option:
States
Data members
Behav our
None of the g ven
ck here to Save Answ er & Move to Next Quest on
Come & Join Us at www.vustudents.net
BC090401541 : Azmat Ur Rehman

Time Left

Quiz Start Time: 12:40 PM
Question # 10 of 10 (Start time: 12:57:00 PM) Total Marks: 1
If a class A inherits from class B, then class A is called.
il l
i l
l
il i l
Cli i

Select correct option:
Ch d c ass
Der ved c ass
Parent c ass
Ch d and der ved c ass
ck here to Save Answ er & Move to Next Quest on
MC090405816 : Sohail Aslam
Time Left
Quiz Start Time: 12:59 PM
Question # 1 of 10 (Start time: 12:59:51 PM) Total Marks: 1
If some of objects exhibit identical characteristics, then they belong to:
Di l
Select correct option:
fferent c asses
Come & Join Us at www.vustudents.net
lti l
l
i
Cli i
Mu ple c asses
Same c ass
None of the g ven
ck here to Save Answ er & Move to Next Quest on
MC090405816 : Sohail Aslam Time Left 82 sec(s)
Quiz Start Time: 12:59 PM
Question # 2 of 10 (Start time: 01:00:41 PM) Total Marks: 1
_____ is automatically called when the object is created.
Select correct option:
i
j

i
Cli i
member funct on
ob ect
constructor
None of the g ven
ck here to Save Answ er & Move to Next Quest on
Come & Join Us at www.vustudents.net
MC090405816 : Sohail Aslam

Time Left
Quiz Start Time: 12:59 PM
Question # 3 of 10 (Start time: 01:03:09 PM) Total Marks: 1
Which is true about sub-typing in case of inheritance?
i l i i i i
i i
i l i i i i
i l i i i i
i
Cli i

Select correct option:
In sub-typ ng a new c ass s der ved fromex st ng w
extended behav or of ts parent.
In sub-typ ng a new c ass s der ved fromex st ng w
In sub-typ ng a c ass s der ved fromex st ng one wh
None of the g ven.
ck here to Save Answ er & Move to Next Quest on
MC090405816 : Sohail Aslam
Time Left
Quiz Start Time: 12:59 PM
Question # 4 of 10 (Start time: 01:04:28 PM) Total Marks: 1
If a class involves dynamic memory allocation, then:
l ll is i l
Select correct option:
Defau t copy constructor, sha ow copy mp ement
Come & Join Us at www.vustudents.net
i ll is i l
l is i l

i is i l
User def ned copy constructor, sha ow copy mp
Defau t copy constructor, deep copy mp emented
User def ned copy constructor, deep copy mp em
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Time Left

Quiz Start Time: 12:59 PM
Question # 5 of 10 (Start time: 01:05:37 PM) Total Marks: 1
Which one is a class association
Si l i i
i
iti
i
Cli i
Select correct option:
mp e Assoc at on
Inher tance
Compos on
Aggregat on
ck here to Save Answ er & Move to Next Quest on
Come & Join Us at www.vustudents.net
MC090405816 : Sohail Aslam

Time Left
Quiz Start Time: 12:59 PM
Question # 6 of 10 (Start time: 01:06:50 PM) Total Marks: 1
Data items in a class must be private.
l
Cli i

Select correct option:
True
Fa se
ck here to Save Answ er & Move to Next Quest on
MC090405816 : Sohail Aslam
Time Left
Quiz Start Time: 12:59 PM

Question # 7 of 10 (Start time: 01:07:16 PM) Total Marks: 1
Three main characteristics of "Object Oriented programming" are,
l i i i l i
l i l i idi
l i i i i i i
Select correct option:
Encapsu at on,dynamc b nding,po ymarhp shm
po ymorph sm, over oad ng, overr ng
encapsu at on, nher tance, dynamc b nd ng
Come & Join Us at www.vustudents.net
encapsulation, inheritance, polymorphism
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Time Left

Quiz Start Time: 12:59 PM
Question # 8 of 10 (Start time: 01:08:14 PM) Total Marks: 1
Which of the following is the way to extract common behaviour and attributes from the
given classes and make a separate class of those common behaviours and attributes?
li i
i
iali i
i
Cli i
Select correct option:
Genera zat on
Sub-typ ng
Spec zat on
Extens on
ck here to Save Answ er & Move to Next Quest on
MC090405816 : Sohail Aslam
Time Left 69
sec(s)
Quiz Start Time: 12:59 PM
Question # 9 of 10 (Start time: 01:09:04 PM) Total Marks: 1
The sentence “Object Oriented Programming book in bookshelf” is an example of:
Select correct option:
Come & Join Us at www.vustudents.net

i i
ltipl i i
i
Assoc at on
Mu e assoc at on
Aggregat on
Click here to Save Answ er & Move to Next Question
MC090405816 : Sohail Aslam
Time Left

Quiz Start Time: 12:59 PM
Question # 10 of 10 (Start time: 01:16:05 PM) Total Marks: 1
Data members are the attributes of objects.
l
Cli i

Select correct option:
True
Fa se
ck here to Save Answ er & Move to Next Quest on
MC090406317 : Aamer Abbas
Time Left
Quiz Start Time: 01:18 PM
Question # 1 of 10 (Start time: 01:18:48 PM) Total Marks: 1
Constructor have same name as the class name.
Select correct option:
True
Come & Join Us at www.vustudents.net
False
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Time Left

Quiz Start Time: 01:18 PM
Question # 2 of 10 (Start time: 01:19:03 PM) Total Marks: 1
Which of the following features of OOP is used to derive a class from another?
l i
l i
idi

i
Cli i
Select correct option:
Encapsu at on
Po ymorph sm
Data h ng
Inher tance
ck here to Save Answ er & Move to Next Quest on
MC090406317 : Aamer Abbas 81 Time Left sec(s)
Quiz Start Time: 01:18 PM
Question # 3 of 10 (Start time: 01:19:29 PM) Total Marks: 1
Class abc{ ----- }; Is a valid class declaration?
Select correct option:
Yes
Come & Join Us at www.vustudents.net
No
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Time Left

Quiz Start Time: 01:18 PM
Question # 6 of 10 (Start time: 01:22:47 PM) Total Marks: 1
Which of the following is a weak relationship between two objects?
i
iti
i
i
Cli i

Select correct option:
Inher tance
Compos on
Aggregat on
None of g ven
ck here to Save Answ er & Move to Next Quest on
MC090406317 : Aamer Abbas
Time Left
Quiz Start Time: 01:18 PM
Question # 4 of 10 (Start time: 01:20:47 PM) Total Marks: 1

Without using Deep copy constructor, A _____ problem can occur
Select correct option:
Systemcrash
Come & Join Us at www.vustudents.net
li i
All i
Memory Leakage
Dang ng po nter
of the g ven
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Time Left

Quiz Start Time: 01:18 PM
Question # 5 of 10 (Start time: 01:21:20 PM) Total Marks: 1
An abstract class shows _____ behaviour.
idi
ific
l
i
Cli i
Select correct option:
Overr ng
Spec
Genera
None of the g ven
ck here to Save Answ er & Move to Next Quest on
Come & Join Us at www.vustudents.net
MC090406317 : Aamer Abbas

Time Left
Quiz Start Time: 01:18 PM
Question # 7 of 10 (Start time: 01:22:59 PM) Total Marks: 1
Which of the following are benefits of encapsulation?
All i l i l j i
i ll i l
i l i l i
i ll i l
Cli i

Select correct option:
var ab es can be man pu ated as Ob ects nstead
by makng a var ab es protected they are protected
The mp ementat on of a c ass can be changed w tho
Makng a methods protected prevents acc denta co
ck here to Save Answ er & Move to Next Quest on
MC090406317 : Aamer Abbas
Time Left
Quiz Start Time: 01:18 PM
Question # 8 of 10 (Start time: 01:24:19 PM) Total Marks: 1
If a class A inherits from class B, then class A is called.
il l
Select correct option:
Ch d c ass
Come & Join Us at www.vustudents.net
i l
l
il i l
Der ved c ass
Parent c ass
Ch d and der ved c ass
Click here to Save Answ er & Move to Next Question
MC090406317 : Aamer Abbas
Time Left

Quiz Start Time: 01:18 PM
Question # 9 of 10 (Start time: 01:24:44 PM) Total Marks: 1
Consider the statement “room has chair” Which of the following type of association
exists between room and chair?
i
iti
i i ion
i
Cli i
Select correct option:
Inher tance
Compos on
There s no assoc at

Aggregat on
ck here to Save Answ er & Move to Next Quest on
Come & Join Us at www.vustudents.net
MC090406317 : Aamer Abbas
Quiz Start Time: 01:18 PM
Question # 10 of 10 (Start time: 01:25:05 PM) Total Marks: 1

Time Left
The dot operator (or class member access operator) connects the following two entities
(reading from left to right):
l l j
l j l
l l
l j l
Cli i
Select correct option:
A c ass member and a c ass ob ect
A c ass ob ect and a c ass
A c ass and a member of that c ass
A c ass ob ect and a member of that c ass
ck here to Save Answ er & Move to Next Quest on
Come & Join Us at www.vustudents.net

FINALTERM EXAMINATION
CS304- Object Oriented Programming (Session - 4)
Question No: 1 (Marks: 1) - Please choose one
Classes like TwoDimensionalShape and ThreeDimensionalShape would normally be
concrete, while classes like Sphere and Cube would normally be abstract.
_ True
_ False
Question No: 2 (Marks: 1) - Please choose one
Virtual functions allow you to
_ create an array of type pointer-to-base class that can hold pointers to derived classes.
_ create functions that can never be accessed.

