

**CHAPTER 1-REVIEW OF C++**

1. Specify the most appropriate data type for handling the following data.

- (i) Rollno. of a student. (ii) Name of an employee. (iii) Price of an article.  
(iv) Marks of 12 subjects (2 Scores)

2. Write C++ statement for the following.

- (a) The result obtained when 5 is divided by 2.  
(b) The remainder obtained when 5 is divided by 2. (1 Score)

3. Identify the error in the following C++ statement and correct it.

`int population = 68000;` (1 Score)

4. Predict the output of the following code. Justify.

```
int k = 5, b = 0;  
b = k++ + ++k;  
cout<<b;
```

 (2 Scores)

5. Predict the output

a) `int sum = 10, ctr = 5;`  
`sum = sum + ctr --;`  
`cout<<sum;`

(b) `int swm = 10, ctr = 5;`  
`swm = swm + ++ctr;`  
`court<<swm;` (2 Scores)

6. Rewrite the following code without using if statement. (2 Scores)

```
char result;  
float marks;  
cin>>marks;  
if (marks >= 50)  
result = 'p';
```

```
else  
result = 'F';  
cout<<result;
```

7. In a program Deepa has written a statement like

```
float Amount;
```

She wants to know how many bytes the variable Amount will take.

Which operator in c++ is used for the above purpose? (1 Score)

8. Predict the output

```
int a;  
float b; a = S;  
  
cout << sizeof(a + b/2);
```

(2 Scores)

9. Predict the output

```
int a, b, c;  
a= 5; b = 2; c = a/b;  
cout<<c;
```

10. The output of a program is given below.

1  
3  
5  
7  
9

The sum is 25

Write a C++ program for obtaining the above output. (3 Scores)

11. How many times the following for loop will execute? Justify

```
for(i = 0; ; i++)  
{  
if(i > 5)  
cout << "continue";  
else  
cout << "over" ;  
  
}
```

(2 Scores)

12. Identify the errors if any in the following code and predict the output.

```
for(i = 0; ; i++)  
{  
if(i > 5)  
cout << "over" ;  
break;  
else  
cout << i;  
}
```

(2 Scores)

13. Predict the output.

```
a = 0  
start:  
  
cout << endl << ++a;
```

```
if(a < 5) goto start;
```

(2 Score)

```
14.a) if(a > 50)  
{ break; }  
else  
{ cout << "OK"; }  
cout << "Loop over";  
}
```

```
b) if(a > 50)
{ exit(0); }
else
{ cout<< "OK"; }
cout<<"Loop over";
```

Identify the difference between the above 2 code fragments, if value of a=75.

Explain. (3 Scores)

15. Identify the appropriate header file for the following. (3 Scores)

a) setw()      b) cout    c) toupper    d) exit()      e) strcpy      f) clrscr()

16. Write a c++ program to accept a string and find the length of the string without using any string functions. (3 Score)

17. Write a c++ program to accept a string and convert it in to upper case without using any string functions. (3 Score)

18. In his c++ program Ajith wants to accept a lengthy text of more than one line. Which function in c++ can be used in this situation. (1 Score)

19. Write a program to accept marks of 10 students and find out the largest and smallest mark from the list. (5 Score)

20. Write a c++ program to store the scores of 10 batsman of a school cricket team and find the largest and smallest score. (3 Score)

21. Given a word "COMPUTER", write a c++ program to reverse the word without using any string functions. (3 Score)

22. void change(int &);

```
void main()
{
    int x=10;
    change(x);
    cout <<"value="<<x;
}

void change(int &y)
{ y=40;
}
```

- (i) Predict the output
- (ii) What is the use of & in the above code.
- (iii) Is there any other method for passing arguments to the above function.  
Explain. (1+1+3 Score)

23. void change(int &);

```
void main()
{
    int x=0;
    change(x);
    cout <<"value="<<x;
}

void change(int &y)
{ y=40;
  cout<<"value="<<y;
}
```

b)

```
void change(int );  
  
void main()  
{  
int x=0;  
change(x);  
cout <<"value="<<x;  
}  
  
void change(int y)  
{ y=40;  
cout <<"value="<<y;  
}
```

i) Predict the output of both programs.

ii) Justify your predictions.

