

## 4 Marks Questions

### Programming in C++

1. Define a class Serial in C++ with the following specifications:  
Private members of class Serial
  - ❖ Serialcode                    integer
  - ❖ Title                            20 characters
  - ❖ Duration                        float
  - ❖ Noofepisodes                integersPublic member function of class Serial
  - ❖ A constructor function to initialize Duration as 30 and noofepisodes as 10
  - ❖ Newserial function to accept values for serialcode and Title.
  - ❖ Otherenteries( ) function to assign the values of Duration and Noofepisodes with the help of corresponding values passed as parameters to this function.Dispdata( ) function to display all the data members on the screen
2. Consider the following and answer the questions given below:

4

```
class university
{
int noc;
protected:
char uname[25];
public:
university( );
char state[25];
void enterdata( );
void displaydata( );
};
class college : public university
{
int nod;
char cname[25];
protected:
void affiliation( );
public:
college( );
void enroll(int,int);
void show( );
};
class department : public college
{
char dname[25];
int nof;
public:
department( );
void display( );
void input( );
};
```

- (i) Which class's constructor will be called first at the time of declaration of an object of

class department.

- (ii) How many bytes does an object belonging to class department require?
- (iii) Name the member function(s), which can be accessed from the object(s) of class department.
- (iv) Name the data member(s), which are accessible from the object(s) of class college.

3. Define a class *Flight* in C++ with the following specification:

Private Members:

- A Data Member Flight Number of type integer
- A Data Member Destination of type String
- A Data Member Distance of Float Type
- A Data Member Fuel of type float

A Member Function CalFuel( ) to calculate the value of fuel as per the following criteria:

Distance	Fuel
<=1000	500
more than 1000 and <=2000	1100
more than 2000	2200

**Public Members:**

- A function Feed Info( ) to allow user to enter values for Flight Number, Destination, Distance & Call Function CalFuel( ) to calculate the quantity of fuel.
- A Function Show Fuel( ) to allow user to view the content of all the data members.

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

```
class MNC
{
    char Cname[25];
protected:
    char Hoffice[25];
public :
    MNC( );
    char Country[25];
    void EnterDate( );
    void DisplayData( );
};

class BRANCH:public MNC
{
    long NOE;
    char Ctry[25];
protected:
    void Association( );
public:
    BRANCH( );
    void Add( );
    void Show( );
};

class OUTLET: public BRANCH
{
    char State[25];
public:
    OUTLET( );
    void Enter( );
    void Output( );
};
```

- a) Which class's constructor will be called first at the time of declaration of an object of class OUTLET.
- b) How many bytes an object belonging to class OUTLET require?
- c) Name the member function(s) which are accessed from the object(S) of class OUTLET.
- d) Name the Data members which are accessible from the objects(s) of class BRANCH.

5. Consider the following and answer the questions given below

```

class CEO
{
    double Turnover;
protected:
    int Noofcomp;
public:
    CEO();
    void input(int);
    void output( );
};
class Director : public CEO
{
    int noofemp;
public:
    Director( );
    void INDATA();
    void OUTDATE();
protected:
    float funds;
};
class Manager: public Director
{
    float expenses;
public:
    void display(void );
};

```

- i) Which constructor will be called first at the time of declaration of object of class Manager?
- ii) How many bytes will an object belonging to the Class Manager require?
- iii) Name the member functions, which can be accessed by an object of class Manager.
- iv) Is the member function OUTPUT( ) accessible by the objects of the class Director

6. Define a class **TEST** with the following specification:

Private members

- Testcode of type integer
- Description of type string
- NoCandidate of type integer

A member function **CALCNTR( )** to calculate and return the number of centers as ( NoCandidate / 100 + 1)

Public members

- A constructor function to initialize Testcode as 12.
- A function **IN DATA( )** to accept values for Testcode, Description, NoCandidate
- And call function **CALCNTR( )**

A function OUT DATA() to display all the data members

7. Define a class REPORT with the following specification

Private:

Adno            4 digit admission number  
Name            20 characters  
Marks           an array of floating point values  
Averge          average marks obtained  
Getavg()        to compute the average obtained in five subjects

Public:

Readinfo()     function to accept values for adno, name, marks and  
                  Invoke the function Getavg()  
Displayinfo()  function to display all data members on the screen.