_ group objects of different classes so they can all be accessed by the same function
code.
_ use the same function call to execute member functions of objects from different classes
Question No: 3 (Marks: 1) - Please choose one
A pointer to a base class can point to objects of a derived class.
_ True
_ False
Question No: 4 (Marks: 1) - Please choose one
A copy constructor is invoked when
_ a function do not returns by value.
_ an argument is passed by value.

_ a function returns by reference.
_ an argument is passed by reference.
Question No: 5 (Marks: 1) - Please choose one
Each try block can have _____ no. of catch blocks.
_ 1
_ 2
_ 3
_ As many as necessary.
Question No: 6 (Marks: 1) - Please choose one
Non Template Friend functions of a class are friends of _____instance/s of that class.
_ All
_ One specific
_ All instances of one date type
_ None of the given options
Question No: 7 (Marks: 1) - Please choose one
Template functions use _____ than ordinary functions.
_ Greater Memory
_ Lesser Memory
_ Equal Memory
_ None of the given options
Question No: 8 (Marks: 1) - Please choose one
The find() algorithm
_ finds matching sequences of elements in two containers.
_ finds a container that matches a specified container.

_ takes iterators as its first two arguments.
_ takes container elements as its first two arguments.
Question No: 9 (Marks: 1) - Please choose one
The copy() algorithm returns an iterator to

_ the last element copied from.
_ the last element copied to.
_ the element one past the last element copied from.
_ the element one past the last element copied to.
Question No: 10 (Marks: 1) - Please choose one
If you define a vector v with the default constructor, and define another vector w with a
one-argument constructor to a size of 11, and insert 3 elements into each of these vectors
with push_back(), then the size() member function will return _____ for v and _____ for
w.
_ 11 for v and 3 for w.
_ 0 for v and 0 for w.
_ 0 for v and 3 for w.
_ 3 for v and 11 for w.
Question No: 11 (Marks: 1) - Please choose one
Which is not the Advantage of inheritance?
_ providing class growth through natural selection.
_ facilitating class libraries.
_ avoiding the rewriting of code.
_ providing a useful conceptual framework.
Question No: 12 (Marks: 1) - Please choose one

```
class DocElement
{
public:
virtual void Print() { cout << "Generic element"; }
};
class Heading : public DocElement
{
public:
void Print() { cout << "Heading element"; }
};
```

```
class Paragraph : public DocElement
{
public:
void Print() { cout << "Paragraph element"; }
};
void main()
{
DocElement * p = new Paragraph();
p->Print();
}
```

When you run this program, it will print out a single line to the console output. What will be in that line?
Select one correct answer from the following list:
_ Generic element
_ Heading element
_ Paragraph element
_ Nothing will be printed.

Question No: 13 (Marks: 1) - Please choose one
Which type of inheritance is being represented by the following statement,
class X : public A, public B { ... ... };
_ Single inheritance
_ Multiple inheritance
_ Double inheritance
_ None of the given options

Question No: 14 (Marks: 1) - Please choose one
When we write a class template the first line must be:

_ template < class class_name>
_ template < class data_type>
_ template < class T >
Here T can be replaced with any name but it is preferable.
_ class class-name()
class template<class_name>

Question No: 15 (Marks: 1) - Please choose one
Function templates should be used where code and behavior must be identical.
_ True
_ False

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

Which of the following is/are advantage[s] of generic programming?
_ Reusability
_ Writability
_ Maintainability
_ All of given
Question No: 17 (Marks: 1) - Please choose one
The specialization pattern <T*> after the name says that this specialization is to be used
for every,
_ data type
_ meta type
_ virtual type

_ pointer type
Question No: 18 (Marks: 1) - Please choose one
A range is often supplied to an algorithm by two _____ values.
_ italic
_ iteration
_ iterator
_ None of given
Question No: 19 (Marks: 1) - Please choose one
Which of the following is an integral part of an object?
_ State
_ Behavior
_ Unique identity
_ All of the given
Question No: 20 (Marks: 1) - Please choose one
Consider the following statement
Cupboard has books
What is the relationship between Cupboard and books?
_ Composition
_ Aggregation
_ Inheritance
_ None of the given options
Question No: 21 (Marks: 1) - Please choose one
Which sentence clearly defines an object?

_ one instance of a class.

_ another word for a class.
_ a class with static methods.
_ a method that accesses class attributes.
Question No: 22 (Marks: 1) - Please choose one
_____, which means if A declares B as its friend it does NOT mean that A can
access private data of B. It only means that B can access all data of A.
_ Friendship is one way only
_ Friendship is two way only
_ NO Friendship between classes
_ Any kind of friendship
Question No: 23 (Marks: 1) - Please choose one
The statement objA=objB; will cause a compiler error if the objects are of different classes.
_ True
_ False
Question No: 24 (Marks: 1) - Please choose one
Consider the call given below of an overloaded operator "+",
Rational_number_1 + Rational_number_2
Where Rational_number_1 and Rational_number_2 are the two objects of Rational_number class (a user defined class). Identify which of the above two objects
will be passed as an argument to the overloaded operator function?

_ Rational_number_1
_ Rational_number_2
_ Both Rational_number_1 & Rational_number_2
_ any of the two objects, randomly
Question No: 25 (Marks: 1) - Please choose one
If a class D has been derived using protected inheritance from class B (If B is a protected
base and D is derived class) then public and protected members of B -------- accessed by
member functions and friends of class D and classes derived from D
_ can be
_ cannot be
_ does restirct to be
_ not given
Question No: 26 (Marks: 1) - Please choose one

In Private ---------- only member functions and friend classes or functions of a derived class can convert pointer or reference of derived object to that of parent object
_ specialization
_ inheritance
_ abstraction
_ composition
Question No: 27 (Marks: 2)
Give two uses of a destructor.
Question No: 28 (Marks: 2)
Describe the way to declare a template class as a friend class of any other class.
Question No: 29 (Marks: 2)
Give the name of two basic types of containers collectively called First class containers?
Question No: 30 (Marks: 2)
State any conflict that may rise due to multiple inheritance?
Question No: 31 (Marks: 3)
What will be the output after executing the following code?

```
class c1{
public:
virtual void function(){
cout<<"I am in c1"<<endl;

}
};
class c2: public c1{
public:
void function(){
cout<<"I am in c2"<<endl;
}
};
class c3: public c1 {
public:
void function(){
cout<<"I am in c3"<<endl;
}
};
int main(){
c1 * test1 = new c2();
c1 * test2 = new c3();
```

```
test1->function();
test2->function();
system("PAUSE");
return 0;
}
```

Question No: 32 (Marks: 3)

If we declare a function as friend of a template class will it be a friend for a particular
data type or for all data types of that class.

Question No: 33 (Marks: 3)

Tell the logical error/s in the code given below with reference to resource management;
also describe how we can correct that error/s.

```
class Test{
public:
int function1(){
try{


FILE *fileptr = fopen("filename.txt","w");
throw exception();
fclose(fileptr);
return 0;
}
catch(Exception e){
...
}
}
};
```

Question No: 34 (Marks: 5)

What is the output produced by the following program?

```
#include<iostream.h>
void sample_function(double test) throw (int);
int main()
{
try
{
cout <<"Trying.\n";
sample_function(98.6);
cout << "Trying after call.\n";
```

```
}
catch(int)
{
cout << “Catching.\n”;
}
cout << “End program.\n”;
return 0;
}
void sample_function(double test) throw (int)
{
cout << “Starting sample_function.\n”;
if(test < 100)
throw 42;
}
```

Question No: 35 (Marks: 5)

The code given below has one template function as a friend of a template class,

1. You have to identify any error/s in this code and describe the reason for error/s.
2. Give the correct code after removing the error/s.

```
template<typename U>
void Test(U);
template< class T >
class B {
int data;
public:
friend void Test<>( T );
};
template<typename U>
void Test(U u){
B < int> b1;
b1.data = 7;
}
int main(int argc, char *argv[])
{
char i;
Test(i);
system("PAUSE");
return 0;
}
```

Question No: 36 (Marks: 5)
Consider the following class,

```
class Base
{
char * p;
public:
Base() { p = new char[10]; }
~Base() { delete [] p; }
};
class Derived : public Base
{
char * q;
public:
Derived() { q = new char[20]; }
~Derived() { delete [] q; }
};
void foo()
{
Base* p = new Derived();


delete p;
}
```

With this program, every time function foo is called, some memory will leak. Explain why memory will leak. Also, explain how to fix this problem.
FINALTERM EXAMINATION
Fall 2009
CS304- Object Oriented Programming (Session - 1)
Time: 120 min
Marks: 75
Question No: 1 (Marks: 1) - Please choose one
Which one of the following terms must relate to polymorphism?
_ Static allocation
_ Static typing
_ Dynamic binding
_ Dynamic allocation
Question No: 2 (Marks: 1) - Please choose one
Multiple inheritance can be of type
_ Public
_ Private

_ Protected
_ All of the given
Question No: 3 (Marks: 1) - Please choose one
When a subclass specifies an alternative definition for an attribute or method of its superclass, it is _____ the definition in the superclass.
_ overload
_ overriding
_ copy riding
_ none of given
Question No: 4 (Marks: 1) - Please choose one
Like template functions, a class template may not handle all the types successfully.
_ True
_ False
Question No: 5 (Marks: 1) - Please choose one
It is sometimes useful to specify a class from which no objects will ever be created.
_ True
_ False
Question No: 6 (Marks: 1) - Please choose one
Assume a class Derv that is privately derived from class Base. An object of class Derv
located in main() can access
_ public members of Derv.
_ protected members of Derv.

