

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV (New) EXAMINATION – WINTER 2015

Subject Code: 2140705

Date: 04/01/2016

Subject Name: Object Oriented Programming with C++

Time: 2:30pm to 5:00pm

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 the benefits of Object Oriented Programming. **07**
(b) Explain the difference between **structure** and **class** in C++. **07**
- Q.2** (a) What do you mean by *call by value* and *call by reference*? Justify your answer with suitable example. **07**
(b) Describe The Following Terms In C++ With Example **07**
i) Default Argument. ii) Function Overloading. iii) Destructor iv) this pointer
- OR**
- (b) What is friend function? Write a program to find out sum of two private data members *x* and *y* of two classes *A* and *B* using a common friend function. Assume that the prototype for both the classes will be ***void sum (A, B);*** **07**
- Q.3** (a) What are the characteristics of constructor in C++? Write a program to illustrate the use of copy constructor. **07**
(b) What is an operator function? Write a program to overload binary + operator as a member function. **07**
- OR**
- Q.3** (a) Explain type conversion from class type to basic type and one class type to another class type with suitable example. **07**
(b) Write down the uses of static data member and static member function with suitable example. **07**
- Q.4** (a) What is inheritance? Why do we use of protected specifier for base class data members in inheritance? Explain hybrid inheritance with example. **07**
(b) What is polymorphism? How is it achieved in C++? Explain with suitable example. **07**
- OR**
- Q.4** (a) What is a stream? Describe various stream classes for console I/O operations in C++. **07**
(b) Explain various file mode parameters in C++. Write a program to copy the contents of a source file **student1.txt** to a destination file **student2.txt** character by character. **07**
- Q.5** (a) What is the purpose of using template in C++? Explain template function and template class with example. **07**
(b) Explain the mechanism of keywords **try**, **throw** and **catch** to handle Exceptions in C++. Explain with an example like “*division by zero*” situation. **07**
- OR**
- Q.5** (a) Explain catch all exception and multiple catch exception with example. **07**
(b) Consider the following class structure as shown in the figure. The class **Result** derives information from the classes **Internal**, **University** and **External** respectively. The **Internal** and **External** classes access information from the **07**

Student class. Define all five classes and write a suitable program to create and display the information contained in **Result** object.