8. Consider the following C++ declaration and answer the questions given below:

class A

```
{
    void any();
protected:
    int a,b;
    void proc();
public:
    A();
    void get();
    void put();
};
class B:protected A
{
    int c,d;
protected:
    int e,f;
    void get2();
public:
    B();
    void put2();
};
class C: private B
{
    int p;
protected:
    int q;
    void get3();
public:
    void show3();
};
```

- (a) Name all the member functions which are accessible by the objects of class C.  
(b) Name all the protected members of class B.  
(c) Name all the data members which are accessible from member functions of class C.  
(d) How many bytes does an object belonging to class C require?  
(e) Which class constructor will be called first at the time of declaration of an object of class C?

- (f) Is the member function `proc()`, which can be accessed from the objects of class C?
- (g) Name the base class and derived class of class B.
- (h) Name all the protected members of class C.

9. Given the following C++ code, answer the questions

```

Class TEST
{
    int time;
public:
    TEST()                //Function 1
    {
        time=0;
        cout<<"hai";
    }
    ~TEST()              //Function 2
    {
        cout<<"hello";
    }
    void exam()          //Function 3
    {
        cout<<"god bless u";
    }
    TEST(int Duration)   //Function 4
    {
        time=Duration;
        cout<<"Exam starts";
    }
    TEST(TEST &T)       //Function 5
    {
        time = T.Duration;
        cout<<"Exam Finished"
    }
};

```

- (a) In Object Oriented Programming, what is Function 1 referred as and when does it get invoked/called?
- (b) In Object Oriented Programming, what is Function 2 referred as and when does it get invoked / called?
- (c) Which category of constructors does Function 5 belong to and what is the purpose of using it?
- (d) Write statements that would call the member Function 1 and 4.

10. Define a class in C++ with the following description :

- A data member *TrainNumber* of type integer.
- A data member *Destination* of type string
- A data member *Distance* of type float
- A data member *Fuel* of type float

A member function **CALFUEL()** to calculate the value of Fuel as per the following criteria :

<b>Distance</b>	<b>Fuel</b>
<=1500	250

more than 1500 and <=3000            1000  
more than 3000                            2500

Public Members

- A function FEEDINFO( ) to allow user to enter values for the Train Number, Destination, Distance & call function CALFUEL() to calculate the quantity of Fuel.
- A function SHOWINFO( ) to allow user to view the content of all the data members.

11. Consider the following C++ declaration and answer the questions given below:

```
class PUBLISHER
{
char pub[12];
double turnover;
protected:
void register( );
public:
    PUBLISHER( );
    void enter( );
    void display( );
};
class BRANCH
{
    char city[20];
protected:
    float employees;
public:
    BRANCH( );
    void haveit( );
    void giveit( );
};
class AUTHOR: private BRANCH, public PUBLISHER
{
    int acode;
    char aname[20];
    float amount;
public:
    AUTHOR( );
    void start( );
    void show( );
};
```

- Write the names of data members, which are accessible from objects belonging to class AUTHOR.
- Write the names of all the member functions which are accessible from objects belonging to class BRANCH.
- Write the names of all the members which are accessible from member functions of class AUTHOR.
- How many bytes will be required by an object belonging to class AUTHOR?
- Write the public members of the class AUTHOR.

12. Define a class SHOP in C++ with the following description:

- Name of the owner

- Contact Number of owner
- Address of shop
- Number of employees.

**Public Members**

- A function READ DATA() to read the data.
- A function WRITE DATA() to display the data.

Declare an array of SHOP to store the information for 100 shops. Use this array in main() and display the information.