_ private members of Derv.
_ protected members of Base.
Question No: 7 (Marks: 1) - Please choose one
A pointer to a base class can point to objects of a derived class.
_ True
_ False
Question No: 8 (Marks: 1) - Please choose one
A copy constructor is invoked when
_ a function do not returns by value.
_ an argument is passed by value.
_ a function returns by reference.
_ an argument is passed by reference.
Question No: 9 (Marks: 1) - Please choose one

A function call is resolved at run-time in_____
_ non-virtual member function.
_ virtual member function.
_ Both non-virtual member and virtual member function.
_ None of given
Question No: 10 (Marks: 1) - Please choose one
When the base class and the derived class have a member function with the same name,
you must be more specific which function you want to call (using _____).

_ scope resolution operator
_ dot operator
_ null operator
_ Operator overloading
Question No: 11 (Marks: 1) - Please choose one
Each try block can have _____ no. of catch blocks.
_ 1
_ 2
_ 3
_ As many as necessary.
Question No: 12 (Marks: 1) - Please choose one
Two important STL associative containers are _____ and _____.
_ set,map
_ sequence,mapping
_ setmet,multipule
_ sit,mat
Question No: 13 (Marks: 1) - Please choose one
The mechanism of selecting function at run time according to the nature of calling object
is called,
_ late binding
_ static binding
_ virtual binding
_ None of the given options
Question No: 14 (Marks: 1) - Please choose one
An abstract class is useful when,

_ We do not derive any class from it.

_ There are multiple paths from one derived class to another.
_ We do not want to instantiate its object.
_ You want to defer the declaration of the class.
Question No: 15 (Marks: 1) - Please choose one
Which of the following is incorrect line regarding function template?
_ template<class T>
_ template <typename U>
_ Class<template T>
_ template < class T, class U>
Question No: 16 (Marks: 1) - Please choose one
Which of the following is/are advantage[s] of generic programming?
_ Reusability
_ Writability
_ Maintainability
_ All of given
Question No: 17 (Marks: 1) - Please choose one
By default the vector data items are initialized to ____
_ 0
_ 0.0
_ 1
_ null

Question No: 18 (Marks: 1) - Please choose one
Which one of the following functions returns the total number of elements in a vector.
_ length();
_ size();
_ ele();
_ veclen();
Question No: 19 (Marks: 1) - Please choose one
Suppose you create an uninitialized vector as follows:
vector<int> evec;
After adding the statment,
evec.push_back(21);
what will happen?
_ The following statement will add an element to the start (the back) of evec and will initialize it with the value 21.
_ The following statement will add an element to the center of evec and will reinitialize it with the value 21.

_ The following statement will delete an element to the end (the back) of evec and will reinitialize it with the value 21.
_ The following statement will add an element to the end (the back) of evec and initialize it with the value 21.
Question No: 20 (Marks: 1) - Please choose one
An STL container can not be used to,
_ hold objects of class employee.
_ store elements in a way that makes them quickly accessible.
_ compile c++ programs.
_ organize the way objects are stored in memory
Question No: 21 (Marks: 1) - Please choose one
Algorithms can only be implemented using STL containers.
_ True
_ False
Question No: 22 (Marks: 1) - Please choose one
The main function of scope resolution operator (::) is,

_ To define an object
_ To define a data member
_ To link the definition of an identifier to its declaration
_ To make a class private
Question No: 23 (Marks: 1) - Please choose one
When is a constructor called?
_ Each time the constructor identifier is used in a program statement
_ During the instantiation of a new object
_ During the construction of a new class
_ At the beginning of any program execution
Question No: 24 (Marks: 1) - Please choose one
Consider the code below,

```
class Fred {
public:
Fred();
...
};
int main()
{
Fred a[10];
Fred* p = new Fred[10];
...
```

}
Select the best option,
_ Fred a[10]; calls the default constructor 09 times
Fred* p = new Fred[10]; calls the default constructor 10 times
_ Produce an error
_ Fred a[10]; calls the default constructor 11 times
Fred* p = new Fred[10]; calls the default constructor 11 times
_ Fred a[10]; calls the default constructor 10 times
Fred* p = new Fred[10]; calls the default constructor 10 times

Question No: 25 (Marks: 1) - Please choose one
Associativity can be changed in operator overloading.
_ True
_ False
Question No: 26 (Marks: 1) - Please choose one
A normal C++ operator that acts in special ways on newly defined data types is said to
be
_ glorified.
_ encapsulated.
_ classified.
_ overloaded.
Question No: 27 (Marks: 1) - Please choose one
Which operator can not be overloaded?
_ The relation operator (>=)
_ Assignment operator (=)
_ Script operator ([])
_ Conditional operator (? :)
Question No: 28 (Marks: 1) - Please choose one
Suppose obj1 and obj2 are two objects of a user defined class A. An + operator is overloaded to add obj1 and obj2 using the function call obj1+obj2.
Identify the correct function prototype against the given call?

_ A operator + (A &obj);
_ int + operator();
_ int operator (plus) ();
_ A operator(A &obj3);
Question No: 29 (Marks: 1) - Please choose one

Default constructor is such constructor which either has no ---------or if it has some parameters these have -------- values
_ Parameter, temporary
_ Null, Parameter
_ Parameter, default
_ non of the given
Question No: 30 (Marks: 1) - Please choose one
Public methods of base class can --------- be accessed in its derived class
_ directly
_ inderectly
_ simultaniously
_ non of the given
Question No: 31 (Marks: 1)
Is Deque a Birectional Container?
Yes, deque behaves like queue (line) such that we can add elements on both sides of it.
Question No: 32 (Marks: 1)
What is meant by Generic Programming?
Generic programming refers to programs containing generic abstractions general code
that is same in logic for all data types like printArray function), then we instantiate that
generic program abstraction (function, class) for a particular data type, such abstractions
can work with many different types of data.
Question No: 33 (Marks: 2)
Sort the following data in the order in which compiler searches a function?
Complete Specialization, Generic Template, Partial Specialization, Ordinary Function.
Specializations of this function template, instantiations with specific types, can be called
just like an ordinary function:
cout << max(3, 7); // outputs 7

The compiler examines the arguments used to call max and determines that this is a call
to max(int, int). It then instantiates a version of the function where the parameterizing
type T is int, making the equivalent of the following function:

```
int max(int x, int y)
{
return x < y ? y : x;
}
```

the C++ Standard Template Library contains the function template max(x, y) which
creates functions that return either x or y, whichever is larger. max() could be defined like
this:

```
template <typename T>
T max(T x, T y)
{
return x < y ? y : x;
}
```

Question No: 34 (Marks: 2)

State any conflict that may rise due to multiple inheritance?

The conflict may arise is the diamond problem, which our author likes to call the "diamond of doom". This occurs when a class multiply inherits from two classes which
each inherit from a single base class. This leads to a diamond shaped inheritance pattern.

For example, consider the following set of classes:

```
classPoweredDevice
{
};
classScanner: publicPoweredDevice
{
};
classPrinter: publicPoweredDevice
{
};
classCopier: publicScanner, publicPrinter
{
};
```

Scanners and printers are both powered devices, so they derived from PoweredDevice.

However, a copy machine incorporates the functionality of both Scanners and Printers.

Ambiguity also cause problem.

Question No: 35 (Marks: 3)

Describe three properties necessary for a container to implement Generic Algorithms.

If you declare a container as holding pointers, you are responsible for managing the
memory for the objects pointed to. The container classes will not automatically free
memory for these objects when an item is erased from the container.
Container classes are expected to implement methods to do the following:
• create a new empty container (constructor),
• report the number of objects it stores (size),
• delete all the objects in the container (clear),
• insert new objects into the container,
• remove objects from it,
• provide access to the stored objects.

Question No: 36 (Marks: 3)

Write three important features of virtual functions.

With virtual functions, derived classes can provide new implementations of functions
from their base classes. When someone calls a virtual function of an object of the derived
class, this new implementation is called, even if the caller uses a pointer to the base class,
and doesn't even know about the particular derived class.
The virtual function is an option, and the language defaults to non virtual, which is the
fastest configuration.
The derived class can completely "override" the implementation or "augment" it (by
explicitly calling the base class implementation in addition to the new things it does).

