KENDRIYA VIDAYALAYA PANGODE
MONTHLY TEST – AUGUST 2015
CLASS: XII COMPUTER SCIENCE

TIME: 1½ hrs **TOTAL MARKS: 35**

1. How can we make private members inheritable? (1)

2. Find out errors in the following program:- (2)

```
class number
{
int x=10;
float y;
number(){ x=y=10;}
public:
number(number t)
{
x=t.x; y=t.y;
}
~ (){ cout<<"Object destroyed ";}
}
main()
{
number a1, a2(a1);
}
```

3. How does inheritance influence the working of constructors and destructors? Give example. (2)

4. Given a class as follows: (2)

```
class Match {
        int Time;
        int Points;
public:
        Match(int y, int p) // Constructor 1
        { Time=y; Points =p; }
        Match(Match &M); // Constructor 2
};
```

   (i) Create an object, such that it invokes Constructor 1.
   (ii) Write complete definition for Constructor 2.

5. Find the output of the following : (2)

```
#include<iostream.h>
#include<conio.h>
#include<stdio.h>
#include<string.h>
#include<ctype.h>
void main( ){
        char *Name= "IntRAneT";
        for(int x =0; x<strlen(Name); x++)  {
```

```
            if(islower(Name[x]) )
                Name[x]=toupper(Name[x] );
             else if (isupper(Name[x]) )
                if (x%2 = =0)
                    Name[x]=tolower(Name[x]);
                else
                    Name[x]=Name[x-1];
            }
        puts(Name);
}
```

6. Find the output of the following program: (2)

```
#include<iostream.h>
void main( )
{
int U=10,V=20;  for(int
I=1;I<=2;I++)
{
cout<<" [1] "<<U++<<" & "<<V – 5 <<endl;
cout<<" [2] "<<++V<<" & "<<U + 2 <<endl;
}
```

7. Define a class Customer with the following specifications. (4)

Private Members :

Customer_no	integer
Customer_name	char (20)
Qty	integer
Price, TotalPrice, Discount, Netprice	float

Public members:

* A constructor to assign initial values of Customer_no as 111, Customer_name as "Leena", Quantity as 0 and Price, Discount and Netprice as 0.

*Input( ) – to read data members(Customer_no, Customer_name, Quantity and Price) call Caldiscount().

* Caldiscount ( ) – To calculate Discount according to TotalPrice and NetPrice.

TotalPrice = Price*Qty

TotalPrice >=50000 – Discount 25% of TotalPrice

TotalPrice >=25000 - Discount 10 % of TotalPrice and TotalPrice >=10000 -Discount 5% of TotalPrice

8. Answer the questions (i) to (iv) based on the following code: (4)

```
class AC {
        char Model[10];
        char Date_of_purchase[10];
        char Company[20];
public:
        AC( );
        void entercardetail( );
        void showcardetail( );
 };
```

```
class Accessories : protected AC {
protected:
        char Stabilizer[30];
        char AC_cover[20];
public:
        float Price;
        Accessories( );
        void enteraccessoriesdetails( );
        void showaccessoriesdetails( );
};
class Dealer : public Accessories {
        int No_of_dealers;
        char dealers_name[20];
        int No_of_products;
public:
        Dealer( );
        void enterdetails( );
        void showdetails( );
};
```

(i) How many bytes will be required by an object of class Dealer and class Accessories?

(ii) Which type of inheritance is illustrated in the above c++ code? Write the base class and derived class name of class Accessories.

(iii) Write names of all the members which are accessible from the objects of class Dealer.

(iv) Write names of all the members accessible from member functions of class Dealer.

9. What is the difference between the members in private visibility mode and the members in protected visibility mode inside a class? Also, give a suitable C++ code to illustrate both. (2)

10. Answer the questions (i) to (iv) based on the following: (4)

```
class  COMPANY
{
        char Location[20];
         double  Budget,Income;
protected:
        void Accounts(  );
public:
        COMPANY();
        void Register(  );
        void Show(  );
};
class  FACTORY: public COMPANY
{
        char Location[20];
        int Workers;
protected:
        double Salary;
        void Computer();
public:
        FACTORY();
        void Enter(  );
```

```
        void show( );
};

class  SHOP :  private COMPANY
{
        char Location[20];
        float Area;
        double  Sale;
public:
            SHOP();
            void Input();
            void Output();
};
```

(i) Name the type of inheritance illustrated in the above C++ code.
(ii) Write the names of data members, which are accessible from member functions of class SHOP.
(iii) Write the names of all the member functions, which are accessible from objects belonging to class FACTORY.
(iv) Write the names of all the members, which are accessible from objects of class SHOP.

