

Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/MCA/SEM-2/MCA-205/2012**

**2012**

**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.*

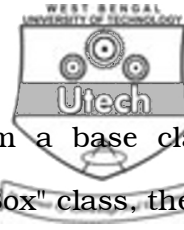
**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternative of the following :  $10 \times 1 = 10$

i) Which of the following statement incorrect about the "void pointer" ?

- a) Void pointer is declared with the data type of void
- b) Void pointer can hold the address of a character type variable
- c) A void pointer can be assign to an integer pointer
- d) None of these.



- ii) Suppose a class "Box" is derived from a base class "Square". When we create an object of "Box" class, then
- a) it will first call the "Box" class constructor then the "Square" class constructor
  - b) it will first call the "Square" class constructor then the "Box" class constructor
  - c) it will only call the "Box" class constructor
  - d) none of these.
- iii) The ability to declare different methods with the same name in a class is known as
- a) Overloading
  - b) Overriding
  - c) Recursion
  - d) None of these.
- iv) Which of the following events related to the "Late Binding" ?
- a) Static Polymorphism
  - b) Compile time binding
  - c) Dynamic Polymorphism
  - d) None of these.



- v) What value must a destructor return ?
- a) A pointer to the class
  - b) An object of the class
  - c) Destructors do not return a value
  - d) none of these.
- vi) Copy constructor means
- a) parameterized constructor
  - b) receives no argument
  - c) receives object as an argument
  - d) none of these.
- vii) Which of the following statements is Incorrect ?
- a) Exceptions are errors that occur at compile-time
  - b) Exception is caught using Catch
  - c) The Catch block must immediately following the try block
  - d) None of these.



viii) Dynamic binding is necessary when we refer to derived class object with

- a) global pointer
- b) derived class pointer
- c) non-pointer variable
- d) base class pointer.

ix) Goal of Data Abstraction is

- a) Class formation
- b) Object formation
- c) Hide implementation details
- d) None of these.

x) Inline functions are

- a) Functions declared in one line
- b) Functions declared within a class
- c) Functions declared in main ( ) function
- d) Functions declared outside a class.

**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2. What are the features of an objected oriented programming language ? Explain the features. 1 + 4



3. What is reference variable ? Whether it is mandatory to pass the reference of an object as an argument in a copy constructor ? Explain. 2 + 3
4. What is a virtual base class ? What is an abstract class ? Give example. 3 + 2
5. a) What do you mean by exception ? Write down the purposes of the following keywords :
- (i) try
  - (ii) catch
  - (iii) throw
  - (iv) finally.
- b) What is use mutable and explicit ? 3 + 2
6. a) What is default constructor ?
- b) What is function overloading ? 2 + 3

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following. 3 × 15 = 45

7. a) What is constructor ? Explain the constructor overloading with an example. 1 + 5



- b) What is garbage collection ? What do you mean by automatic garbage collection ? Whether C++ support automatic garbage collection or not ? 2 + 2 + 1
- c) What is destructor ? How it is related to garbage collection ? Explain. 1 + 3
8. a) What is friend function ? Whether there are any differences between friend function and static function ? 2 + 3
- b) Write an object oriented program in C++ to create two classes called "Time12 " and "Time24". Class "Time12" will maintain the time in 12 hours format and class "Time24" will maintain the time in 24 hours format. Create a function that converts one time format to another one. (Use friend function concept). 10
9. a) State the basic differences between a 'Structure' in C and a 'Class' in C++. 3
- b) Explain "Encapsulation" and "Data Abstraction" in the context of Object Oriented Programming with a focus on their need. 4
- c) What are the different types of inheritance in C++ ? Explain with examples. 8



10. a) What do you mean by access modifiers of visibility levels in heritage ? What are the different access modifiers in case of inheritance in C++ ? Explain. 3 + 7
- b) Write a file-handling program in C++ in append mode to write to an existing file, MyOldFile1.c 5
11. a) What is virtual base class ? When do we need to make a class virtual ? Give a C++ program code to explain. 1 + 2 + 4
- b) Create a class Box containing Len, Br and Ht as data members. Use constructors for taking input and overload the following operators :
- (i) ++ to increment all data members (Both Pre and Post Form)
- (ii) -- to decrement all data members (Both Pre and Post Form).
- Use display () method to display the appropriate outputs. 8
12. Write short notes on any *three* of the following : 3 × 5
- a) Namespace
- b) Data Abstraction and Data Hiding
- c) V-table and Dynamic Binding
- d) Compile time and Run time Polymorphism.
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