

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA Integrated - SEMESTER– IV • EXAMINATION – SUMMER 2017**

**Subject Code: 4440601****Date: 06/05/2017****Subject Name: C++ WITH CLASS LIBRARIES (CPP)****Time: 10:30 am to 1:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Answer the following: **07**
- (i) A static member function can access only the \_\_\_\_\_ members of the class.
  - (ii) Function overloading implements \_\_\_\_\_ type of polymorphism.
  - (iii) State an operator that cannot be overloaded in C++.
  - (iv) A class containing at least one pure virtual function is called \_\_\_\_\_.
  - (v) In C++, the keyword “new” is a/an \_\_\_\_\_.
  - (vi) RTTI stands for \_\_\_\_\_.
  - (vii) If a class does not contain any user defined constructor, then a default constructor is provided by the \_\_\_\_\_.
- (b)** Answer the following:
- (i) What is a reference variable? Explain its use along with appropriate example. **04**
  - (ii) What is data hiding? How is it accomplished in C++? **03**
- Q.2 (a)** What is Object Oriented Programming (OOP)? List the features of OOP and explain any two in detail. **07**
- (b)** What is a friend function? Explain its syntax and use along with appropriate example. **07**
- OR**
- (b)** Write a short note on inline functions. **07**
- Q.3 (a)** What is a constructor? Explain the syntax and use of various types of constructor along with appropriate example. **07**
- (b)** What is operator overloading? State different ways of overloading unary and binary operators and explain any one in detail with appropriate example. **07**
- OR**
- Q.3 (a)** What is a template? State its types. Design a function of your choice using template. **07**
- (b)** What is type conversion? Explain how basic type is converted into user-defined (class) type along with appropriate example. **07**
- Q.4 (a)** What is an exception? Explain in detail, the mechanism of exception handling in C++ along with appropriate example. **07**
- (b)** What is inheritance? State various types of inheritance. Explain any two in detail along with appropriate diagram and syntax. **07**
- OR**
- Q.4 (a)** What is dynamic (or runtime) polymorphism? How is it different from static polymorphism? Explain how dynamic polymorphism is implemented using appropriate example. **07**
- (b)** What is a virtual base class? Explain in detail with an appropriate example. **07**

- Q.5 (a)** What are manipulators? Write a C++ code for a manipulator that would display a floating point value in a width of 15 characters, display exactly two digits after the decimal point, and always show the sign of the value (whether positive or negative). **07**
- (b)** Write a short note on namespace. **07**
- OR**
- Q.5 (a)** What is a binary file? Explain how an object of a class can be written to a binary file along with appropriate example. **07**
- (b)** What is STL? Describe various components of STL in detail. **07**

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