(2+3 Scores)

24. Consider the following c++ function.

```
int recfact(int x)  
{  
if (x==0)  
return 1;  
else  
return x*recfact(x-1);  
}
```

i) What type of function is this? Explain.

ii) What is the output of the function when x=5

(2+1 Scores)

25.

```
void initialise()
{ int k=10;
}
void main()
{
int a,b;
float marks;
a=20;
cout<<"first value="<<a;
initialise();
b=k+a;
cout<<"New value="<<b;
}
```

i) Identify the error in the above code and explain its reasons. (2 Score)

ii) Correct the errors. (1 Score)

26. How many times the following loop will execute (1 Score)

```
int s=0,i=0;
do
{
s+= i ;
i++;
}while(i<5);
```

27. `for(int i=2,sum=0;i<=20;i=i+2)`

`sum+=i;`

Rewrite the above code using while loop

(2 Score)

28. The elements of an array of ten elements are

numbered from \_\_\_\_ to \_\_\_\_

(2 Score)

29. Elements `db[7]` is which element of the array?

(1 Score)

30. When a multidimensional array is accessed, each array index is

(a) Separated by column.

(b) Surrounded by brackets and separated by commas.

(c) Separated by commas and surrounded by brackets.

(d) Surrounded by brackets.

(1 Score)

31. You have used a 2D array with the Name Mat representing a matrix. Write the c++ expression to access the 3rd element in the 2nd row.

(1 Score)

32. Write a c++ statement that defines a string variable called 'city' that can hold a string of up to 20 characters.

(1 Score)

33. State whether the following statement is true or false

The '<<' insertion operator stops reading a string when it encounters a space.

(1 Score)

34. Rewrite the following code using switch case statement.

`if(day == 1)`

`cout<<"sunday"; if(day == 2)`

`cout<<"Monday"; if(day == 7)`

`cout<<"saturday" )`

(2 Scores)

35. Write a while loop that display numbers from 100 to 110. (2 Scores)

36. Raising a number 'n' to a power 'P' is the same as multiplying n by itself p times. Write a function called power(), that takes a double value for 'n' and an int value for 'P' and returns the result as double value. Use a default argument of 2 for P; so that if this argument is omitted; the number will be squared. Write a C+ program that gets values from the user to test this function. (5 Scores)

**CHAPTER 2-STRUCTURES**

1. Identify and correct the error in the following code fragment.

```
struct first { int a;  
                float b;  
                } S1;  
struct second { int a;  
                float b;  
                } S2;
```

S1 = S2; (3 Scores)

2. Write c++ statements to give another name for following c++ data types

double, unsigned int, float and unsigned char. (2 Scores)

3. State the reason why

enum Boolean {false,true}; is better than

enum Boolean {true,false}; (2 Score)

4. The method used in C++ to list symbolic constant is

a) struct      b) enum      c) array      d) class (1 Score)

5. Write Structure definition for structures containing the following

i) bookno,bookname,price (1 Score)

ii) itemno,itemname,price,monthly sales for last 4 months (2 Score)

6. When accessing structure member, the identifier to the left of the dot operator is the name of \_\_\_\_\_ (Score 1)

7. Read the following code carefully and predict the output (Score 2)

```
void main()
{
enum months { Jan=1, Feb, Mar, Apr=10, May,
             June, July, Aug=20, Sep,
             Oct, Nov, Dec };

months M1, M2;

M1=Jan;

M2=Sep;

Cout<<"Difference="<<M2-M1;

}
```

8. Write a statement that declares an enumerator data type called speeds with the values Get, Set and Go. Give these names the integer values 33, 45 and 75. (1 Score)

9. Identify the errors in the following code fragment and correct it. (Score 1)

```
Struct sample
{
int x;

float y;

}s1,s2;
```

```
void main()
{
struct test
{
int a;
float b;
}t1,t2;
t1=t2;
t1=s1;
}
```

**CHAPTER 3-CONCEPT OF OBJECT ORIENTATION**

1.State whether the following statements are true or false.Justify your answer.

- a)In procedural oriented programming,data is the reason for a program's existence
- b)The real world concept gets simplified using concept of abstraction (2 Score)

2.You have seen a flask.When you put some ice-cubes in it,it will stay there for hours without melting and when you pour same hot water it will stay hot.

- a)Name the OOP feature that we can correlate with this situation (1 Score)
- b)Write a short note about that feature (1 Score)

3.Suppose your school is selected as the venue for conducting District youth festival. For the smooth functioning of the programme different committees are formed and each committee is assigned separate duties.

