Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA INTEGRATED- SEMESTER– VI• EXAMINATION – WINTER 2016

Subject Code: 4440601 **Date17/11/ 2016**

Subject Name: C++ with Class Libraries

Time:02.30 PM TO 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**

1) The C++ facility that provides a new meaning to an operator is called _____
2) Default data access specifier in C++ is _____
3) Object is not declared for _____ type of class.
4) _____ is a special method used to initialize the instance variable of a class.
5) The base class for most stream classes is the _____ class.
6) _____ operator is used to create object and _____ operator is used to delete objects.
7) A function that doesn't return anything has return type _____.

(b) State true or false for the following statements. **07**

1) When arguments are passed by value, the function works with the original arguments in the calling program.
2) In a class you can have more than one constructor with the same name.
3) The << insertion operator stops reading a string when it encounters a space.
4) A friend function can access a class' private data without being a member of the class.
5) It is illegal to make objects of one class members of another class.
6) Static variables are initialized with default value zero.
7) Pure virtual functions do not contain function body.

Q.2 (a) **1)** What is reference data type? Explain with example. **03**

2) Define the terms.

(i) MIL (ii) Abstraction (iii) Polymorphism (iv) STL **04**

(b) What are exceptions? What are the constructs supported by C++ to handle exceptions? **07**

OR

(b) 1) What is the use of keyword "namespace"? Explain with example how to define a namespace. **03**

2) What is an inline function? What are the advantages and disadvantages of inline function? **04**

Q.3 (a) What is constructor? Explain different types of constructors with suitable examples. **07**

(b) Design a Size class with three data members (meter, centimeter, millimeter) and initialize data members with different constructors. Once value is not passed assign data members with default value zero. Overload operator + which will do summation of 2 Size objects and return answer Size object. **07**

OR

Q.3 **(a)** How multiple and multilevel types of inheritance are achieved in C++? Explain with examples. **07**

(b) Explain Virtual Base Class with proper example **07**

Q.4 **(a)** Explain friend function with suitable example. **07**

(b) What is virtual destructor? Explain its need. Can we have virtual constructor? Why? **07**

OR

Q.4 **(a)** How a template function is Over Loaded? Explain. Differentiate between Templates and Macros. **07**

(b) Explain polymorphism. How do you achieve run time polymorphism in C++? **07**

Q.5 **(a)** Explain the following terms in brief with suitable examples: **07**

i) Pure Virtual Function

ii) Runtime Type Identification

(b) **1)** What is Standard Template Library (STL)? Which three types of containers are there in STL? **04**

2) Examine the following code, check if there are any errors and write correct code. Write the output of program after error correction. **03**

```
#include <iostream>
using namespace std;
int operate (int a, int b) {
        return (a * b);
}
void operate (float a, float b) {
        return (a/b);
}
void Main() {
        int x=5, y=2;
        float n=5.0, m=2.0;
        cout >> operate(x,y) >> "\t";
        cout >> operate (n,m);
        return 0;
}
```

OR

Q.5 **(a)** 1) What is a file mode? Describe the various file mode options available.. **03**

2) What is the role of following functions? **04**

seekg() , seekp(), tellg(), tellp()

(b) How we can achieve following things? **07**

cin>>gtuuniversity1 [It will ask for data member input]

cout<< gtuuniversity1 [It will print data members of object]

gtuuniversity1 is object of gtuuniversity class.

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