Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA. Sem-II Examination July 2010

Subject code: 620003

Subject Name: Object Oriented Concepts & Programming (OOCP)

Date: 05 /07 /2010 **Time: 11.00 am – 01.30 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**	i. Compare structured programming with object oriented programming.	**03**
		ii. What is reference data type? Explain with example.	**04**
	b	How are the constructors and destructors called in inheritance?	**07**
Q-2	**a.**	Distinguish between macro definition, normal function and inline function. What are the advantages and disadvantages of inline function?	**07**
	b.	What are the applications of "this" pointer? Explain with example.	**07**
		OR	
	b.	Explain polymorphism. How do you achieve run time polymorphism in C++?	**07**
Q-3	**a.**	i. How is the memory allocated to the object of a class? Explain with example.	**04**
		ii. Explain: Abstraction and Encapsulation	**03**
	b.	i. What are read only objects? Explain the role of constructors in creating such objects?	**04**
		ii. What are the different types of constructors?	**03**
		OR	
Q-3	**a.**	i. What are constructors and destructors? How do they differ from normal function?	**04**
		ii. In C++, a variable can be declared anywhere in the program. What is the significance of this feature?	**03**
	b.	i. Explain the access specifiers available in C++.	**04**
		ii. Explain the need of static function for a class.	**03**
Q-4	**a.**	Compare containership with inheritance. Also list the types of inheritance.	**07**
	b.	i. Explain the following terms: 1. mutable 2. reinterpret_cast	**04**
		ii. Explain the functions used for random access of file.	**03**
		OR	
Q-4	**a.**	Why functions like terminate or unexpected exists when abort () and exit () functions are available?	**07**
	b.	i. List out various modes of opening a file. Explain app and ate with example.	**04**
		ii. Explain the need of virtual base class with example.	**03**
Q-5	**a.**	What is virtual destructor? Explain its need. Can we have virtual constructor? Why?	**07**

b. i. Explain the following: **03**

1. friend function
2. anonymous namespace

ii. Design classes such that they support the following statements: **04**

```
Rupee r1,r2;  Dollar d1,d2;
d1 = r1;  // converts rupee (Indian Currency) to dollar (US currency)
r2 = d2;  // converts dollar (US Currency) to rupee (Indian currency)
```

NOTE: Assume 1 dollar = 47 Rupees

OR

Q-5 **a.** What are the problems of using macros? How does template helps in this? Explain with example **07**

b. i. What are the advantages of having readymade components in STL? **03**

ii. Create two classes Integer and Float that stores the int type and float type respectively. Include default constructor, copy constructor in both the classes. Also write the functions that support the following. **04**

```
Float F1;
Integer I1;
F1 = I1 + F1;
```

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