- a)Which OOP feature can be correlated to this situation? (1 Score)
- b)Write a brief note on that feature. (2 Score)

4.You have seen the enquiry machine in a railway station.The user just types in a few details like train number,station and date.The user is not aware of its working.which OOP feature can you correlate with this situation. (3 Score)

5.The famous luxury ship 'TITANIC' has provided all facilities like food, entertainment and medical aid available at that time for its passengers.Can you correlate this with any of the OOP features you have learnt.Justify. (3 Score)

6.Using a real world example explain the concept of inheritance. (3 Score)

## Classes and Objects

1. A class sample is defined in two ways as follows.

a) class sample

```
{  
int x;  
public:  
void disp()  
{  
cout<<"my value="<<x;  
}  
};
```

b) class sample

```
{  
int x;  
public:  
void disp();  
};  
void sample::disp()  
{  
cout<<"My value="<<x;  
}
```

Identify the difference between the class definitions in the above two code segments and explain. (3 Score)

2. Consider the following class definitions

```
class x
```

```
{  
  
int a;  
  
void init()  
  
{  
  
a=0;  
  
}  
  
public:  
  
void get()  
  
{  
  
cout<<"enter a value";  
  
cin>>a;  
  
}  
  
void show()  
  
{  
  
cout<<"Value="<<a;  
  
}};  
  
void main()  
  
{  
  
x s;  
  
s.init();  
  
s.get();  
  
s.show();  
  
}
```

Identify the errors if any in the above program and correct it.

3. Predict the output of the following program and explain.

```
Int age=15;

Class student

{

int age;

public:

void init()

{

age=20;

}

void show()

{

cout<<age"<<age;

cout<<age"<<::age;

}};

void main()

{

student s;

s.init();

s.show();

}
```

4. Consider the following code.

```
Class message

{

int a;
```

```
float b;  
  
friend void print_details(message);  
  
};  
  
void print_details(message m)  
  
{  
  
cout<<"a="<<m.a<<endl;  
  
cout<<"b="<<m.b;  
  
}
```

What is the speciality of the above code? Explain. (3 Score)

5.The main difference between structures and classes in C++ is\_\_\_\_\_ (1 Score)

6.The accessible members of an object can be accessed by \_\_\_\_operator (1 Score)

7.Identify the errors in the following program.Correct it and predict the output.

Class pupil (3 Score)

```
{  
  
int rollno;  
  
float marks;  
  
void initialise()  
  
{  
  
rollno=10;  
  
marks=500;  
  
}  
  
void print()  
  
{  
  
cout<<"Roll no="<<rollno<<endl;  
  
cout<<"marks="<<marks;
```

```
}};  
  
void main()  
{  
pupil stud;  
stud.initalize();  
stud.print();  
}
```

8. While considering the case of memory allocation, an object passed by reference to a function is more preferred to an object passed by value. Justify. (2 Score)

9. Create a class customer with the following details (5 Score)

a) Data members

accno to store account number

Name to store customer name

Balance to store the balance amount

b) Member functions

i) Initialize the account number, name and initialize balance amount to zero.

ii) Deposit which accepts amount as an argument and updates the balance amount.

10. Evaluate the merits or demerits of an idea.

Class point

```
{  
int x,y;  
friend point sum(point,point);  
public:  
void get()  
}
```

```
cout<<"Enter 2 Nos";  
  
{  
cin>>x>>y;  
}  
  
void show()  
  
{  
cout<<"X="<<x<<endl<<"Y="<<y;  
}  
};  
  
void main()  
  
{  
point a,b,c;  
a.get();  
b.get();  
c=sum(a,b);  
c.show();  
}  
  
point sum(point p,point q)  
  
{  
point temp;  
temp.x=p.x+q.x;  
temp.y=p.y+q.y;  
return temp;  
}
```

What is the speciality of the function 'sum' used in the above code? Explain with a sample output. (3 Score)

11. Consider the following code (5 Score)

```
class counter
{
int bookid;
static int count;
public:
void input(int b)
{
bookid=b;
count++;
}
void output()
{
cout<<"Book id="<<bookid<<endl;
}
static void dispcount()
{
cout<<"count="<<count<<endl;
}};
int counter::count=0;
void main()
{
```

```
counter c1,c2,c3;  
c1.input(1717);  
c2.input(1718);  
count::dispcount();  
c1.output();  
c2.output();  
c3.input(10);  
c3.output();  
count::dispcount();  
}
```

a)Predict the output.

b)What is the speciality of the members count and dispcount()?Explain.

```
12.class temp  
{  
public:  
static int num;  
static void init()  
{  
++num;  
}  
};  
int temp::num=0;  
void main()  
{  
temp T1,T2;
```

```
T1.init(0;
T2.init();
Cout<<"Total objects="<<T1.num<<endl;
Temp a;
a.init();
cout<<"Total objects="<<a.num;
}
```

Predict the output of the above code.Explain.