13. Define a class TESTMATCH in C++ with the following description :

**Private Members**

TestCode of type integer

Description of type string

Noofcandidates of type integer

Centerreqd (number of centers required) of type integer

A member function CALCULATECNTR() to calculate and return the number of centers as (NOOFCANDIDATES /100+1)

**Public Members**

- A function GETDATA() to allow user to enter values for Test Code, Description, Noofcandidates & call function CALCULATECNTR() to calculate the number of centers.
- A function PUTDATA() to allow user to view the content of all the data members in the following format :

```
TEST MATCH INFORMATION -----
Test Match Code      : -----
Description          : -----
Total Candidates     : -----
Centers Required     : -----
```

14. Consider the following C++ declaration and answer the questions given below:

```
class P
{
char pub[12];
double turnover;
protected:
void register();
public:
    P();
    void enter();
    void display();
};
class B
{
char city[20];
protected:
float employees;
public:
```

```

        B();
        void haveit();
        void giveit();
};
class A: private B, public P
{
        int acode;
        char aname[20];
        float amount;
public:
        A();
        void start();
        void show();
};

```

- (a) Write the names of data members which are accessible from objects belonging to class A.
- (b) Write the names of all the member functions which are accessible from objects belonging to class B.
- (c) Write the names of all the members which are accessible from member functions of class A.
- (d) How many bytes will be required by an object belonging to class A?
- (e) Write the public members of the class A.

15 Answer the questions (i) and (ii) after going through the following class:

```

class Interview
{
    int month;
public:
    Interview (int y) {month=y;} //Constructor 1
    Interview (Interview &t); //Constructor 2
};

```

- (a) Create an object, such that it invokes Constructor 1
- (b) Write complete definition for Constructor 2

16. Define a class named ADMISSION in C++ with the following descriptions:

**Private members:**

AD NO integer (Ranges 10 - 2000)

NAME Array of characters (String)

CLASS Character

FEES Float

**Public Members:**

- Function Read Data ( ) to read an object of ADMISSION type
- Function Display ( ) to display the details of an object
- Function Draw Nos ( ) to choose 2 students randomly and display the details. Use random function to generate admission nos to match with AD NO.

17. Answer the questions (i) to (iii) based on the following code:

```

class stationary
{
    char Type;
    char Manufacturer [10];
};

```



```

    public:
    stationary();
    void Read sta details();
    void Disp sta details();
};
class office: public stationary
{
    int no of types;
    float cost of sta;
    public:
    void Read off details();
    void Disp off details();
};
class printer: private office
{
    int no of users;
    char delivery date[10];
    public:
    void Read pri details();
    void Disp pri details();
};
void main ( )
{
    printer MyPrinter;
    (a) Mention the member names which are accessible by MyPrinter declared in main( )
    function.
    (b) What is the size of MyPrinter in bytes?
    (c) Mention the names of functions accessible from the member function
    Read pri details ( ) of class printer.
}

```

18. Define a class named HOUSING in C++ with the following descriptions:

**Private members**

REG NO	integer(Ranges 10 — 1000)
NAME	Array of characters (String)
TYPE	Character
COST	Float

**Public Members**

- Function Read Data() to read an object of HOUSING type.
- Function Display() to display the details of an object.
- Function DrawNos() to choose and display the details of 2 houses selected randomly from an array of 10 objects of type HOUSING. Use random function to generate the registration nos. to match with REGNO from the array.

19. Answer the questions (i) to (iii) based on the following code:

```

class furniture
{
    char Type;
    char Model[10];
    public:
    furniture();
    void Read fur details();
    void Disp fur details();
}

```

```

};
class sofa : public furniture
{
    int no of seats;
    float cost of sofa;
    public:
    void Read sofa details();
    void Disp sofa details();
};
class office: private sofa
{
    int no of pieces;
    char delivery date[10];
    public:
    void Read office details();
    void Disp office details();
};

```

```
void main( )
```

```
{ office MyFurniture; }
```

- (a) Mention the member names which are accessible by MyFurniture declared in main ( ) function.
- (b) What is the size of MyFurniture in bytes?
- (c) Mention the names of functions accessible from the member function Read office details ( ) of class office.

