

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-IV EXAMINATION – SUMMER 2016**

**Subject Code:140704****Date:10/06/2016****Subject Name:Object Oriented Concepts And Programming****Time:10:30 AM to 01:00 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) Explain function modeling with example. **07**  
(b) Explain the basic characteristics of object oriented programming **07**
- Q.2** (a) Describe Three models and relationship between them in detail. **07**  
(b) 1) Define the following terms with respect to OO concepts: **04**  
association, generalization, event , transition  
2) Define following terms: **03**  
Abstraction, inheritance, polymorphism  
**OR**
- (b) What is a friend function? What are the merits and demerits of using friend functions? **07**
- Q.3** (a) Explain link and association and multiplicity with example. **07**  
(b) Write a C++ Program to overload unary minus operator using member function and friend function. **07**
- OR**
- Q.3** (a) What is Constructor? Explain constructor overloading with example. **07**  
(b) Create a class Account. It has three data member account id, name and balance. Define function to assign value and display value. Define function that search account number given by the user. If account number exists, print detail of that account. Write a program using array of object. Declare at least 5 account and print details. **07**
- Q.4** (a) Write a C++ program to check that the given integer number is prime or not. **07**  
(b) Define Inheritance. Explain different types of Inheritance. **07**
- OR**
- Q.4** (a) Explain Aggregation and Generalization with example **07**  
(b) Define a class Time with hours and minutes as two data members, add necessary member functions to initialize and display data of class. Do not use constructors in a class. Define a member function sum() which adds two Time objects. Invoke the statements like T3.sum(T1, T2) in main (). **07**
- Q.5** (a) Explain copy constructor giving suitable C++ programming example. **07**  
(b) What is virtual function? What is its need? Explain with example **07**
- OR**
- Q.5** (a) What is polymorphism? Write types of polymorphism. Explain run time polymorphism with virtual function. **07**  
(b) Draw data flow diagram for hostel management system. **07**

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