Question No: 37 (Marks: 3)

Consider the code below,

```
#include <iostream>
#include <stdlib.h>
using namespace std;
class Shape{
```

```
public:
void Draw(){cout<<"shape"<<endl;}
};
class Line : public Shape{
public:
void Draw(){cout<<"Line"<<endl;}
};
class Circle : public Shape{
public:
void Draw(){cout<<"Circle"<<endl;}
};
int main(int argc, char *argv[])
{
Shape * ptr1 = new Shape();
Shape * ptr2 = new Line();
Shape * ptr3 = new Circle();
ptr1->Draw();
ptr2->Draw();
ptr3->Draw();
system("PAUSE");
return 0;
}
```

This code shows output,
Shape
Shape
Shape
Give the reason for this output
Suppose we want to show the output,
Shape
Line
Circle

How we can change the code to do that?

```
class shape { public:
void draw();
};
class circle : public shape { };
int main(int argc, char **argv){
circle my_circle;
```

```
my_circle.draw();
}
```

While this has all the usual advantages, e.g., code reuse, the real power of polymorphism comes into play when draw is declared to be virtual or pure virtual, as follows:

```
class shape{ public:
virtual void draw()=0;
};
class circle : public shape { public:
void draw();
}
```

Here, circle has declared its own draw function, which can define behavior appropriate for a circle. Similarly, we could define other classes derived from shape, which provide their own versions of draw. Now, because all the classes implement the shape interface, we can create collections of objects that can provide different behavior invoked in a consistent manner (calling the draw member function). An example of this is shown here.

```
shape *shape_list[3]; // the array that will
// pointer to our shape objects
shape[0] = new shape; // three types of shapes
shape[1] = new line; // we have defined
shape[2] = new circle;
for(int i = 0; i < 3; i++){
shape_list[i].draw();
}
```

When we invoke the draw function for each object on the list, we do not need to know anything about each object; C++ handles the details of invoking the correct version of draw. This is a very powerful technique, allowing us to provide extensibility in our designs. Now we can add new classes derived from shape to provide whatever behavior we desire. The key here is that we have separated the interface (the prototype for shape) from the implementation.

Question No: 38 (Marks: 5)

There are some errors in the code given below, you have to

1. Indicate the line no. with error/s
2. Give the reason for error/s
3. Correct the error/s.

1. #include <iostream> this will be #include <iostream.h>
2. #include <stdlib.h>
3. using namespace std;
4. template <typename T>
5. class MyClass{
6. public:
7. MyClass(){
8. cout<<"This is class1"<<endl;
9. }
10. };
11. template <typename T>
12. class MyClass<int*>{
13. public:
14. MyClass(){
15. cout<<"This is class2"<<endl;
16. }
17. };
18. int main(int argc, char *argv[])
19. {
20. MyClass<int> c1;
21. MyClass<int*> c2;
22. system("PAUSE");
23. return 0;
24. }

Question No: 39 (Marks: 5)

Given are two classes A and B. class B is inherited from class A. Write a code snippet(
for main function) that polymorphically call the method of class B. Also what changes do you suggest in the given code segment that are required to call the class B
method polymorphically.

```
class A
{
public:
void method() { cout<<"A's method \n"; }
```

```
};
class B : public A
{
public:
void method() { cout<<"B's method\n"; }


};
```

Ans:

```
public class Test
{
public class A {}
public class B extends A {}
private void test(A a)
{
System.out.println("test(A)");
}
private void test(B b)
{
System.out.println("test(B)");
}
public static void main(String[] args)
{
Test t = new Test();
A a = t.new A();
A b = t.new B();
t.test(a);
t.test(b);
}
}
```

Question No: 40 (Marks: 10)

Create built-in STL (Standard Template Library) vector class object for strings and add in it some words by taking input from user, then apply the sort() algorithm to array of words stored in this vector class object.

Hint:Use push_back() to add the words in vector class object, and the [] operator and size() to display these sorted words.

The STL is the containers, iterators and algorithms component of the proposed C++
Standard Library [ANSI95]. It represents a novel application of principles which have

their roots in styles of programming other than Object-orientation.

```
void listWords(istream& in, ostream& out)


{
string s;
while (!in.eof() && in >> s) {
add s to some container
}
sort the strings in the container
remove the duplicates
for (each string t in container) {
out << t;
}
}
```

For now, assume that a word is defined as a whitespace-separated string as delivered by the stream extraction operator. Later on we will consider ways of refining this definition.

Given the way this problem is expressed, we can implement this program directly, if naïvely. The STL container class vector will suffice to hold the words: applying the algorithms sort and unique provides the required result.

```
void listWords(istream& in, ostream& out)
{
string s;
vector<string> v;
while (!in.eof() && in >> s)
v.push_back(s); // (1)
sort(v.begin(), v.end());
vector<string>::iterator e
= unique(v.begin(), v.end()); // (2)
for (vector<string>::iterator b = v.begin();
b != e;
b++) {
out << *b << endl;
}
}
```

At (1) the vector member function push_back() is used to add to the end of the vector.
This can also be done using the insert member, which takes as a parameter an iterator
identifying the position in the vector at which to place the added element:
v.insert(v.end(), s);
This allows us to add at any position in the vector. Be aware, though, that adding anywhere other than the end implies the overhead of physically shifting all elements from
the insertion point to the end to make room for the new value. For this reason, and given
the choices made in this example, attempts to optimise this code by maintaining the

vector in sorted order are unwise. Replace vector with list and this becomes possible -
although in both cases a search over the container will be necessary to determine the
correct position of insertion.
The unique algorithm has the surprising property of not changing the length of the container to which it is applied (it can hardly do this, as it has access not to the underlying container, but only to the pair of iterators it is passed). Instead, it guarantees
that duplicates are removed by moving unique entries towards the beginning of the container, returning an iterator indicating the new end of the container. This can be used
directly (as here, at (2)), conversely it can be passed to the erase member with the old end
iterator, to truncate the container.

Question No: 41 (Marks: 10)

Q. Write a detailed note on Exceptions in Destructors with the help of a coding example.

Exceptions in Destructors:
An object is presumably created to do something. Some of the changes made by an object
should persist after an object dies (is destructed) and some changes should not. Take an
object implementing a SQL query. If a database field is updated via the SQL object then

that change should persist after the SQL objects dies. To do its work the SQL object
probably created a database connection and allocated a bunch of memory. When the SQL
object dies we want to close the database connection and deallocate the memory, otherwise if a lot of SQL objects are created we will run out of database connections
and/or memory.
The logic might look like:

```
Sql::~Sql()
{
delete connection;
delete buffer;
}
```

Let's say an exception is thrown while deleting the database connection. Will the buffer
be deleted? No. Exceptions are basically non-local gotos with stack cleanup. The code for
deleting the buffer will never be executed creating a gaping resource leak.
Special care must be taken to catch exceptions which may occur during object destruction. Special care must also be taken to fully destruct an object when it throws an
exception.
Example code for exception ……

```
#include<iostream.h>
#include<conio.c>
class Exception {
private:


char message[30] ;
public:
Exception() {strcpy(message,"There is not enough stock");}
char * get_message() { return message; }
};
class Item {
private:
int stock ;
int required_quantity;
public:
```

```
Item(int stk, int qty)
{
stock = stk;
required_quantity = qty;
}
int get_stock()
{
return stock;
}
int get_required_quantity()
{
return required_quantity;
}
void order()
{
if (get_stock()< get_required_quantity())
throw Exception();
else
cout<<"The required quantity of item is available in the stock";
}
~Item(){}
};
void main()
{
Item obj(10, 20);
try


{
obj.order();
}
catch(Exception & exp2)
{
getch();
cout << "Exception: " << exp2.get_message() << endl;
}
getch();
```

FINALTERM EXAMINATION
Fall 2009
CS304- Object Oriented Programming (Session - 4)

Ref No: 1130772
Time: 120 min
Marks: 75
Question No: 1 (Marks: 1) - Please choose one
A template provides a convenient way to make a family of
_ variables and data members
_ functions and classes
_ classes and exceptions
_ programs and algorithms
Question No: 2 (Marks: 1) - Please choose one
Which one of the following terms must relate to polymorphism?
_ Static allocation
_ Static typing
_ Dynamic binding
_ Dynamic allocation

Question No: 3 (Marks: 1) - Please choose one
What is true about function templates?
_ The compiler generates only one copy of the function template
_ The compiler generates a copy of function respective to each type of data
_ The compiler can only generate copy for the int type data
_ None of the given.
Question No: 4 (Marks: 1) - Please choose one
Which of the following is the best approach if it is required to have more than one functions having exactly same functionality and implemented on different data types?
_ Templates
_ Overloading
_ Data hiding
_ Encapsulation
Question No: 5 (Marks: 1) - Please choose one
template <>
class Vector<char*> { }
This is an example of partial specialization.
_ True
_ False
Question No: 6 (Marks: 1) - Please choose one
Classes like TwoDimensionalShape and ThreeDimensionalShape would normally be

concrete, while classes like Sphere and Cube would normally be abstract.
_ True
_ False
Question No: 7 (Marks: 1) - Please choose one

A non-virtual member function is defined in a base class and overridden in a derived
class; if that function is called through a base-class pointer to a derived class object, the
derived-class version is used.
_ True
_ False
Question No: 8 (Marks: 1) - Please choose one
Assume a class Derv that is privately derived from class Base. An object of class Derv
located in main() can access
_ public members of Derv.
_ protected members of Derv.
_ private members of Derv.
_ protected members of Base.
Question No: 9 (Marks: 1) - Please choose one
In order to define a class template, the first line of definition must be:
_ template <typename T>
_ typename <template T>
_ Template Class <ClassName>
_ Class <Template T>
Question No: 10 (Marks: 1) - Please choose one
If there is a pointer p to objects of a base class, and it contains the address of an object of
a derived class, and both classes contain a nonvirtual member function, ding(), then the
statement p->ding(); will cause the version of ding() in the _____ class to be executed.
_ Base
_ Derived

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

When the base class and the derived class have a member function with the same name,
you must be more specific which function you want to call (using _____).
_ scope resolution operator
_ dot operator
_ null operator
_ Operator overloading
Question No: 12 (Marks: 1) - Please choose one
Non Template Friend functions of a class are friends of _____instance/s of that class.
_ All
_ One specific
_ All instances of one date type
_ None of the given options
Question No: 13 (Marks: 1) - Please choose one
The find() algorithm
_ finds matching sequences of elements in two containers.
_ finds a container that matches a specified container.
_ takes iterators as its first two arguments.
_ takes container elements as its first two arguments.
Question No: 14 (Marks: 1) - Please choose one
If you define a vector v with the default constructor, and define another vector w with a
one-argument constructor to a size of 11, and insert 3 elements into each of these vectors
with push_back(), then the size() member function will return _____ for v and _____ for
w.
_ 11 for v and 3 for w.

