Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (New) EXAMINATION – WINTER 2015

Subject Code:2140705 **Date:04/01/2016**

Subject Name: Object Oriented Programming with C++

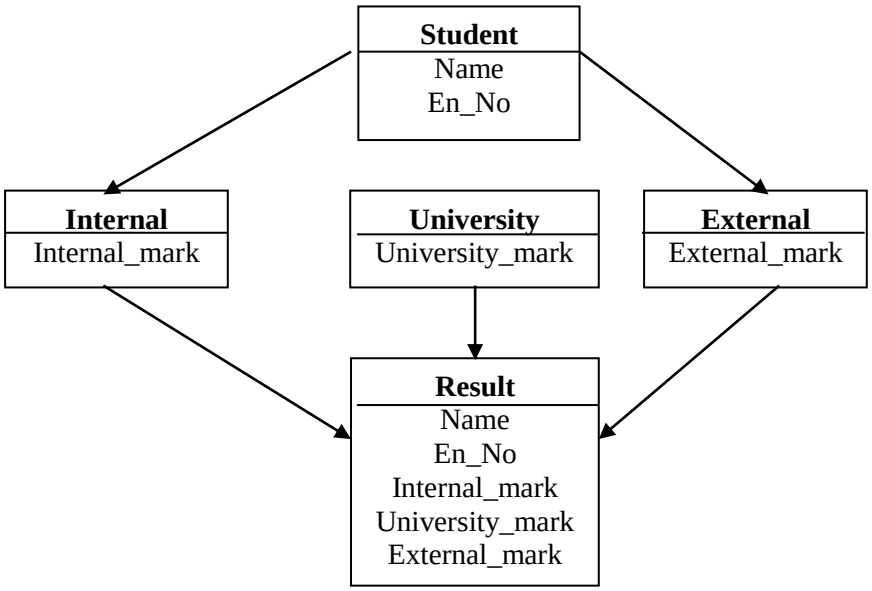
Time: 2:30pm to 5:00pm **Total Marks: 70**

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 i) Default Argument. ii) Function Overloading. iii) Destructor iv) this pointer	**07**
		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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