(3 Score)

```
13.class x
{
int a;
public:
void myfun() const
{
COUT<<"My value="<<a;
}};
```

What is the speciality of the function myfun() in the above code.Explain. (3 Score)

```
14.class employee
{
int empno;
char name[15];
float basic,hra,da,net;
public:
void getdata();
void calculate();
```

```
void display();  
  
};  
  
employee e[10];
```

Consider the above code snippet.

a)How many copies of member functions of employee class are created in memory?Justify. (2 Score)

b)How many copies of data members are created in memory?Justify. (2 Score)

15.class x

```
{  
  
int a;  
  
class y  
  
{  
  
int b;  
  
public:  
  
void init()  
  
{  
  
b=0;}  
  
void show()  
  
{cout<<b;}  
  
}s1;  
  
public:  
  
y=s2;  
  
void get()  
  
{a=0;  
  
s1.b=10;}  
  
}
```

};

i) Identify the errors on the above code snippet and correct it.

ii) Do you find any difference in the class definition above with an ordinary class definition.? Explain.

(5 Score)

Chapter 5-Constructors and destructors

1.class mark

```
{  
  
private:  
  
int m1,m2;  
  
public:  
  
m1=0;  
  
m2=0;  
  
void readmark()  
  
{  
  
cout<<"Enter Marks";  
  
cin>>m1>>m2;  
  
}  
  
void printtot()  
  
{  
  
cout<<"Total Mark is"<<m1+m2;  
  
}};
```

a)Identify the error in the above code fragment. (1 Score)

b)Rewrite the code to correct the mistake. (2 Score)

2.I am a member function of a class,I have no return type,I can take arguments,My process is not compulsory in a class defanition.Who am I? (1 Score)

3.class sample

```
{  
  
private:  
  
int num;
```

```
public:  
  
sample()  
  
{num=0;  
  
}  
  
void read()  
  
{  
  
cout<<"Enter a number";  
  
cin>>num;  
  
}  
  
void disp()  
  
{  
  
cout<<"Number is"<<num;  
  
}  
  
};  
  
void main()  
  
{  
  
sample ob;  
  
ob.read();  
  
ob.disp();  
  
}
```

a) Write the special name of the member function sample() in the above code.

b) The member function sample() is not separately called by the object (ob.sample()). Why?

c) Write any four features of the function sample() (1+1+2 Scores)

4. Predict the output of the following C++ program

```
class ABC
{
private:
int a;
float b;
public:
ABC(int x=1,float y=0.0)
{
a=x;
b=y;
}
void print()
{
cout<<a<<b;
};
main()
{
ABC ob1();
ABC ob2(3);
ABC ob3(2,1.5);
Ob1.print();
Ob2.print();
Ob3.print();
}
```

5.consider the following code in c++

(3 Score)

```
class area
{
private:
int a,b;
public:
void init(0
{
a=0;
b=0;
}
void read()
{
cout<<"Enter length and breadth";
cin>>a>>b;
}
printarea()
{
cout<<"Area is "<<a*b;
}};
void main()
{
Area ob;
Ob.init();
Ob.read();
Ob.printarea();
```

```
}
```

Rewrite the above program without using `init()` to initialise the variables 'a' and 'b'.

6. Justify the following statements

i) It is not compulsory to give constructor and destructor member functions to all class definitions. (1 Score)

ii) A constructor or destructor member function in a class need not be called explicitly. (1 Score)

iii) Even though certain classes have more than one constructor, there will be only one destructor. (1 Score)

7. A code fragment is given below.

Class temp

```
{  
int I,j;  
public:  
temp()  
{  
I=0;  
J=I;  
}  
temp(temp &ob)  
{  
I=ob.i;  
J=ob.j;  
}  
};
```

```
void main()  
{  
temp ob1;  
temp ob2=ob1;  
}
```

a)Name the two type of constructors invoked while creating the objects ob1 and ob2.

b)Difference between the above two constructors. (1+3 Score)

8.Match the following (2 Score)

A	B
1.Argument is passed by reference	a.Destructor
2.Initilised with any dummy values	b.Copy constructor
3.Dynamic initialisation	c.Default constructor
4.Clean up work	d.Parameterised constructor

9.Consider the following code snippet (2 Score)

```
class aa  
{  
};  
class bb  
{  
};  
class cc  
{aa a;  
bb b;  
};  
void main()
```

```
{  
cc ob;  
}
```

which is the order of constructor invoking when the object of cc class is created.Why?

10.When a constructor initialise an object,destructor deinitialise it.Justify this statement. (2 Score)

11.Say true or false and justify (3 Score)

a)member functions can be called from within a constructor.

b)Constructors can be inherited.

c)All objects of a class must have a name

12.A C++ code snippet is given below.