_ 0 for v and 0 for w.
_ 0 for v and 3 for w.
_ 3 for v and 11 for w.
Question No: 15 (Marks: 1) - Please choose one
Which of the following may not be an integral part of an object?
_ State
_ Behavior
_ Protected data members
_ All of given

Question No: 16 (Marks: 1) - Please choose one
Which is not the Advantage of inheritance?
_ providing class growth through natural selection.
_ facilitating class libraries.
_ avoiding the rewriting of code.
_ providing a useful conceptual framework.
Question No: 17 (Marks: 1) - Please choose one

```
class DocElement
{
public:
virtual void Print() { cout << "Generic element"; }
};
class Heading : public DocElement
{
public:
void Print() { cout << "Heading element"; }
};
class Paragraph : public DocElement
{
public:
void Print() { cout << "Paragraph element"; }
};


void main()
{
DocElement * p = new Paragraph();
p->Print();
}
```

When you run this program, it will print out a single line to the console output. What will be in that line?
Select one correct answer from the following list:
_ Generic element
_ Heading element
_ Paragraph element
_ Nothing will be printed.
Question No: 18 (Marks: 1) - Please choose one
When a virtual function is called by referencing a specific object by name and using the

dot member selection operator (e.g., squareObject.draw()), the reference is resolved at
compile time.
_ True
_ False
Question No: 19 (Marks: 1) - Please choose one
In case of multiple inheritance a derived class inherits,
_ Only the public member functions of its base classes
_ Only the public data members of its base classes
_ Both public data members and member functions of all its base classes
_ Data members and member functions of any two base classes
Question No: 20 (Marks: 1) - Please choose one
When we write a class template the first line must be:

_ template < class class_name>
_ template < class data_type>
_ template < class T >
Here T can be replaced with any name but it is preferable.
_ class class-name()
class template<class_name>
Question No: 21 (Marks: 1) - Please choose one
Which of the following is incorrect line regarding function template?
_ template<class T>
_ template <typename U>
_ Class<template T>
_ template < class T, class U>
Question No: 22 (Marks: 1) - Please choose one
An STL container can not be used to,
_ hold objects of class employee.
_ store elements in a way that makes them quickly accessible.
_ compile c++ programs.
_ organize the way objects are stored in memory
Question No: 23 (Marks: 1) - Please choose one
Algorithms can only be implemented using STL containers.
_ True
_ False
Question No: 24 (Marks: 1) - Please choose one
Consider a class named Vehicle, which of the following can be the instance of class

Vehicle?

1. Car
2. Computer
3. Desk
4. Ahmed
5. Bicycle
6. Truck

_ 1, 4, 5
_ 2, 5, 6
_ 1, 2, 3, 6
_ 1, 5, 6

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

Consider the code below,

```
class Fred {
public:
Fred();
...
};
int main()
{
Fred a[10];
Fred* p = new Fred[10];
...
}
```

Select the best option,

_ Fred a[10]; calls the default constructor 09 times
Fred* p = new Fred[10]; calls the default constructor 10 times
_ Produce an error
_ Fred a[10]; calls the default constructor 11 times
Fred* p = new Fred[10]; calls the default constructor 11 times
_ Fred a[10]; calls the default constructor 10 times
Fred* p = new Fred[10]; calls the default constructor 10 times

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

When a variable is define as static in a class then all object of this class,

_ Have different copies of this variable
_ Have same copy of this variable
_ Can not access this variable
_ None of given

Question No: 27 (Marks: 1) - Please choose one
The life of sub object is dependant on the life of master class in _____.
_ Separation
_ Composition
_ Aggregation
_ None of the given
Question No: 28 (Marks: 1) - Please choose one
_____, which means if A declares B as its friend it does NOT mean that A can
access private data of B. It only means that B can access all data of A.
_ Friendship is one way only
_ Friendship is two way only
_ NO Friendship between classes
_ Any kind of friendship
Question No: 29 (Marks: 1) - Please choose one
Which of the following operators always takes no argument if overloaded?
_ /
_ -
_ +
_ ++

Question No: 30 (Marks: 1) - Please choose one
In Private ---------- only member functions and friend classes or functions of a derived class can convert pointer or reference of derived object to that of parent object
_ specialization
_ inheritance
_ abstraction
_ composition
Question No: 31 (Marks: 1)
Write the syntax of declaring a pure virtual function in a class?
Ans:
Pure Virtual Function is a Virtual function with no body.
Declaration of Pure Virtual Function:
Since pure virtual function has no body, the programmer must add the notation =0 for
declaration of the pure virtual function in the base class.
General Syntax of Pure Virtual Function takes the form:
class classname //This denotes the base class of C++ virtual function

```
{
public:
virtual void virtualfunctioname() = 0 //This denotes the pure virtual function in
C++
};
```

Question No: 32 (Marks: 1)

What is meant by direct base class ?

Ans

When a class-type is included in the class-base, it specifies the direct base class of the
class being declared. If a class declaration has no class-base, or if the class-base lists only
interface types, the direct base class is assumed to be object. A class inherits members
from its direct base class,
Deriving a class from more than one direct base class is called multiple inheritance.

Question No: 33 (Marks: 2)

Describe the way to declare a template class as a friend class of any other class.

Ans

The following example is use of a class template:

```
template<class L> class Key
{
L k;
L* kptr;
int length;
public:
Key(L);
// ...
};
```

Suppose the following declarations appear later:

```
Key<int> i;
Key<char*> c;
Key<mytype> m;
```

The compiler would create three objects.

Question No: 34 (Marks: 2)

What is the purpose of template parameter?

Ans:

There are three kinds of template parameters:
• type
• non-type
• template
You can interchange the keywords class and typename in a template parameter declaration. You cannot use storage class specifiers (static and auto) in a template parameter declaration.
Question No: 35 (Marks: 3)
Describe in simple words how we can use template specialization to enforce case sensitive specialization in String class.
Ans"
The act of creating a new definition of a function, class, or member of a class from a
template declaration and one or more template arguments is called template instantiation.
The definition created from a template instantiation is called a specialization. A primary
template is the template that is being specialized.
create function objects to do the case-insensitive compares, and
then reuse them when also wanting to do case-insensitive sorting
or searching.
Question No: 36 (Marks: 3)

Can we use compiler generated default assignment operator in case our class is using
dynamic memory? Justify your answer.
Ans:
the compiler does not make a separate copy of the object. Even if the types are not the
same, the compiler is usually able to do a better job with initialization lists than with
assignments.
Consider the following constructor that initializes member object x_ using an initialization list: square::square() : x_(whatever) { }. The most common benefit of doing
this is improved performance. For example, if the expression whatever is the same type
as member variable x_, the result of the whatever expression is constructed directly inside

x_ — the compiler does not make a separate copy of the object. Even if the types are not
the same, the compiler is usually able to do a better job with initialization lists than with
assignments.
As if that wasn't bad enough, there's another source of inefficiency when using assignment in a constructor: the member object will get fully constructed by its default
constructor, and this might, for example, allocate some default amount of memory or
open some default file. All this work could be for naught if the whatever expression
and/or assignment operator causes the object to close that file and/or release that memory
(e.g., if the default constructor didn't allocate a large enough pool of memory or if it
opened the wrong file).

Question No: 37 (Marks: 3)

Give the names of three ways to handle errors in a program.

Ans:

The function will throw DivideByZero as an exception that can then be caught by an
exception-handling catch statement that catches exceptions of type int. The necessary
construction for catching exceptions is a try catch system. If you wish to have your program check for exceptions, you must enclose the code that may have exceptions thrown in a try block.
The catch statement catches exceptions that are of the proper type. You can, for example,
throw objects of a class to differentiate between several different exceptions. As well,
once a catch statement is executed, the program continues to run from the end of the
catch.
the errors can be handled outside of the regular code. This means that it is easier to structure the program code, and it makes dealing with errors more centralized. Finally,
because the exception is passed back up the stack of calling functions, you can handle
errors at any place you choose.