20. Define a class named MOVIE in C++ with the following description:

**Private members**

HALL NO	integer
MOVIE NAME	Array of characters (String)
WEEK	integer (Total number of weeks the same movie is shown)
WEEK COLLECTION	Float
TOTAL COLLECTION	Float

**Public Members**

- Function Read Data( ) to read an object of ADMISSION type
- Function Display( ) to display the details of an object
- Function Update( ) to update the total collection and Weekly collection once in a week changes. Total collection will be incremented by Weekly collection and Weekly collection is made Zero

21. Answer the questions (i) to (iii) based on the following code:

```

class toys
{
    char Code;
    char Manufacturer [10];
    public:
    toys();
    void Read toy details ();
    void Disp toy details();
};
class electronic : public toys
{

```

```

    int no of types;
    float cost of toy;
    public:
    void Read elect details ();
    void Disp elect details ();
};
class infants : private electronic
{
    int no of buyers;
    char delivery date[10];
    public:
    void Read infant details ();
    void Disp jnfant details();
};
void main ()
{
    infants MyToy;
    (a) Mention the member names which are accessible by MyToy declared in main ()
        function.
    (b) What is the size of MyToy in bytes?
    (c) Mention the names of functions accessible from the member function
        Read infant details () of class printer.
}

```

22 Answer the questions (i) to (iv) based on the following:

```

class CUSTOMER
{
    int cust no;
    char cust name[20];
    protected:
    void Register();
    public:
    CUSTOMER();
    void status();
};
class SALESMAN
{
    int salesman no;
    char salesman name[20];
    protected:
    float salary;
    public:
    SALESMAN();
    void enter();
    void show();
};
class SHOP: private CUSTOMER, public SALESMAN
{
    char voucher no[10];
    char sales date[8];
    public:
    SHOP();
}

```

```

        void sales entry();
        void sales detail();
};

```

- (i) Write the names of data members which are accessible from objects belonging to class CUSTOMER.
- (ii) Write the names of all the member functions which are accessible from objects belonging to class SALESMAN.
- (iii) Write the names of all the members which are accessible from member functions of class SHOP.
- (iv) How many bytes will be required by an object belonging to class SHOP?

23 Answer the questions (i) to (v) based on the following code :

```

class Employee
{
    int id;
    protected:
    char name[20];
    char doj[20];
    public :
    Employee();
    ~Employee();
    void get();
    void show();
};
class Daily_wager : protected Employee
{
    int wphour;
    protected :
    int nofhworked;
    public :
    void getd();
    void showd();
};
class Payment : private Daily_wager
{
    char date[10];
    protected :
    int amount;
    public :
    Payment();
    ~Payment();
    void show();
};

```

- (i) Name the type of Inheritance depicted in the above example.
- (ii) Name the member functions, which are accessible by the objects of class Payment.
- (iii) From the following, Identify the member function(s) that can be called directly from the object of class Daily\_wager class show(), getd(), get()

- (iv) Find the memory size of object of class Daily\_wager.
- (v) Is the constructors of class Employee will copied in class Payment? Due to inheritance.

24 Answer the questions (i) to (iv) based on following code:

```
class World
{
int H;
protected
int s;
public:
void INPUT(int);
void OUTPUT();
};
class Country : private World
{
int T;
protected:
int U;
public :
void INDATA(int, int);
void OUTDATA();
};
class State : Public Country
{
int M;
public :
void DISPLAY(void);
};
```

- (i) Name the base class and derived class of the class Country.
- (ii) Name the data member that can be accessed from function DISPLAY()
- (iii) Name the member functions, which can be accessed from the objects of class State.
- (iv) Is the member function OUTPUT() accessible by the objects of the class Country ?

25 Answer the questions (i) to (iv) based on the following class declaration:

```
class Medicine
{
char category[10];
char Date_of_Manufacture[10];
char Date_of_Expiry[10];
protected:
char company[20];
public:
int x,y;
```

```

Medicine();
void Enter();
void Show();
};
class Tablet :protected Medicine
{
    protected:
        char tablet name[30];
        char volume label[20];
        void disprin();
    public:
        float price;
        Tablet();
        void enterdet();
        void showdet();
};
class PainReliever : public Tablet
{
    int Dosage units;
    long int tab;
    char effects[20];
    protected:
        int use within Days;
    public :
        PainReliever();
        void enterpr();
        showpr();
};

```

- (i) How many bytes will be required by an object of class Drug and an object of class PainReliever respectively.
- (ii) Write names of all the data members which are accessible from the object of class PainReliever.
- (iii) Write names of all member functions which are accessible from objects of class PainReliever.
- (iv) Write the names of all the data members which are accessible from the functions enterpr().

