

GUJARAT TECHNOLOGICAL UNIVERSITY
M.C.A.- SEMESTER – II • EXAMINATION – WINTER 2012

Subject code: 620003**Date: 26-12-2012****Subject Name: Object Oriented Concepts and Programming****Time: 02:30 pm – 05:00 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) Fill in the blanks :**07**

- i. _____ is a unit which contains data and functions that operate on that data.
- ii. A static member function can access only _____ from class.
- iii. _____ specifies the processing to be performed before actual constructor processing starts.
- iv. _____ method is used to convert user defined data type to basic data type.
- v. A generic function is created with the keyword _____.
- vi. The protected specifier allows to create a class member that is accessible within a class hierarchy, but is otherwise _____.
- vii. When a virtual function is redefined in a derived class, it is said to be _____.

(b) Select the most appropriate answer :**07**

- i. When a language has the capacity to produce new data type, it is said to be :
 - a. reprehensible
 - b. encapsulated
 - c. overload
 - d. extensible
- ii. The Exception is processed using :
 - a. unexpected()
 - b. perform()
 - c. catch()
 - d. try()
- iii. In C++, the stream base class is :
 - a. iostream
 - b. iofstream
 - c. ios
 - d. stdio
- iv. In C++ iostreams, the format flags can be reset by:
 - a. resetf()
 - b. unsetf()
 - c. resetiflags()
 - d. imaskf()
- v. Which of the following correctly describes the meaning of 'namespace' feature in C++?
 - a. Name spaces refer to memory space allocated for names used in a program
 - b. Name spaces refer to space between names in a program

- c. Name spaces refer to packing structure of classes in a program.
 - d. Name spaces provide facilities for organizing the names in program to avoid name clashes.
 - vi. Which of the STL containers store the elements contiguously?
 - a. `std::vector`
 - b. `std::list`
 - c. `std::map`
 - d. `std::set`
 - vii. If class A is friend of class B and if class B is friend of class C , which of the following is true?
 - a. Class C is friend of class A
 - b. Class A is friend of class C
 - c. Class A & class C do not have any friend relationship
 - d. None of the above
- Q.2 (a)** Explain about file opening modes and error handling functions. **07**
- (b)** i. Explain Exception Handling mechanism. **03**
- ii. Write a C++ code to illustrate function template with two generic arguments. **04**
- OR**
- (b)** i. How do you process unexpected Exceptions? **03**
- ii. Write a C++ code to illustrate exclusive overloading through template function. **04**
- Q.3 (a)** i. State the purpose of bits used for stream error states. **04**
- ii. Write a code in C++ to show the use of extending the namespace. **03**
- (b)** What is pure virtual function? Write a program to demonstrate it. **07**
- OR**
- Q.3 (a)** i. Explain the use of any four manipulators of stream IO in C++. **04**
- ii. Write a sample code in C++ to show the use of nested namespace. **03**
- (b)** What is friend class? Write a program to demonstrate it. **07**
- Q.4 (a)** What do you mean by a reference argument? How does it differ from normal argument? Explain with example program. **07**
- (b)** Write a program to count the number of objects created and destroyed with specifications of which object is created and destroyed. **07**
- OR**
- Q.4 (a)** Differentiate :
- i. struct v/s class **03**
 - ii. constructor v/s destructor **04**
- Q.4 (b)** Raising a number n to a power p is same as multiplying n by itself p times. Write a function called `power()` that takes a double value for n and an int value for p, and returns the result as double value. Use default argument of 2 for p, so that if this argument is omitted, the number will be squared. Write a main function that gets values from user to test this function. **07**
- Q.5 (a)** Create a class called Queue. Include the following member functions: **07**
- i. `operator ++()` to insert the element in queue.
 - ii. `operator --()` to remove the element from queue.

iii. display() to show the elements of queue.

(Assume standard member data for a queue class.)

- (b)** Write a C++ code by utilizing the concept of derived class for the following **07**
problem.

In a computer system it is required to maintain three user groups, called owner, user and others. The groups should have the following access capabilities for accessing a file. The other group can only read from the file. The user group has read and execute permission but is not allowed to delete or modify the file. Only the owner groups has read, write and execute permissions on the file. The user of the program should first identify himself as belonging to a given group, and then can access any file as per the access restrictions mentioned. If he is not a bonafide group member for the usage of the file, access to the file will be denied.

OR

- Q.5 (a)** Write a program in C++ which have **07**

- i. the overloaded + , which adds two arrays element wise
- ii. the overloaded == returns true if each element of both the array is the same and returns false otherwise.

(Assume suitable class and member data.)

- (b)** Write a program to demonstrate public and private inheritance. Specify **07**
the probable errors generated and write down the output.
