Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–II • EXAMINATION – SUMMER • 2014

Subject Code: 620003 **Date: 17-06-2014**

Subject Name: Object Oriented Concepts and Programming (OOCP)

Time: 10:30 am - 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) State True/False It is must to justify your answer. **[07]**

(1) Friend functions have access to only public members of a class.
(2) Using the operator overloading concept, we can change the meaning of an operator.
(3) Wrapping up of data of different types into a single unit is known as inheritance
(4) cin and cout are built-in functions.
(5) The main advantage of width() function is that we can use one width specification for more than one items.
(6) Constructors return void value.
(7) The objects of **std** namespace cannot be used without writing '**using std**' in the beginning of the program.

(b) What is function overloading and function overriding? Explain with example. **[07]**

Q.2. (a) What do you mean by function template and class template? Explain the need for creating function and class templates by giving example. **[07]**

(b) **(1)** Explain the functions used for random access of file. **[03]**
(2) What is reference data type? Explain with example. **[04]**

OR

(b) What is an Inline function? How is it different than normal function? What are the restrictions for inline function? Give examples of creating inline function in two different ways. **[07]**

Q.3.(a) **(1)** How is the memory allocated to the object of a class? Explain with example. **[04]**
(2) Explain dynamic initialization of variables in C++ with example **[03]**

(b) Write a program to convert from Feet object to Inch object and vice versa. Overload << to display the result of conversion in both classes. **[07]**

OR

Q.3. (a) **(1)** How type conversion from a class to basic type is performed? Which conditions casting operator function should satisfy? Can the constructor student (int rollno, double percentage) for class student be used to convert types? **[04]**
(2) What is the difference between opening a file with a constructor function and opening a file with open() function? When is one method preferred over the other? **[03]**

(b) Explain Manipulators with example. **[07]**

Q.4. (a) **(1)** Which storage class data member is having single copy of variables for all objects? Describe with appropriate example. **[04]**
(2) Briefly discuss entities container, algorithm and iterators with respect to STL. **[03]**

(b)	What is a namespace? Why is it required to be used? Explain various ways of using members of a namespace in the program. What are unnamed namespaces?	**[07]**

OR

Q.4.(a)	**(1)**Explain containership with suitable example.	**[04]**
	(2) Explain friend function with example.	**[03]**
(b)	What is Exception? What are the benefits of exception handling through C++? Explain how exception handling is implemented in C++ using an example.	**[07]**
Q.5. (a)	What are constructors? Explain different type of constructors and give example of a dynamic constructor. What is the advantage of having a dynamic constructor?	**[07]**
(b)	Create a class matrix to represent the matrix. Assume necessary data and member functions. Use constructors to initialize matrix objects. Overload insertion and extraction operators to take input for a matrix object and display a matrix object. Also overload operator + to add two matrix objects.	**[07]**

OR

Q.5. (a)	Explain the following terms **1)** explicit **2)**mutable **3)** this **4)** static **5)** friend **6)** const_cast **7)** protected	**[07]**
(b)	Explain Member Initialization List in detail.	**[07]**

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