26 Consider the following declarations and answer the questions given below:

```

class Animal
{
    int leg;
    protected:
    int tail;
    public:
    void INPUT (int );
    void OUT ();
}

```

```

};
class wild : private Animal
{
    int carniv;
    protected:
    int teeth;
    Public:
    void INDATA (int, int )
    void OUTDATA();
};
class pet : public Animal
{
    int herbiv;
    public:
    void Display (void);
};

```

- (i) Name the base class and derived class of the class wild.
- (ii) Name the data member(s) that can be accessed from function Display ( ).
- (iii) Name the member function(s), which can be accessed from the objects of class pet.
- (iv) Is the member function OUT ( ) accessible by the objects of the class wild?

27 Answer the questions (i) to (iv) based on the following code:

```

class vehicle
{
    int wheels;
    protected:
    int passenger;
    public:
    void inputdata( );
    void outputdata( );
};
class heavyvehicle : protected vehicle
{
    int diesel petrol;
    protected:
    int load;
    public:
    void readdata(int, int);
    void writedata( );
};
class bus : private heavyvehicle
{
    char make[20];
    public:
    void fetchdata( );
};

```

```
void displaydata( );
```

```
};
```

- i) Name the base class and derived class of heavyvehicle class.
- ii) Name the data member(s) that can be accessed from the function displaydata( ).
- iii) How many bytes will be required by an object of vehicle and heavyvehicle classes respectively?
- iv) Is the member function outputdata( ) accessible to the objects of the class heavyvehicle?

28 Answer the questions (i) to (iv) based on the following:

```
class Book
```

```
{
```

```
int year publication;
```

```
char title[25];
```

```
float price;
```

```
public:
```

```
    Book( );
```

```
    void input data( );
```

```
    void output data( );
```

```
};
```

```
class Tape
```

```
{
```

```
    char comp name[20];
```

```
protected:
```

```
    char comp addr[35];
```

```
public:
```

```
    Tape( );
```

```
    void read data( );
```

```
    void show data( );
```

```
};
```

```
class Publication : private Book , public Tape
```

```
{
```

```
    int no copies;
```

```
public:
```

```
    Publication( );
```

```
    void Pub Entry( );
```

```
    void Pub Detail( );
```

```
};
```

- (i) Write the names of data members which are accessible from objects belonging to class Publication.
- (ii) Write the names of all the member functions which are accessible from objects belonging to class Tape.
- (iii) Write in which order the constructors will be invoked when an object of class Publication is created .
- (iv) How many bytes will be required by an object belonging to class Publication?



- 29 Consider the following declarations and answer the questions given below:

```
class Mydata
{
    protected:
    int data;
    public:
    void Get mydata(int);
    void Manip mydata(int);
    void Show mydata(int);
    Mydata( );
    ~Mydata( );
};
class Personal data
{
    protected:
    int data1;
    public:
    void Get personaldata(int);
    void Show personaldata(int);
    Personal data1( );
    ~Personal data1( );
};
class Person: public Mydata, Personal data
{
    public:
    void Show person(void);
    Person( );
    ~Person( );
};
```

- i) How many bytes will be required by an object belonging to class Person?
  - ii) Which type of inheritance is depicted in the above example?
  - iii) List the data members that can be accessed by the member function Show person( ).
  - iv) What is the order of constructor execution at the time of creating an object of class Person?
- 30 Assuming the class Account given below and a binary file BANK.DAT contains objects of this class, write functions in C++ to perform the followings:
- (i) Deposit ( ), which deposits amount x to account number y.
  - (ii) Withdraw ( ), which withdraws amount x from account number y.

```
class Account{
    int acc no;
    char name[20];
    float balance;
```

```
public:
    float getBalance()
    {
        return ;balance
    }
    void setBalance(float f )
    {
        salary = f;
    }
    int get acc no()
    {
        return acc no;
    }
};
```