DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH. SEMESTER III [IT]
SUBJECT: (IT-303) OBJECT ORIENTED PROGRAMMING

Examination	**: Third Sessional**	**Seat No.**	**: _____**
Date	**: 09/10/2014**	**Day**	**: Thursday**
Time	**: 09:30 to 10:45**	**Max. Marks**	**: 36**

INSTRUCTIONS:
1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

Q.1 Answer the following: **[12]**

(A) State True or False with justification: **[4]**
1) Virtual function becomes virtual in derived class.
2) Private function of derived class can be called through a pointer of base class.
3) Pointers of derived class are type compatible with pointers of base class.
4) The user must always define the operation of the copy constructor.

(B) Find out the error if any, correct it and show the output: **[8]**

1)
```
#include<iostream.h>
class base
{ public: virtual void fun(int x=0)
        { cout<<"base::x="<<x; }};
class derived: public base
{ public: virtual void fun(int x=10)
        { cout<<"der::x="<<x; } };
void main(){ derived d1;
     base *ptr=&d1; ptr->fun(); }
```

2)
```
#include<iostream.h>
class test
{ int data;
  public: test() {data=0;}
  int getdata() { return data; }};
void main()
{ test t;
  int *ptr=(int *)&t; *ptr=10;
  cout<<t.getdata(); }
```

3)
```
#include<iostream.h>
class shape
{ public: virtual void print()
        { cout<<"shape"; } };
class box: public shape
{ public: virtual void print(int i)
        { cout<<"box"; } };
void main()
{ shape *s=new box;
  s->print(); }
```

4)
```
#include<iostream.h>
class alpha
{ int data;
  public: alpha() {data=10;} };
class beta
{ public: void func(alpha a)
        { cout<<a.data; } };
void main()
{ alpha a1; beta b1;
  b1.func(a1);  }
```

Q.2 Answer the following: **[12]**

(A) Explain virtual base class with example. **[2]**

(B) What does the "this" pointer point to? Describe any two situations where the use of "this" pointer becomes necessary. **[4]**

(C) Create a linked list with all operations mentioned below: **[6]**
1) Insertion as a head node(first node)
2) Insertion in between two nodes
3) Display all the nodes

OR

(C) Create a linked list with all operations mentioned below: **[6]**
1) Insertion as a last node
2) Deletion of a node
3) Display all the nodes

Q.3 Answer the following: **[12]**

(A) What are file pointers? Describe get pointers and put pointers. **[2]**

(B) Create a class called "person". From this class derive two classes "Student" and "Employee". Write a main() function to display the details of all students and employees by using pointer to "Person". Display() is exist in all these three classes. **[4]**

(C) Create a class called "Employee". This class should have overloaded stream operator functions to save or retrieve objects of the Employee class from a file. Write a program to manipulate objects of Employee class with a file. **[6]**

OR

Q.3 Answer the following: **[12]**

(A) What is redirection? Describe cerr and clog objects. **[2]**

(B) Overload Assignment operator function and copy-constructor for assignment and initialization of "Person" objects. Write a main() function to copy all the details of one person to another. **[4]**

(C) Write an interactive program to maintain an Employee database. It has to maintain information such as employee_id, name, qualification, designation, salary, etc. The user must be able to access all details about a person by entering employee name. It has to support an option for creating and updating a database. **[6]**

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