Class Shop

```
{  
int qty;  
float up;  
public:  
shop(int x,float y)  
{  
qty=x;  
up=y;  
}  
};  
void main()  
{  
shop ob;
```

}

- a) The statement which creates the object ob is invalid. Why? (1 Score)
- b) Suggest any two valid methods for creating the object in this context. (3 Score)

CHAPTER 6-Function overloading and inheritance

1.akhil wrote a c++ program in which occurs a function VOLUME().This function can return the volume of a sphere or the volume of a cylindar as per requirement.Which one of the feature is expressed here. (1 Score)

2.As an assignment,teacher wants Raju to define two functions having same name but with different duties.ie one to multiply two integers and the other is to multiply three integers.

a)Name the facility in C++ to do the above task.(1 Score)

b)Write a c++ program which illustrates the above feature(3 Score)

3.Analyse the following real life situation and correlate with any of the object oriented programming conepts.(2 Score)

i)A water tape in a kitchen gives cold water when it is turned left and hot water when it is turned right.

ii)Children get some charcters of father and mother that may pass on to the grand children.

4.Consider the following c++ code snippet

```
void sample(int b);
```

```
void sample(int c,flaot d);
```

```
void sample(float e,double f);
```

```
void main()
```

```
{
```

```
sample('a');
```

```
sample(3,4);
```

```
sample(2.5,1.5);
```

```
getch();
```

```
}
```

Identify and write the prototype of the function which is invoked due to the four function calls from the main() function. Justify. (3 Score)

5. consider the following code fragment in c++

```
class abc
{
int a;
float b;
public:
abc()
{
a=0;
b=0.0;
}
void print()
{
cout<<+a<<+b;
}
};
main()
{
abc ob;
ob.print();
```

a) Predict the output (1 Score)

b) modify the above code so that the initial values for 'a' and 'b' can be given while creating the object of the class. (2 Score)

6. Consider the following code fragment in c++

```
class abc
{
int a;
float b;
public:
abc()
{
a=1;
b=2.5;
}
void print()
{
cout<<++a<<b++;
};
```

a) Predict the output (2 Score)

b) Identify the problem if the prototype of the function is rewritten as follows

```
float adds(int a=1, int b, float c=2.5) (2 Score)
```

8. Justify the following statements

a) A Destructor cannot be overloaded (1 Score)

b) Overloaded functions have the same name but different signatures. (1 score)

c) Function overloading implements polymorphism. (1 Score)

9. The teacher gave an assignment to the students to write user-defined functions for adding two numbers and three numbers. Two students did the task in two different ways. Their prototypes are given below.

Student 1

Int sums(int,int);

Int sums(int,int,int);

Student 2

Int sums(int a,int b,int c=0);

a)Name the above two techniques used by the students (1 score)

b)Write a brief comparison(2 Sore)

10.While doing a project a student defined a class 'EMPLOY' with some data members and member functions.In another part of the same program,he needs another class 'MANAGER' with most of the features of 'EMPLOY' class and some new attributes.

a)Name the feature in C++ using which he can do the task with minimum lines of code and time.(2 Score)

b)Is it possible to create one more class from 'MANAGER'(1 Score)

11.Say True or false

i)When we derive a class from another class,all the attributes of base class need not inherit to the derived class.

ii)The private and protected members of a class are similar except in the case of inheritance.

iii)Suppose there are three classess namely 'GrantParent' ,Parent and Child which are interrelated through inheritance.Here the child class can not contain the properties of GrandParent class.

12.Consider the following diagram

X,Y,Z

X,Y

X

Here X ,Y and Z are some attributes of class A,but class B gets X and Y and class C gets only X

a)Name the feature diagrammatically shown here(1 Score)

b)Give reason for the absence of attributes X and Y in the class C(2 Score)

13.Analyse the following diagrams and identify the type of inheritance.

Pic:

14.analyse the following code snippet inC++

```
class BOOK
```

```
{
```

```
private:
```

```
float price;
```

```
public:
```

```
void read()
```

```
{
```

```
cin>>price;
```

```
}}ob1;
```

```
class TEXT:public BOOK
```

```
{
```

```
private:
```

```
float stock;
```

```
public:
```

```
}ob2;
```

```
main()
```

```
{
```

---

```
}
```

modify the above code so that ob2 can also access the data member price of the class BOOK.

15.Following figures show the derivation of child classes from a parent class

fig:

a)Name the modes used in deriving the classes child1,child2 and child3(2 Scores)

b)Compare the above three modes of derivations.(3 scores)

16.Consider the following class definitions and its derivations.

