

**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

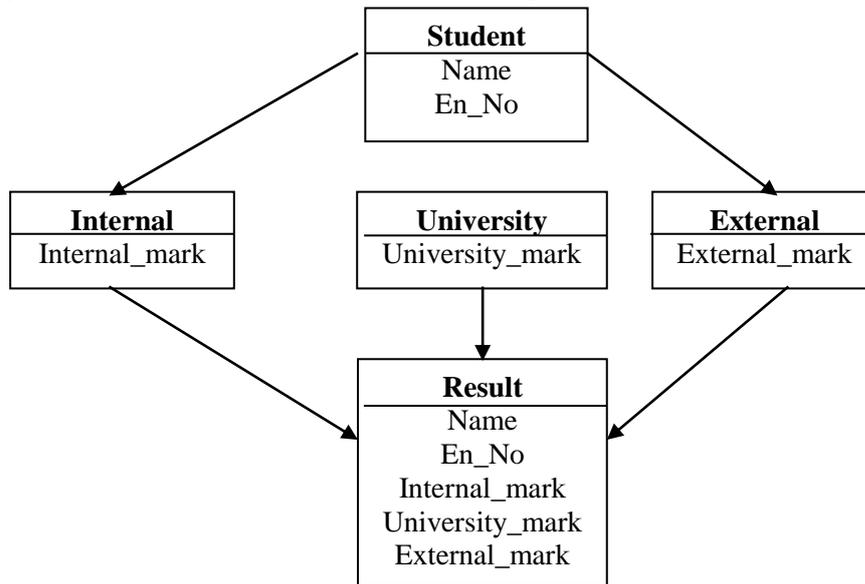
Total Marks: 70

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.



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