B.E. Computer Technology Fourth Semester

CT405 - Object Oriented Methodologies

P. Pages : 2 **GUG/W/18/1599**

Time : Three Hours * 1 2 5 8 * Max. Marks : 80

Notes : 1. All questions carry equal marks.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.

1. a) Implement using the concept of static data member to create a class student consisting of int role static int count functions like default constructor, parameterized constructor, destructor, int retrole (void). Write suitable code that demonstrates the use of static variable to keep track of number of objects created. **8**

b) Write a program to create a class book. Assume suitable data members and member functions solve it by using Array of objects. **8**

OR

2. a) Implement it using the concept of objects as function arguments create a class time consisting of hour. minute, Member function like void store (void), void display (void), void add (Time, time). **8**

b) List and explain the characteristics of object oriented programming. **8**

3. a) Write a program to search element in an array using the concept of array passed by pointer to a function. **8**

b) Write a program to create a class called Distance consisting of int feet, float inches member functions like, default, parameterized constructor, getdist ( ), showdist ( ). Use pointer to objects to call getdist ( ) and showdist ( ) in main ( ). **8**

OR

4. a) Write a program to create a class length consisting of variables int kilometer, meter. Member functions like default, parameterized constructor, store ( ), display ( ), overloaded friend operator + that adds two objects. (Note : 1km = 1000 meter). **8**

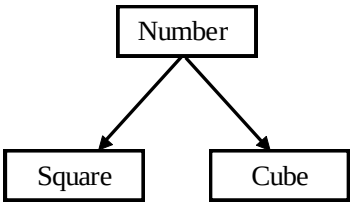
b) Write short notes on pitfalls of operator overloading and coversion. **8**

5. Write a program to create a class called Base consisting of **8**
Private variable ; int a
Public variable : int b
Member functions like
Store ( ), int reta ( ).
Create a derived class consisting of private variable : int C
and public functions multiply ( ) and display ( )
Implement it using the concept of single inheritance in private derivation.

b) Create Gamma class that inherits Alpha and Beta class that have parameterized constructor. Implement it using constructor in derived class passing parameters to the Base class constructors. **8**

OR

6. a) Implement the following Hierarchical inheritance to calculate square and cube of a number by assuming suitable data members and member functions. **8**



b) Define Inheritance and explain all its types in detail. **8**

7. a) Write a program to create a Base class called number by assuming suitable data members and member functions. **8**
Create a class dectype, octtype, hextype from class number. These classes will print the number in specific format. Implement it by using the concept of pure virtual function.

b) Write a program to create a class called Box that consist of static variable count. parameterized constructor, destructor, float volume (void) and private variables ℓ, b, h. Static int retcount (void). **8**

OR

8. a) Write suitable program for checking the type of a class with dynamic cast operator. **8**

b) Write suitable program code to demonstrate the use of typeid operator. **8**

9. a) Write a program to create a class Integer consisting of two numbers. Member functions like default, parameterized constructor. **8**
Using friend function overload the following operators to store the value in the object and print the contents of the object.
   a. Operator << (Insertion).
   b. Operator >> (Entraction)

b) Write a program to perform following operations on text file **8**
   a. Read
   b. Write
   c. Copy contents of one file into another file
   d. Count number of characters in a file

OR

10. a) Explain the following. **8**
   a. Getline (str, MAX, DELIM).
   b. Setf (flags, fields)
   c. Seekg (Pos, seek-dir)
   d. Pos = Tellg (Pos)

b) Explain class template with suitable program code. **8**

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