Question No: 38 (Marks: 5)
Consider the following code,

```
class Base{
private:
void base1();
protected:
void base2();
public:
void base3();
};
class Derived: public Base{
private:
void derived1();
protected:
void derived2();
public:
void derived3();
};
int main(){
Derived * derived = new Derived();
return 0;
}
```

Fill the table below to tell which member functions of Base and Derived classes we can access using the Derived pointer in the code indicated in bold.
Ans:
Function Name Availability (Yes / No)?
base2() no
base3() yes
derived1() No
derived2() No
derived3() Yes
Question No: 39 (Marks: 5)
What is the output produced by the following program?

```
#include<iostream.h>
void sample_function(double test) throw (int);

int main()
{
```

```
try
{
cout <<"Trying.\n";
sample_function(98.6);
cout << "Trying after call.\n";
}
catch(int)
{
cout << "Catching.\n";
}
cout << "End program.\n";
return 0;
}
void sample_function(double test) throw (int)
{
cout << "Starting sample_function.\n";
if(test < 100)
throw 42;
}
```

Ans:

Starting sample_function
Trying
Trying after call
Catching
End program

Question No: 40 (Marks: 10)

Write a publicly derived class "Employee" that is derived from base class named "Company". Both classes will have function "create()". Make virtual function of base class and override same function in derived class. Function create will have an
output statement of your own choice.
In "main" Create an object of base class and call both functions with same object type.

Question No: 41 (Marks: 10)

Write a program in C++ which creates three classes named as
1. Equation
2. Linear
3. Quadratic

Where Linear and Quadratic are inherited from Equation
Each class has the method Graph. Graph method should be pure virtual in Equation class.
This method should be overridden in both the inherited classes. It is meant to display the
Graph shape of its respective class. Graph method of Linear will display the message;
Straight line
Similarly, the Graph method of Quadratic will display the message;
Parabola
In main, call the Graph method of both the Linear and Quadratic equations polymorphically through the parent class (Equation).
Ans:

```
#include "fraction.h"
#include <iostream>
#include <string>
#include <string.h>
#include <stdlib.h>
class equation;
class equation {
int a, b;
public:
int c ()
{return (c);}
void convert (Cequation);
};
class linear {
private:
int side;
public:
void set_side (int a)
{side=a;}
friend class equation;
};

void equation::convert (Cequation) {
a = 23;
b = 45;
}
int main () {
```

```
cequation sqr;
CRectangle rect;
sqr.set_side(4);
rect.convert(sqr);
cout << rect.area();
return 0;
}
```

FINALTERM EXAMINATION

CS304- Object Oriented Programming (Session - 1)

3

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

Which one of the following terms must relate to **polymorphism?**

► Static allocation

► Static typing

► **Dynamic binding**

► Dynamic allocation

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

Multiple inheritance can be of type

- ► Public
- ► Private
- ► Protected
- ► **All of the given**

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

When a subclass specifies an alternative definition for an attribute or method of its superclass, it is _____ the definition in the superclass.

► overload

► **overriding**

► copy riding

► none of given

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

_____

Like template functions, a class template may not handle all the types successfully.

► **True**

► False

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

_____ It is sometimes useful to specify a class from which no objects will ever be created.

► True

► **False**

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

Assume a class Derv that is privately derived from class Base. An object of class Derv located in main() can access

► public members of Derv.

► protected members of Derv.

► private members of Derv.

► **protected members of Base.**

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

A pointer to a base class can point to objects of a derived class.

► **True**

► False

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

A copy constructor is invoked when

► a function do not returns by value.

► an argument is passed by value.

► a function returns by reference.

► an argument is passed by reference.

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

A function call is resolved at run-time in_____

► non-virtual member function.

► **virtual member function.**

► Both non-virtual member and virtual member function.

► None of given

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

When the base class and the derived class have a member function with the same name, you must be more specific which function you want to call (using _____).

► **scope resolution operator**

► dot operator

► null operator

► Operator overloading

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

Each try block can have _____ no. of catch blocks.

- ► 1
- ► 2
- ► 3
- ► **As many as necessary.**

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

Two important STL associative containers are _____ and _____.

- ► set,map
- ► **sequence,mapping**
- ► setmet,multipule
- ► sit,mat

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

The mechanism of selecting function at run time according to the nature of calling object is called,

► late binding

► static binding

► virtual binding

► **None of the given options**

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

An abstract class is useful when,

► We do not derive any class from it.

► There are multiple paths from one derived class to another.

► **We do not want to instantiate its object.**

► You want to defer the declaration of the class.

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

Which of the following is incorrect line regarding function template?

► template<class T>

► template <typename U>

► **Class<template T>**

► template < class T, class U>

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

Which of the following is/are advantage[s] of generic programming?

► Reusability

► Writability

► Maintainability

► **All of given**

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

_____ By default the vector data items are initialized to ____

► **0**

► 0.0

► 1

► null

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

Which one of the following functions returns the total number of elements in a vector.

► length();

► **size();**

► ele();

► veclen();

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

Suppose you create an uninitialized vector as follows:

vector<int> evec;

After adding the statment,

evec.push_back(21);

what will happen?

► The following statement will add an element to the start (the back) of evec and will initialize it with the value 21.

► The following statement will add an element to the center of evec and will reinitialize it with the value 21.

► The following statement will delete an element to the end (the back) of evec and will reinitialize it with the value 21.

► **The following statement will add an element to the end (the back) of evec and initialize it with the value 21.**

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

An STL container can not be used to,

- ► hold objects of class employee.
- ► store elements in a way that makes them quickly accessible.
- ► **compile c++ programs.**
- ► organize the way objects are stored in memory

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

Algorithms can only be implemented using STL containers.

- ► True
- ► **False**

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

The main function of scope resolution operator (**::**) is,

► **To define an object**

► To define a data member

► To link the definition of an identifier to its declaration

► To make a class private

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

When is a constructor called?

► Each time the constructor identifier is used in a program statement

► **During the instantiation of a new object**

► During the construction of a new class

► At the beginning of any program execution

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

Consider the code below,

```
class Fred {
public:
Fred();
...
};
int main()
{
Fred a[10];
Fred* p = new Fred[10];
...
}
```

Select the best option,

► Fred a[10]; calls the default constructor 09 times

Fred* p = new Fred[10]; calls the default constructor 10 times

► **Produce an error**

► Fred a[10]; calls the default constructor 11 times

Fred* p = new Fred[10]; calls the default constructor 11 times

► Fred a[10]; calls the default constructor 10 times

Fred* p = new Fred[10]; calls the default constructor 10 times

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

Associativity can be changed in operator overloading.

► True

► **False**

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

A normal C++ operator that acts in special ways on newly defined data types is said to be

► glorified.

► encapsulated.

► **classified.**

► overloaded.

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

Which operator can not be overloaded?

► The relation operator (>=)

► Assignment operator (=)

► Script operator ([])

► **Conditional operator (? :)**

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

Suppose obj1 and obj2 are two objects of a user defined class A. An + operator is overloaded to add obj1 and obj2 using the function call obj1+obj2.

Identify the correct function prototype against the given call?

- A operator + (A &obj);
- int + operator();
- **int operator (plus) ();**
- A operator(A &obj3);

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

Default constructor is such constructor which either has no ---------or if it has some parameters these have -------- values

- Parameter, temporary
- Null, Parameter
- **Parameter, default**
- non of the given

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

Public methods of base class can --------- be accessed in its derived class

- ► directly
- ► **inderectly**
- ► simultaniously
- ► non of the given

Question No: 31 (Marks: 1)

Is **Deque** a Birectional Container?

Yes, deque behaves like queue (line) such that we can add elements on both sides of it.

Question No: 32 (Marks: 1)

What is meant by Generic Programming?

Generic programming refers to programs containing generic abstractions general code that is same in logic for all data types like printArray function), then we instantiate that generic program abstraction (function, class) for a particular data type, such abstractions can work with many different types of data.

Question No: 33 (Marks: 2)

Sort the following data in the order in which compiler searches a function?

Complete Specialization, Generic Template, Partial Specialization, Ordinary Function.

Specializations of this function template, instantiations with specific types, can be called just like an ordinary function:
cout << max(3, 7); // outputs 7
The compiler examines the arguments used to call max and determines that this is a call to max(int, int). It then instantiates a version of the function where the parameterizing type T is int, making the equivalent of the following function:

```
int max(int x, int y)
{
   return x < y ? y : x;
}
```

the C++ Standard Template Library contains the function template max(x, y) which creates functions that return either *x* or *y*, whichever is larger. max() could be defined like this:

```
template <typename T>
T max(T x, T y)
{
   return x < y ? y : x;
}
```

Question No: 34 (Marks: 2)

State any conflict that may rise due to multiple inheritance?

The conflict may arise is the diamond problem, which our author likes to call the "diamond of doom". This occurs when a class multiply inherits from two classes

which each inherit from a single base class. This leads to a diamond shaped inheritance pattern.

For example, consider the following set of classes:

classPoweredDevice

{

};

classScanner: publicPoweredDevice

{

};

classPrinter: publicPoweredDevice

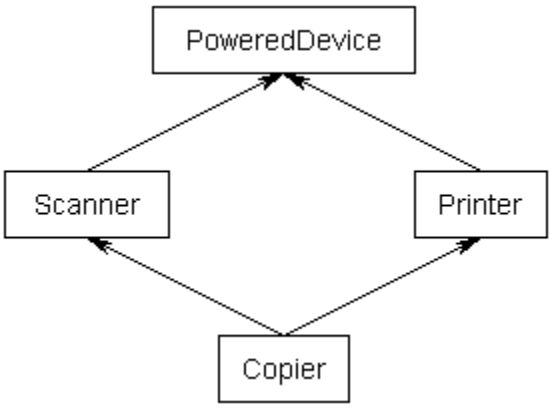
{

};

classCopier: publicScanner, publicPrinter

{

};



Scanners and printers are both powered devices, so they derived from PoweredDevice. However, a copy machine incorporates the functionality of both Scanners and Printers.

