

**M.G.K.V. VARANASI**  
**BCA III<sup>rd</sup> Sem. Examination, 2014**  
**C: 201—Object Oriented Programming Using C++**

Times : 3 Hours]

[Total Marks : 75

Note : Attempt any five questions. All questions carry equal marks.

1. (a) Explain the various features of object oriented programming. 7  
 (b) Define function prototyping with an example. Also write its advantages. 8
2. (a) What is friend class ? Illustrate friends as bridges. 7  
 (b) What is a constructor ? Explain different types of constructors. 8
3. (a) What is dynamic memory management ? Write a C++ program demonstrating the usage of new and 'delete' operators for a single variable as well as for an array. 7  
 (b) What are constructors and destructors ? Explain different types of constructors in C++ with examples. 8
4. (a) Discuss with examples, the implications of deriving a class from an existing class by the 'public' and 'protected' access specifiers. 7  
 (b) What is function overriding ? Explain when function overriding acts like function overloading. 8
5. (a) What is inheritance ? Explain the different types of inheritance possible in C++. 7  
 (b) What are generic functions ? Write a generic function to swap two data elements. 8
6. (a) How can data member be declared a static member ? What exactly is its impact ? Explain with examples. 7  
 (b) How is a local class declared ? What are the restrictions that apply to local class ? 8
7. (a) List the operators that cannot be overloaded. Define distance with feet and inches as data members and overload + = operator to add two objects. 10
8. Write short notes on any two of the following : 7½×2  
 (a) This pointer  
 (b) Nested Classes  
 (c) Protected and private data members.

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Note : Attempt any five questions. All questions carry equal marks.

1. (a) Describe how are data and functions organised in an Object Oriented program ? Also define dynamic binding. 8  
 (b) Write short notes on following :  
 (i) Memory management operators in C++ 7  
 (ii) Manipulators in C++ 8
2. (a) What is a class ? How are objects created ? When do we declare a member of a class static ? 7  
 (b) Is it mandatory to use constructors in a class ? Can we have more than one constructor in a class ? If yes, explain the need for such a situation. 8
3. (a) What is an operator function ? Describe the syntax of an operator function. 7  
 (b) When do we make a class Virtual ? In what order are the class constructors called when a derived class object is created ? 8
4. (a) What does inheritance mean in C++ ? Describe the syntax of the single inheritance in C++. 7  
 (b) What is an abstract class ? When do we use the protected visibility specifier to a class member ? 8
5. (a) How is polymorphism achieved at compile time and run time ? Explain by giving example. 8  
 (b) What does 'this' pointer do ? Also explain the need of virtual function. 7
6. (a) What is exception handling in C++ and how it is achieved ? 7  
 (b) Differentiate between class templates and function templates. 8
7. (a) What are input and output streams ? Describe the various file mode options available in C++. 7  
 (b) How many file objects would you need to create to manage the following situations ? Explain. 8

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- (i) To process four files sequentially
  - (ii) To merge two sorted files into a third file.
8. Write short notes on any two of the following :
- (a) Operator Overloading
  - (b) Multiple inheritance.

7½x2