Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**B.E. Sem-V$^{th}$ Examination December 2010**

## Subject code: 152004
## Subject Name: Object Oriented Programming in C++

**Date: 18 /12 /2010** **Time: 03.00 pm - 05.30 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)** 1. What is object oriented programming? How is it different from the procedure oriented programming? **04**

2. What is a class? How does it help in data hiding? **03**

**(b)** Which operators can not be overloaded? Write steps to overload + operator so that it can add two complex numbers. Explain with example how can a function template be created? **07**

**Q.2** **(a)** 1. How do following statements differ in operation? **04**

```
cin>>c;
cin.get(c);
```

2. Describe the various classes available for file operations. **03**

**(b)** 1. What is the interpretation of following code. **04**

```
1. cout.setf(ios::showpoint);
2. cout << setw(10) << 123.45678;
```

2. Define a class to represent a bank account. Include the following members: Data members **03**

1. Name of the depositor
2. Account number
3. Type of account
4. Balance amount in the account

Member functions

1. To assign initial values
2. To deposit an amount

To withdraw an amount after checking the balance.

**OR**

**(b)** 1. How can you make a function inline? Why? How does an inline function differ from a preprocessor macro? **04**

2. What is an exception? How is an exception handled in C++? **03**

**Q.3** **(a)** 1. What role does iomanip file play? What is the role of file() function? **04**

2. When a class is declared as static? When do we make a class virtual? **03**

**(b)** Write about the data conversion with example between incompatible types when conversion from basic type to class type and conversion from class type to basic type is required. **07**

**OR**

**Q.3** **(a)** 1. Explain with example how can a class template be created? **04**

2. What is Standard Template Library? How is it different from the C++ Standard Library? **03**

**(b)** What are the different forms of inheritance? Give an example for each. **07**

| | | | |
|---|---|---|---|
| **Q.4** | **(a)** | 1. Find errors if any, in the following function prototypes.<br>(1) int mul(int a,b);<br>(2) int display(…); | **04** |
| | | 2. What is a friend function? What are the merits and demerits of using friend functions? | **03** |
| | **(b)** | 1. Explain with example how can a function template be created? | **04** |
| | | 2. List properties of the constructor function. | **03** |
| | | **OR** | |
| **Q.4** | **(a)** | 1. Describe the various approaches by which end-of-file condition is detected successfully. | **04** |
| | | 2. What is an abstract class? In what order are the class constructors are called when a derived class object is created? | **03** |
| | **(b)** | 1. What is a virtual function? Why do we need virtual function? | **04** |
| | | 2. Explain the three types of containers. | **03** |
| **Q.5** | **(a)** | 1. What is a file mode? Describe the various file mode options available. | **04** |
| | | 2. Explain the terms - reinterpret cast and static cast. | **03** |
| | **(b)** | 1. Can a class have more than one constructor in a class? Explain with example. | **04** |
| | | 2. What is operator overloading? Why is it necessary to overload an operator? | **03** |
| | | **OR** | |
| **Q.5** | **(a)** | 1. Distinguish between the following two statements:<br>Time T2(T1);<br>Time T2=T1;<br>T1 and T2 are objects of Time class. | **04** |
| | | 2. What does this pointer point to? What are the applications of this pointer? | **03** |
| | **(b)** | 1. What is function overloading? Explain with example. | **04** |
| | | 2. What is a destructor? Does a destructor take any argument? | **03** |

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