Ambiguity also cause problem.

Question No: 35 (Marks: 3)

Describe three properties necessary for a container to implement Generic Algorithms.

If you declare a container as holding pointers, you are responsible for managing the memory for the objects pointed to. The container classes will not automatically free memory for these objects when an item is erased from the container.
Container classes are expected to implement methods to do the following:

- create a new empty container (constructor),
- report the number of objects it stores (size),
- delete all the objects in the container (clear),
- insert new objects into the container,
- remove objects from it,
- provide access to the stored objects.

Question No: 36 (Marks: 3)

Write three important features of virtual functions.

With virtual functions, derived classes can provide new implementations of functions from their base classes. When someone calls a virtual function of an object of the derived class, this new implementation is called, even if the caller uses a pointer to the base class, and doesn't even know about the particular derived class.
The virtual function is an option, and the language defaults to non virtual, which is the fastest configuration.
The derived class can completely "override" the implementation or "augment" it (by explicitly calling the base class implementation in addition to the new things it does).

Question No: 37 (Marks: 3)

Consider the code below,

```
#include <iostream>
#include <stdlib.h>
using namespace std;
class Shape{
      public:
      void Draw(){cout<<"shape"<<endl;}
   };
class Line : public Shape{
      public:
      void Draw(){cout<<"Line"<<endl;}
      };
```

```
class Circle : public Shape{
        public:
        void Draw(){cout<<"Circle"<<endl;}
        };
int main(int argc, char *argv[])
{
  Shape * ptr1 = new Shape();
  Shape * ptr2 = new Line();
  Shape * ptr3 = new Circle();

  ptr1->Draw();
  ptr2->Draw();
  ptr3->Draw();
  system("PAUSE");
  return 0;
}
```

This code shows output,

```
Shape
Shape
Shape
```

Give the reason for this output

Suppose we want to show the output,

Shape

Line

Circle

How we can change the code to do that?

```
class shape { public:
  void draw();
};
class circle : public shape { };
int main(int argc, char **argv){
  circle my_circle;
  my_circle.draw();
}
```

While this has all the usual advantages, e.g., code reuse, the real power of polymorphism comes into play when draw is declared to be virtual or pure virtual, as follows:

```
class shape{ public:
  virtual void draw()=0;
};
class circle : public shape { public:
  void draw();
}
```

Here, circle has declared its own draw function, which can define behavior appropriate for a circle. Similarly, we could define other classes derived from shape, which provide their own versions of draw. Now, because all the classes implement the shape interface, we can create collections of objects that can provide different behavior invoked in a consistent manner (calling the draw member

function). An example of this is shown here.

```
shape *shape_list[3];   // the array that will
                        // pointer to our shape objects
shape[0] = new shape;  // three types of shapes
shape[1] = new line;  // we have defined
shape[2] = new circle;
for(int i = 0; i < 3; i++){
  shape_list[i].draw();
}
```

When we invoke the draw function for each object on the list, we do not need to know anything about each object; C++ handles the details of invoking the correct version of draw. This is a very powerful technique, allowing us to provide extensibility in our designs. Now we can add new classes derived from shape to provide whatever behavior we desire. The key here is that we have separated the interface (the prototype for shape) from the implementation.

Question No: 38 (Marks: 5)

There are some errors in the code given below, you have to

4. Indicate the line no. with error/s
5. Give the reason for error/s
6. Correct the error/s.

25.#include <iostream> this will be #include <iostream.h>
26.#include <stdlib.h>

27.using namespace std;
28.template <typename T>
29.class MyClass{
30.public:
31.MyClass(){
32.cout<<"This is class1"<<endl;

```
33.}
34.};
35.template <typename T>
36.class MyClass<int*>{
37.public:
38.MyClass(){
39.cout<<"This is class2"<<endl;
40.}
41.};
42.int main(int argc, char *argv[])
43.{
44.MyClass<int> c1;
45.MyClass<int*> c2;
46.system("PAUSE");
47.return 0;
48.}
```

Question No: 39 (Marks: 5)

Given are two classes A and B. class B is inherited from class A. Write a code snippet(for main function) that polymorphically call the method of class B. Also what changes do you suggest in the given code segment that are required to call the class B method polymorphically.

```
class A

{

public:

void method() { cout<<"A's method \n"; }


};
```

```
class B : public A
{

public:
void method() { cout<<"B's method\n"; }

};
```

Ans:

```
public class Test
{
public class A {}

public class B extends A {}

private void test(A a)
{
System.out.println("test(A)");
}

private void test(B b)
{
System.out.println("test(B)");
}

public static void main(String[] args)
```

```
{
Test t = new Test();
A a = t.new A();
A b = t.new B();

t.test(a);
t.test(b);
}
}
```

Question No: 40 (Marks: 10)

Create built-in STL (Standard Template Library) **vector class object** for **strings** and add in it some words by taking input from user, then apply the sort() algorithm to array of words stored in this vector class object.

Hint:Use push_back() to add the words in vector class object, and the [] operator and size() to display these sorted words.

The STL is the containers, iterators and algorithms component of the proposed C++ Standard Library [ANSI95]. It represents a novel application of principles which have their roots in styles of programming other than Object-orientation.

```
void listWords(istream& in, ostream& out)
{
    string s;

    while (!in.eof() && in >> s) {
        add s to some container
    }

    sort the strings in the container
    remove the duplicates
```

```
    for (each string t in container) {
        out << t;
    }
}
```

For now, assume that a word is defined as a whitespace-separated string as delivered by the stream extraction operator. Later on we will consider ways of refining this definition.

Given the way this problem is expressed, we can implement this program directly, if naïvely. The STL container class vector will suffice to hold the words: applying the algorithms sort and unique provides the required result.

```
void listWords(istream& in, ostream& out)
{
    string s;
    vector<string> v;

    while (!in.eof() && in >> s)
        v.push_back(s);              // (1)

    sort(v.begin(), v.end());

    vector<string>::iterator e
        = unique(v.begin(), v.end());   // (2)

    for (vector<string>::iterator b = v.begin();
        b != e;
        b++) {
        out << *b << endl;
    }
}
```

At (1) the vector member function push_back() is used to add to the end of the vector. This can also be done using the insert member, which takes as a parameter an iterator identifying the position in the vector at which to place the added element:

```
    v.insert(v.end(), s);
```

This allows us to add at any position in the vector. Be aware, though, that adding anywhere other than the end implies the overhead of physically shifting all elements from the insertion point to the end to make room for the new value. For this reason, and given the choices made in this example, attempts to optimise this code by maintaining the vector in sorted order are unwise. Replace vector with list

and this becomes possible - although in both cases a search over the container will be necessary to determine the correct position of insertion.
The unique algorithm has the surprising property of not changing the length of the container to which it is applied (it can hardly do this, as it has access not to the underlying container, but only to the pair of iterators it is passed). Instead, it guarantees that duplicates are removed by moving unique entries towards the beginning of the container, returning an iterator indicating the new end of the container. This can be used directly (as here, at (2)), conversely it can be passed to the erase member with the old end iterator, to truncate the container.

Question No: 41 (Marks: 10)

Q.

Write a detailed note on Exceptions in Destructors with the help of a coding example.

Exceptions in Destructors:

An object is presumably created to do something. Some of the changes made by an object should persist after an object dies (is destructed) and some changes should not. Take an object implementing a SQL query. If a database field is updated via the SQL object then that change should persist after the SQL objects dies. To do its work the SQL object probably created a database connection and allocated a bunch of memory. When the SQL object dies we want to close the database connection and deallocate the memory, otherwise if a lot of SQL objects are created we will run out of database connections and/or memory.

The logic might look like:

```
Sql::~Sql()
{
  delete connection;
  delete buffer;
}
```

Let's say an exception is thrown while deleting the database connection. Will the buffer be deleted? No. Exceptions are basically non-local gotos with stack cleanup. The code for deleting the buffer will never be executed creating a gaping resource leak.
Special care must be taken to catch exceptions which may occur during object destruction. Special care must also be taken to fully destruct an object when it throws an exception.

Example code for exception ……

```
#include<iostream.h>
#include<conio.c>
class Exception {
private:

 char message[30]  ;
public:

 Exception() {strcpy(message,"There is not enough stock");}
 char * get_message() { return message; }
};
class Item {
private:

 int stock ;
 int required_quantity;
public:

 Item(int stk, int qty)
    {
     stock =  stk;
     required_quantity =  qty;
 }
   int get_stock()
   {
      return stock;
   }
```

```
   int get_required_quantity()
   {
      return required_quantity;
   }

   void order()
   {
       if (get_stock()< get_required_quantity())

       throw Exception();
                else
                cout<<"The required quantity of item is available in the stock";
   }

    ~Item(){}
};

void main()
{

   Item obj(10, 20);

 try
   {
  obj.order();
 }
 catch(Exception & exp2)
   {
    getch();
  cout << "Exception: " << exp2.get_message() << endl;
 }
 getch();
```

CS304 TODAYS QUIZ BY SHAZIA 24-11-2010

Class is not a mechanism to create objects and define user data types.

true

false

Memory is allocated to non static members only, when:

Object is created

The sub-object’s life is not dependent on the life of master class in _____.