11. Define Multiple and Multilevel inheritance in context of OOPs. Give suitable example to illustrate the same. (2)

12. Define a class Clothing in C++ with the following description: (4)

Private:

Code	of type string
Type	of type string
Size	of type integer
Material	of type string
Price	of type float
Calc_price()	function to calculate and assigns the value of Gprice as follows:

For the value of Materials "COTTON":

Type	*Price(Rs)*
TROUSER	1500
SHIRT	1200

For Material other than "COTTON" the above mentioned price gets reduced by 25%.

Public:

*A constructor to assign initial values of Code, Type and Material with word "NOT ASSIGNED" and size and price with 0.
*A function Enter() to input the values of the data members Code, Type, Size and Material and invoke the Calc_Price() function.
*A function show() which displays the content of all the data members.

13. Find the output: (2)

```
#include<iostream.h>
void main( )
```

```
{   long NUM= 1234543;
        int F=0, S=0;
        do
            {   int Rem = NUM% 10 ;
                if (Rem % 2 !=0)
                        F+=Rem;
                else
                        S+=Rem;
                NUM /=10;
            }while(NUM>0);
            cout<<F-S;
}
```

14. class data (2)

```
        {
                int num ;
        public :
        data (){   }
        data ( int n )
        {       num = n ; }
        void show ( )
        {       cout << num <<endl;
        }   };
class database : public data
        {
        char name[12];
        data d ;
        public :
        _____________________
        };
```

Fill in the blanks to define a constructor for the derived class assigning values of the data passed from main ( ) and to assign a value 15 to *base class constructor data* n.

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KENDRIYA VIDAYALAYA PANGODE
MONTHLY TEST – AUGUST 2015
CLASS: XII COMPUTER SCIENCE

TIME: 1½ hrs **TOTAL MARKS: 35**

1. How can we make private members inheritable? (1)
Ans: 1. By making the visibility mode to public.
2. By making the visibility mode to protected.

2. Find out errors in the following program:- (2)

```
class number
{
int x=10;
float y;
number(){ x=y=10;}
public:
number(number t)
{
x=t.x; y=t.y;
}
~ (){ cout<<"Object destroyed ";}
}
main()
{
        number a1, a2(a1);
}
```

Ans.: error: int x=10; // class member can not be initialized in the class.
Constructor should be declared in public section of class.
Reference operator is missing in the definition of copy constructor
In destructor class name is missing.
Semicolon is missed after the definition of class.

3. How does inheritance influence the working of constructors and destructors? Give example. (2)
Ans: First the base class constructors are invoked as per the order of inheritance and then the derived class constructors. The order is just the reverse in case of destructor.

4. Given a class as follows: (2)

```
class Match {
        int Time;
        int Points;
public:
        Match(int y, int p) // Constructor 1
        { Time=y; Points =p; }
        Match(Match &M); // Constructor 2
};
```

(iii) Create an object, such that it invokes Constructor 1.
(iv) Write complete definition for Constructor 2.

Ans: 1. Match m(1, 20);
2. Match(Match &M) { Time=M.Time; Points=M.Points; }

5. Find the output of the following : (2)

```
#include<iostream.h>
```

```
#include<conio.h>
#include<stdio.h>
#include<string.h>
#include<ctype.h>
void main( ){
        char *Name= "IntRAneT";
        for(int x =0; x<strlen(Name); x++)  {
                if(islower(Name[x]) )
                        Name[x]=toupper(Name[x] );
                 else if (isupper(Name[x]) )
                        if (x%2 = = 0)
                                Name[x]=tolower(Name[x]);
                        else
                                Name[x]=Name[x-1];
                }
        puts(Name);
}
```

Ans: iNTTaNEE

6. Find the output of the following program: (2)

```
#include<iostream.h>
void main( )
{
int U=10,V=20;  for(int
I=1;I<=2;I++)
{
cout<<"[1]"<<U++<<"&"<<V – 5 <<endl;
cout<<"[2]"<<++V<<"&"<<U + 2 <<endl;
}
```

Ans:
[1] 10 & 15
[2] 21 & 13
[1] 11 & 16
[2] 22 & 14

7. Define a class Customer with the following specifications. (4)

Private Members :

Customer_no	integer
Customer_name	char (20)
Qty	integer
Price, TotalPrice, Discount, Netprice	float

Public members:

* A constructer to assign initial values of Customer_no as 111, Customer_name as "Leena", Quantity as 0 and Price, Discount and Netprice as 0.
*Input( ) – to read data members(Customer_no, Customer_name, Quantity and Price) call Caldiscount().
* Caldiscount ( ) – To calculate Discount according to TotalPrice and NetPrice TotalPrice = Price
*Qty TotalPrice >=50000 – Discount 25% of TotalPrice TotalPrice >=25000 and TotalPrice

Ans: Write appropriate code.