Class father

```
{  
int a;  
public:  
father(int I)  
{  
a=k;  
}};
```

class child:public father

```
{  
int b;  
public:  
};
```

a)How do father and child are related.(1 score)

b)Provide a constructor function to the child so that it initialize the data member a and b.(2 Score)

17.consider the following code fragment in C++

```
int temp=2;
```

```
class upper{
public:
int temp;
void init(){
temp=1;
}
void disp()
{
cout<<temp;
}};
class lower:public upper
{
public:
void print()
{
cout<<temp;
cout<<::temp;
}};
main()
{
upper U1;
lower l1;
u1.init();
l1.print();
u1.disp();
```

```
cout<<temp;
```

```
}
```

a) Predict the output of the above program (2 Score)

b) Justify your predictions (3 Score)

18. Justify the following statements by giving minimum two value points

i) Inheritance and friendship are not one and the same

ii) Even though private members are not inheritable, the member function of derived class can sometimes access the private member of the base class.

iii) Object of one class can contain the object of another class (3 Score)

19. Following diagram shows one type of derivation. The variable m is an attribute of base class A

a) Identify and name a problem existing in the above derivations. (1 Score)

b) Suggest a solution to this problem (2 Score)

20. Define a class Employ with attributes 'empcode', 'empname', 'age', 'salary'. Derive another class MANAGER from it with all the above attributes and two additional attributes namely 'experience' and 'special-allowance'. Accept the details of one employee and one manager using suitable member functions by writing a c++ program. (5 Score)

CHAPTER 7-POINTERS

1. When a c++ program is executed the primary memory allocated for it is organized in a particular manner to deal with runtime memory allocation,function call,variables etc.:.Show a diagrammatic representation of it with brief explanation.(2 Score)

2. Assume that in a city,two football matches are going to be held.The coordinators of the match have decided to sell the tickets in two different styles.For the first match the tickets will be sold one month in advance,but for the second one tickets will be available from the stadium on the very same day of the match.

a)correlate this situation with the memory allocation techniques in C++(1 Score)

b)Compare the merits and demerits of the two in relation with the given context.(2 Score)

3. Predict the errors in the following code fragment inC++

i)Float f=1.42;

float \* a;

a=f; (1 Score)

ii)int **p,q**;

p=q+1; (1 Score)

4. If p is a pointer to the variable x,which of the following statement are correct

i)P and x may be of different data types

ii)if p points to x then x also points to p

iii)the statement x=&p is valid

iv)\*p will give the value of the variable x

5. Suppose m is a float variable. Another variable ptr stores the address of it,which is 2001. after the operation ptr++,it will point to the location having address \_\_\_\_\_

why? (1 Score)

6. When a c++ program is compiled the compiler allocates 20 bytes of memory and when the same program is executed 10 more bytes of memory were allocated

a)How do you account for these two types of memory allocations?(2 Score)

b)Name the operator used for the second type of memory allocation and also write the syntax. (2 Score)

7.Justify the following statements

i)In c++ the delete operator performs the reverse action of new operator.

ii)if arr is the name of an array,then arr++ is not a valid statement.

iii)If k is a long variable with address 1001 and it is stored by a pointer variable p,then p+1 will point to the location with address 1005.(3 Score)

8.Analyse the following c++ statements and predict the output.

```
Int k=4;
```

```
Int * p;
```

```
P=&k;
```

```
Cout<<k;
```

```
Cout<<*p;
```

```
Cout<<*p++;
```

```
Cout<<*(&k);
```

9.you are given an assignment by the teacher to write a c++ program that accepts the age of n people who attended a medical camp.The value of n is not known before hand.Its value is to be accepted at the time of running the program.The program should print the average age as the final output.Develop the code.(5 Score)

10.A boy wrote a c++ program that uses several pointer variables out of which some are used for dynamic allocation.He did not use the delete operator anywhere in the program.While running the program,the computer got stuck up after some time.Predict the reason for this kind of situation,in connection with the above program cod.(2 Score)

11.Analyse the following C++ program

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

```
# include <conio.h>

void main()

/* program to change the given number into positive if it is negative*/

clrscr();

void change(int *);

int n;

cout<<"Enter an integer number:';

cin>>n;

change(&n);

cout<<n;

getch();

}

void change(.....)

{

.....

}
```

a)Name the type of function call used here. (1 Score)

b)Supply the function definition and formal parameters.(2 Score)

12.Consider three variables a,b and c with values 3,4 and 5.Write a c++ function to store the value of a to b,b to c and c to a.The function takes three pointer variables as parameters.

13.A class definition is given below

```
class price

{

private:
```

```
int cost;

public:

price()

{

cost=0;

}

void print()

{

cout<<++cost;

}

}a,b,c;
```

a)When the objects call the member function print(),it does not know which objects data member (cost) is to be manipulated.What is its reason.(1 Score)

b)What is the remedy that the C++ compiler used for the above problem?(2 Score)

14.Analyse the following C++ program

```
void main()

{

int a=3,b=4;

void adds(int,int*);

adds(a,&b);

cout<<a;cout<<b;

}

void adds(int p,int *q)

{

p=p+2;
```

q=q+2;

a)Predict the output of the above code(1 Score)

b)Justify your prediction (2 score)

15.Match the following

1.The arrow operator->	a.Self referential structure
2.Deallocation operator	b.This pointer
3.NULL	c.Object pointer
4.Starting address of a memory location	d.Heap
5.A member refers to the structure itself	e.delete
6.Stores the address of the object in action	f.Zero pointer
	g.Base address

16.considerthe following code fragment.

```
Char name[]="Computer";
```

```
For (int I=0;name[I]!='\0';I++)
```

```
Cout<<name[I];
```

Rewrite the above code to get the same output using a character pointer variable.