Aggregation

Unary operators and assignment operator are right associative.

true

The >= operator can't be overloaded.

false

_____ is creating objects of one class inside another class.

Composition

If we are create array of objects through new operator, then

None of the given

Object can be declared constant with the use of Constant keyword.

false

_____ Operator will take only one operand.

none of the given

Which of the following operator(s) take(s) one or no argument if overloaded?

All of the given choices

this pointer does not pass implicitly to _____ functions.

Static Member

Operator overloading is

giving C++ operators more than they can handle.

Date: 08-11-2010

Question # 1 of 10

Information hiding can be achieved through_____.

Encapsulation, Abstraction

Question # 2 of 10 (Start time: 01:11:21 AM) Total Marks: 1

A good model is ..... related to a real life problem.

Select correct option:

Closely

Question # 3 of 10 (Start time: 01:12:33 AM) Total Marks: 1

Which of the following features of OOP is used to derive a class from another?

Select correct option:

Inheritance

Question # 4 of 10 (Start time: 01:13:51 AM) Total Marks: 1

Which of the following is a weak relationship between two objects?

Select correct option:

Aggregation

Question # 5 of 10 (Start time: 01:14:56 AM) Total Marks: 1

Data items in a class must be private.

Select correct option:

False

Question # 6 of 10 (Start time: 01:15:52 AM) Total Marks: 1

Which one is a class association

Select correct option:

Inheritance

Question # 7 of 10 (Start time: 01:16:55 AM) Total Marks: 1

Suppose there is an object of type Person, which of the following can be considered as one of its attributes

Select correct option:

Both Name and Age

Question # 8 of 10 (Start time: 01:17:52 AM) Total Marks: 1

Which one is not an object association?

Select correct option:

Inheritance

Question # 9 of 10 (Start time: 01:18:50 AM) Total Marks: 1

Using encapsulation we can achieve

Select correct option:

Information hiding

Question # 10 of 10 (Start time: 01:19:43 AM) Total Marks: 1

In constant member function the type of this pointer is:

Select correct option:

CConstant pointer to object

Question # 1 of 10

Which of the following is the way to extract common behavior and attributes from the given classes and make a separate class of those common behaviors and attributes?

Generalization

Question # 2 of 10

The ability to derive a class from more than one class is called

Multiple inheritance

Question # 3 of 10:

If MyClass has a destructor what is the destructor named?

~MyClass

Question # 4 of 10:

Class abc{ ----- }; Is a valid class declaration?

yes

Question # 5of 10:

Without using Deep copy constructor, A _____ problem can occur

All of the given

Question # 6 of 10:

If only one behaviour of a derived class is incompatible with base class, then it is:

Specialization

Question # 7 of 10:

Which of the following may not be an integral part of an object?

All of given

Question # 8 of 10:

Only tangible things can be chosen as an object.

False

CS304 LATEST 2 QUIZZES SOLVED

Question # 1 of 10
Information hiding can be achieved through_____.
Encapsulation, Inheritance
Encapsulation, Polymorphism
Encapsulation, Abstraction
Overloading

Question # 2 of 10 (Start time: 01:11:21 AM) Total Marks: 1
A good model is ..... related to a real life problem.
Select correct option:
Loosely
Openly
Closely

Question # 3 of 10 (Start time: 01:12:33 AM) Total Marks: 1
Which of the following features of OOP is used to derive a class from another?
Select correct option:
Encapsulation
Polymorphism
Data hiding
Inheritance

Question # 4 of 10 (Start time: 01:13:51 AM) Total Marks: 1
Which of the following is a weak relationship between two objects?
Select correct option:
Inheritance
Composition
Aggregation
None of given

Question # 5 of 10 (Start time: 01:14:56 AM) Total Marks: 1
Data items in a class must be private.

Select correct option:
True
False

Question # 6 of 10 (Start time: 01:15:52 AM) Total Marks: 1
Which one is a class association
Select correct option:
Simple Association
Inheritance
Composition
Aggregation

Question # 7 of 10 (Start time: 01:16:55 AM) Total Marks: 1
Suppose there is an object of type Person, which of the following can be considered as one of its attributes
Select correct option:
Name
Age
Work()
Both Name and Age

Question # 8 of 10 (Start time: 01:17:52 AM) Total Marks: 1
Which one is not an object association?
Select correct option:
Simple association
Inheritance
Aggregation
Association

Question # 9 of 10 (Start time: 01:18:50 AM) Total Marks: 1
Using encapsulation we can achieve
Select correct option:
Information hiding
Least interdependencies among modules
Implementation independence

All of given options

Question # 10 of 10 (Start time: 01:19:43 AM) Total Marks: 1
In constant member function the type of this pointer is:
Select correct option:
Constant pointer
Constant pointer to object
Constant pointer to class
Constant pointer to constant object

Question # 1 of 10
Which of the following is the way to extract common behavior and attributes from the given classes and make a separate class of those common behaviors and attributes?
Generalization
Sub-typing
Specialization
Extension

Question # 2 of 10
The ability to derive a class from more than one class is called
Single inheritance
Encapsulation
Multiple inheritance
Polymorphism

Question # 3 of 10:
If MyClass has a destructor what is the destructor named?
MyClass
~MyClass
My~Class
MyClass~

Question # 4 of 10:
Class abc{ ----- }; Is a valid class declaration?
yes

no

Question # 5of 10:
Without using Deep copy constructor, A _____ problem can occur
System crash
Memory Leakage
Dangling pointer
All of the given

Question # 6 of 10:
If only one behaviour of a derived class is incompatible with base class, then it is:
Generalization
Specialization
Extension
Inheritance

Question # 7 of 10:
Which of the following may not be an integral part of an object?
state
behavior
Protected data members
All of given

Question # 8 of 10:
Only tangible things can be chosen as an object.
True
False

CS304 TODAYS QUIZ BY SHAZIA 24-11-2010

Class is not a mechanism to create objects and define user data types.

1. true
2. false

Memory is allocated to non static members only, when:

1. Class is created
2. Object is defined
3. Object is initialized
4. Object is created

The sub-object's life is not dependent on the life of master class in _____.

1. Composition
2. Aggregation
3. Separation
4. non of the given

Unary operators and assignment operator are right associative.

1. true
2. false

The >= operator can't be overloaded.

1. true
2. false

_____ is creating objects of one class inside another class.

1. Association
2. Composition
3. Aggregation
4. Inheritance

If we are create array of objects through new operator, then

1. We can call overloaded constructor through new
2. We can't call overloaded constructor through new
3. We can call default constructor through new
4. None of the given

Object can be declared constant with the use of Constant keyword.

1. true
2. false

_____ Operator will take only one operand.

1. New
2. int
3. object
4. none of the given

Which of the following operator(s) take(s) one or no argument if overloaded?

1. ++
2. *
3. %
4. All of the given choices

this pointer does not pass implicitly to _____ functions.

1. Static Member
2. Non-Static Member
3. Instance Number
4. None of the given

Operator overloading is

1. making C++ operators work with objects.
2. giving C++ operators more than they can handle.
3. giving new meanings to existing Class members.

4. making new C++ operators

Information hiding can be achieved through_____.

1. Encapsulation, Inheritance
2. Encapsulation, Polymorphism
3. **Encapsulation, Abstraction**
4. Overloading

A good model is ..... related to a real life problem.
Select correct option:

1. Loosely
2. Openly
3. **Closely**

Which of the following features of OOP is used to derive a class from another?
Select correct option:

1. Encapsulation
2. Polymorphism
3. Data hiding
4. **Inheritance**

Which of the following is a weak relationship between two objects?
Select correct option:

1. Inheritance
2. Composition
3. **Aggregation**
4. None of given

Data items in a class must be private.
Select correct option:

1. True
2. **False**

Which one is a class association
Select correct option:

1. Simple Association
2. **Inheritance**
3. Composition
4. Aggregation

Suppose there is an object of type Person, which of the following can be considered as one of its attributes
Select correct option:

1. Name
2. Age
3. Work()
4. **Both Name and Age**

Which one is not an object association?
Select correct option:

1. Simple association
2. **Inheritance**
3. Aggregation
4. Association

Using encapsulation we can achieve
Select correct option:

1. **Information hiding**
2. Least interdependencies among modules
3. Implementation independence
4. All of given options

In constant member function the type of this pointer is:
Select correct option:

1. Constant pointer
2. **Constant pointer to object**
3. Constant pointer to class
4. Constant pointer to constant object

Which of the following is the way to extract common behavior and attributes from the given classes and make a separate class of those common behaviors and attributes?

1. **Generalization**
2. Sub-typing
3. Specialization
4. Extension

The ability to derive a class from more than one class is called

1. Single inheritance
2. Encapsulation
3. **Multiple inheritance**
4. Polymorphism

If MyClass has a destructor what is the destructor named?

1. MyClass
2. **~MyClass**
3. My~Class
4. MyClass~

Class abc{ ----- }; Is a valid class declaration?

1. **yes**
2. no

Without using Deep copy constructor, A _____ problem can occur

1. System crash
2. Memory Leakage
3. Dangling pointer
4. **All of the given**

If only one behaviour of a derived class is incompatible with base class, then it is:

1. Generalization
2. **Specialization**
3. Extension
4. Inheritance

Which of the following may not be an integral part of an object?

1. state
2. behavior
3. Protected data members
4. All of given

Only tangible things can be chosen as an object.

1. True
2. **False**