Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER– II• EXAMINATION – SUMMER 2017

Subject Code: 2620002 Date:02/06/2017

Subject Name: Object Oriented Programming Concepts & 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)**		What is inheritance? Specify its types. Which type of inheritance is having ambiguity? How to overcome it?	**07**
	(b)		What is polymorphism? Explain in detail different ways of achieving compile-time polymorphism in C++.	**07**
Q.2	**(a)**	**I**	Explain user defined conversion function which converts user-defined object to built-in data type.	**04**
		II	What are the differences between public, private and protected inheritance?	**03**
	(b)		What is the need of friend function within a class? Explain with proper real-life example.	**07**
			OR	
	(b)		What is file opening mode? Describe the various file opening modes available in C++. Explain how a file pointer can be managed in a random file for read / write operations.	**07**
Q.3	**(a)**	**I**	When static data member is declared in a class? Explain with example.	**04**
		II	Explain Exception handling mechanism.	**03**
	(b)	**I**	Explain '.*' and '->*' operators with suitable example.	**04**
		II	What is difference between a default constructor provided by compiler and a user-defined default constructor?	**03**
			OR	
Q.3	**(a)**	**I**	What is the need of virtual base class? Explain with code.	**04**
		II	Differentiate constructor and destructor.	**03**
	(b)	**I**	What is Error Handling with reference to File IO? Explain with suitable program.	**04**
		II	Write a C++ code to illustrate class template.	**03**
Q.4	**(a)**		Distinguish between macro definition, normal function and inline function. What are the advantages and disadvantages of inline function?	**07**
	(b)	**I**	Differentiate Constant pointer and pointer to constant.	**04**
		II	Explain Abstraction and Encapsulation.	**03**
			OR	
Q.4	**(a)**		How can >> and << operator be overloaded?	**07**
	(b)	**I**	What do you mean by inline functions?	**04**
		II	What is a namespace? How do you extend a namespace?	**03**
Q.5	**(a)**		What is RTTI? Explain how typeid and dynamic_cast are used for RTTI.	**07**

(b) Define a class Computer. Also define classes of Main, Mini and Micro inheriting from that. Main is further inherited into Super and Non-Super, while Micro is inherited into PC and HandHelds. Define an array which contains 10 different types of Computers. Define a function ReadDetails() in all above classes. Write a C++ program to create single array which read details of different computers and display them. Details should be displayed based on the type of the computer. **07**

OR

Q.5 **(a)** What are manipulators? How are they different than ios formatting functions? How can one create your own manipulator? **07**

(b) Create a class called Distance having member data feet and inches of type int and float respectively. Define necessary constructors and getDistance() function to enter feet and inches and putDistance() function to print feet and inches in proper format (i.e. 4'-5"). Write a routine to convert given measurement in meters of type float to an object of Distance class and vice-versa. **07**

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