



Name :
Roll No. :
Invigilator's Signature :

CS/MCA/SEM-2/MCA-205/2011

2011

OBJECT ORIENTED PROGRAMMING WITH C++

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following :

10 × 1 = 10

- i) Choose the correct statement regarding static member variable :
- a) Declared inside the class, initialized outside the class.
 - b) Need an object to access it.
 - c) Inherited in sub-classes
 - d) Only can be used in static member functions.



ii) **Statement I** : Constructor can be inherited.

Statement II : Destructor can be inherited.

of these statements

- a) Both are true
 - b) Both are false
 - c) Statement I is true, statement II is false
 - d) Statement is false, statement II is true.
- iii) Overloading is otherwise called as
- a) Virtual polymorphism
 - b) Static polymorphism
 - c) Pseudo-polymorphism
 - d) Inline polymorphism.
- iv) Friend function is used for
- a) accessing the public member of a class
 - b) accessing the private member of a class
 - c) accessing the protected member of a class
 - d) none of these.
- v) Class Dog : public X, public Y is an instance of
- a) Multiple inheritance
 - b) Repeated inheritance
 - c) Multilevel inheritance
 - d) Hierarchical inheritance.



- vi) The compiler identifies a virtual function to be pure
- a) by the presence of the keyword pure
 - b) by its location in the program
 - c) if it is equated to 0
 - d) none of these.
- vii) If a method is an interface between outside world and a class, it has to be declared
- a) Private
 - b) Protected
 - c) Public
 - d) External
- viii) A constructor is called whenever
- a) an object is used
 - b) an object is declared
 - c) a class is declared
 - d) a class is used.
- ix) Private member of the super-class
- a) is both extended as well as accessed inside sub-class
 - b) is extended but cannot be accessed inside sub-class
 - c) is not extended but can be accessed inside sub-class
 - d) is not both extended as well as accessed inside sub-class.

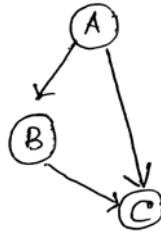


GROUP – C

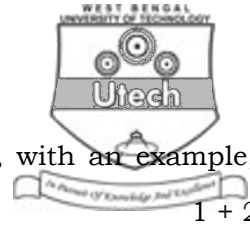
(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

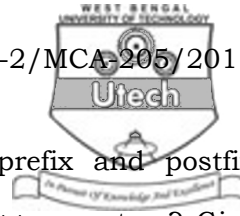
7. a) What is the relation between a Class and an Object ? Justify if it is possible to have an object of more than one distinct classes. 2 + 2
- b) What is the importance of a constructor ? What is a copy constructor ? Explain. What do you mean by constructor overloading ? Explain with an example. Is it possible to have virtual constructor ? Justify. 2 + 2 + 2 + 2
- c) Justify or falsify – "Declaration of a constructor must be accompanied by that of a destructor". 3
8. Let $X \rightarrow Y$ indicates that class Y is inherited from class X.
- a) Consider the following situation :



If there is a function declaration $f ()$ with return type void within class A only, then which version of $f ()$ is inherited by C ? That of B or that of A ? Provide necessary justification. 3



- b) What is an abstract class ? Explain, with an example, how it is declared. 1 + 2
- c) How is a pure virtual function different from virtual function ? 2 + 2
- d) Justify if it is possible to declare a constructor having arguments passed as template ? What is parameterized constructor ? 2 + 1
- e) Can we have constructor overriding ? Explain. 2
9. a) Explain (i) manipulator (ii) containership. 2 + 2
- b) Distinguish multiple inheritance from multilevel inheritance with suitable examples. 3
- c) What is polymorphism ? Differentiate between early binding and late binding. 1 + 2
- d) Is it possible to realise late binding of an operator on a user defined class ? Justify. 2
- e) Define a class "COMPLEX" of complex numbers. Overload the operator "+" to be used for addition of two objects of COMPLEX. 3



10. a) How can we distinguish between prefix and postfix nature while overloading the unary ++ operator ? Give example. 6
- b) Why are cin and cout not considered as keywords ? Explain the role of streams in C++. 2 + 2
- c) What is exception handling ? What is its use ? Explain with examples. 1 + 2 + 2
11. Write short notes on any *three* of the following : 3 × 5
- a) ADT
 - b) Encapsulation
 - c) Namespace
 - d) Friend function
 - e) Scope resolution.
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