(3 Score)

CHAPTER 8-FILES IN C++

1.As part of the project,Vishnu in his C++ program,opened two files.while running the program,he entered some data.after closing the program,he wanted to view the data saved in the files in a text editor.But he found one file is readable and the other one is not readable.What can be the problem.

2."A data file created in ac++ program can be considered as a dynamic data structure".justify the above statement(2 Score)

3.Consider the following statements in c++

case 1:

```
ofstream ofile;
```

```
ofile.open("names.dat");
```

case 2:

```
ifstream ofile("names.dat");
```

a)Comapre the keywords ofstream and ifstream in the above code fragment.

(1 Score)

b)How case 1 differs from case2?(2 Score)

4.Consider the following c++ statements

```
ofstream outfile("stud.dat",ios::app);
```

```
ofstream outfile("stud.dat",ios::ate);
```

a)How do the above statements differ from each other.(1 Score)

b)Name the base class in which the key words ate and app are defined.(1 Score)

5.Analyse the following c++ program and locate the errors.

```
# include <conio.h>
```

```
void main()
```

```
{
```

```
/* for reading 5 integer numbers from the keyboard and store into a data file  
'num.dat'*/
```

```
int num;
```

```
ofstream outfile;
```

```
cout<<"Enter 5 numbers:";
```

```
for (int I=1;I<=5;I++)
```

```
{
```

```
cin>>num;
```

```
outfile<<num<<"\n";
```

```
}
```

```
outfile close;
```

```
}(2 score)
```

6.While reading data from the text file ,the white space character or blanks are not read.What can be the reason?suggest a remedy (2 Score)

7.Following are some situations.After analyzing each case,suggest suitable built in functions.Write the meaning or of each.

i)Terminate the connection of a opened file with the stream.

ii)Find the position after the last record in afile.

iii)Read a line of text data (3 score)

8.For the smooth working of file handling operations in programs,c++ provides certain functions: Justify this statement. (3 Score)

9.Write a c++ program to read the name and phone number of your 10 friends from the keyboard and store them in the file 'phone.dat'.The program should also accept a name and search it and display the phone number if present,otherwise print an error message.(5 Score)

10.match the following

1.Open function fails if the file already exists	a.Supports both I/O operations
2.Make the size of the file to zero	b.getc()
3.Returns the position of the get pointer	c.Ios::noreplace
4.Reads a single character at a time	d.stream
5.fstream class	e.tellg()
6A sequence of bytes	f.ios::trunc

11.The following is the details of a product manufactured from a company

productname=suitcase

productid=PO3

price=1500

size=large

Write a c++ program to store this block of data in to a data file 'prod.dat' (5 Score)

12.Analyse the following situations and suggest the appropriate file mode constants.

1.The open() function should fail if the file is not existing already

2.Input/Output operations must be possible anywhere in the file

3.If the mentioned file is present,it should not be overwritten.

4.The contents of the mentioned file must be deleted.(2 Score)

CHAPTER 9 – BOOLEAN ALGEBRA

1. pick the odd man out (1 Score)

AND, OR, NAND, NOT

2. Select the compliment of  $X+YZ$  (1 Score)

3. Select the expression for absorption law (1 Score)

4. By using truth table prove the validity of the following laws of Boolean algebra

a) Idempotence Law b) Involution law (2 Score)

5. Name the operator which performs logical multiplication (1 Score)

6. Name a gate which is ON when all its inputs are off. (1 Score)

7. Specify the laws applied in the following cases (2 Score)

a)  $a(b+c)=ab+ac$  b)  $(a+b)+c=a+(b+c)$

8. Represent the Boolean expression  $AB+BC'+AB'C'$  with the help of NAND gates only. Also draw the correct circuit diagram. (3 Score)

9. Pick the correct boolean expression from the following. (2 Score)

a)  $a+a'=1$  b)  $a.a'=1$  c)  $a+a'b=a+b$  d)  $a+ab=A$

10. Consider the logical gate diagram

fig:

a) Find the logical expression for the circuit given in the figure.

b) Find the compliment of the logical expression.

c) Draw the circuit diagram representing the compliment (5 score)