8. Answer the questions (i) to (iv) based on the following code: (4)

```
class AC {
```

```
        char Model[10];
        char Date_of_purchase[10];
        char Company[20];
public:
        AC( );
        void entercardetail( );
        void showcardetail( );
 };
class Accessories : protected AC {
protected:
        char Stabilizer[30];
        char AC_cover[20];
public:
        float Price;
        Accessories( );
        void enteraccessoriesdetails( );
        void showaccessoriesdetails( );
};
class Dealer : public Accessories {
        int No_of_dealers;
        char dealers_name[20];
        int No_of_products;
public:
        Dealer( );
        void enterdetails( );
        void showdetails( );
};
```

(v) How many bytes will be required by an object of class Dealer and class Accessories?

(vi) Which type of inheritance is illustrated in the above c++ code? Write the base class and derived class name of class Accessories.

(vii) Write names of all the members which are accessible from the objects of class Dealer.

(viii) Write names of all the members accessible from member functions of class Dealer.

Ans: 1.Dealer size: 118 Accessories size: 94
2. Multilevel Inhertance. AC is base class and Dealer is Derived class
3. Data member: Price Member Function: void enterdetails( ),
void showdetails( ), void enteraccessoriesdetails( ); void showaccessoriesdetails( );
4. Data member: No_of_dealers, dealers_name, No_of_products, Price, Stabilizer,
AC_cover Member Function: enterdetails(), showdetails(), enteraccessoriesdetails( ),
showaccessoriesdetails( ), entercardetail( ), showcardetail( ).

9. What is the difference between the members in private visibility mode and the members in protected visibility mode inside a class? Also, give a suitable C++ code to illustrate both. (2)

10. Answer the questions (i) to (iv) based on the following: (4)

```
class  COMPANY
{
        char Location[20];
         double  Budget,Income;
protected:
        void Accounts(  );
public:
        COMPANY();
```

```
        void Register( );
        void Show( );
};
class  FACTORY: public COMPANY
{
        char Location[20];
        int Workers;
protected:
        double Salary;
        void Computer();
public:
        FACTORY();
        void Enter( );
        void show( );
 };

class  SHOP :  private COMPANY
{
          char Location[20];
          float Area;
          double  Sale;
public:
              SHOP();
              void Input();
              void Output();
};
```

(i) Name the type of inheritance illustrated in the above C++ code.

(ii) Write the names of data members, which are accessible from member functions of class SHOP.

(iii) Write the names of all the member functions, which are accessible from objects belonging to class FACTORY.

(iv) Write the names of all the members, which are accessible from objects of class SHOP.

Ans:

(i)Hierarchical Inheritance
(ii)None of the data members can be accessible except SHOP class data members.
(iii)Register( ),Enter( ) and Show( ) of Factory class.
(iv)Input( ), Output( )

11. Define Multiple and Multilevel inheritance in context of OOPs. Give suitable example to illustrate the same. (2)

Ans: Multiple- More than one base class. Multilevel- More than one level of inheritance.

12. Define a class Clothing in C++ with the following description: (4)

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Calc_price()	function to calculate and assigns the value of Gprice as follows:

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*A function Enter() to input the values of the data members Code, Type, Size and Material and invoke the Calc_Price() function.

*A function show() which displays the content of all the data members.

Ans: Write appropriate code.

13. Find the output: (2)

```
#include<iostream.h>
void main( )
{   long NUM= 1234543;
    int F=0, S=0;
    do
      {   int Rem = NUM% 10 ;
          if (Rem % 2 !=0)
                F+=Rem;
          else
                S+=Rem;
          NUM /=10;
      }while(NUM>0);
      cout<<F-S;
}
```

Ans: 2

14. (2)

```
class data
    {
        int num ;
    public :
    data (){ }
    data ( int n )
    {       num = n ; }
    void show ( )
    {       cout << num <<endl;
    }   };
class database : public data
    {
    char name[12];
    data d ;
    public :

    };
```

Fill in the blanks to define a constructor for the derived class assigning values of the data passed from main ( ) and to assign a value 15 to *base class constructor data* n.

Ans: database(char c[], int no): data(no) {
strcpy(name, c); }
void main()

{

Database b(“uuu”,15);

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BLUE PRINT

SLNo	UNIT	VSA (1 Mark)	SA I (2 Marks)	LA (4 Marks)	TOTAL
1	Output Question		6(3)		6(3)
2	Constructor and Destructor		4(2)	8(2)	12(4)
3	Inheritance	1(1)	8(4)	8(2)	17(7)
	Total	1	18	16	35