11. Draw the logic circuit diagram for the following Boolean expression.

$X+Y'Z$  (2 Score)

12. Draw the logic Circuit diagram for the following Boolean expression

a.  $(B+C')+A'B'C$  (3 Score)

13. Draw the logic circuit diagram by using NOR gate for the following.

$AB+AC+A'B'$  (2 Score)

14. Simplify the expression using basic postulates and laws of Boolean algebra.

a)  $x'+x.y'$  (1 Score)

b)  $x(y+yz)+y(x'+xz)$  (2 Score)

15. Consider a bulb with three switches x, y and z. Write the Boolean expression representing the following states

a) all the switches x, y and z are ON

b) X is On and Y is OFF or Z is Off

c) Exactly one switch is on (3 Score)

16. Akshay wants to display the decimal numbers 0 to 9 in to its corresponding binary numbers.

a) Which logic circuit can be used for this purpose (1 Score)

b) Draw the logic circuit along with truth table. (4 Score)

17. Find the dual of the expression  $x.y+z$ . Also write the truth table for the dual expression. (3 Score)

18. Consider the circuit diagram given in the above figure (5 Score)

fig:

a) Identify the logical expressions for the circuit diagram.

b) Rewrite the expression using NAND gates only.

c) Draw the circuit diagram using NAND gates only

19. Following is the truth table for representing bit to bit binary addition. (5 Score)

Bit1	Bit2	Sum	Carry
0	0	0	-
0	1	-	0
-	-	1	0
1	1	0	-

- a) Find the missing entries in the truth table.
- b) Derive a logical expression to represent the truth table.
- c) Draw the circuit diagram for the expression

CHAPTER 10-SYSTEM ANALYSIS AND DESIGN

1.Due to the inadequency of the existing manuakl system in the school office,the principal of your school decides to develop a software system.Your principal has given you the charge of developing it.List and explain the two basic activities carried out to develop the new system.(3 Score)

2.Consider that you are in charge of developing an improved system for a busy bank.List a suitable fact recording techniques that is helpful to collect data from the employees of the bank.

3.Dinesh the proprietor of DD's Super market plans to install a software system in his concern.

a)Why do you think it is important for dinesh to conduct a feasibility study?

b)What are the contents of feasibility report?

c)In what all aspects should this new system be feasible inorder to consider it for development?(3 Score)

4.Consider that you are goig to interview an employee in an organization as a part of system development.List 5 guidelines that you will follow to make the interview a successful one.(5 Score)

5.

1.corrective maintenance	a.Enhancing performanceaccording to users additional needs
2.Adaptive mainatance	b.Repairing failures due to previouslyill defined problems
3.Perfective Maintenance	c.Correcting a problem or upgrading the performance of a system when need arises

6.Madhu and raju are members of a system development team.During the investigation and fact recording phaseof development they had to choosebetween interviewing and using questionarries.can you help them by explaining the advantage and disadvantage of each method (2 Score)

7.A software development company ABC private ltd. Needs to recruit a system analyst.List the attributes required for the right candidate.(2 Score)

8.Match the following (2 Score)

Graphical representaion of data movement,process and files.	Data dictionary
Chart listing all logical conditions and actions	Decision tree
Graphical representation of conditions and actions similar to branches of atree	Pseudo code
Name of all dat items used together with exact definitions.	Data flow diagram

9.A new software system is installed in your school office.But due to certain errors in the analysis phase it has certain errors and need to be corrected.Name the type of maintanance used here.(1 Score)

10.While designing a software system for your school the system analyst is about to design the outputs.What are the points that he should take care of?(3 Score)

11.Fill the blanks using the list given below.

(system maintenance,system review,Implementation,File design,Input design)

a.The stage of a project during which the design of the system is tested and made operational is .....

b.The method of storing data and accessing data is decided in.....stage

c.-----is done to verify whether the system has met the objectives or not.

CHAPTER 11 CONCEPTS OF DBMS

1. Give an example for RDBMS package.(1 Score)
2. Select the property which is desirable for a database(1 Score)  
a)redundancy b)Inconsistency c)Integrity d)Complexity
3. Pick the odd man out(1 Score)  
a)create b)Select c)update d)insert
4. Name the key that acts as a candidate key but not a primary key. (1 Score)
5. \_\_\_\_\_ is the ability to modify a schema definition in one level without affecting the schema definition in the next higher level. (1 Score)
6. For accessing data from a database, \_\_\_\_\_ provides an interface with programming languages. (1 Score)
7. Consider the table with the following fields name, rollnumber and mark for a set of students. Suggest a field among them, which is suitable for primary key. Justify your answer.(2 Score)
8. For catering to the needs of users, a database is implemented through three general levels. Name the three levels and discuss them. (3 Score)
9. You have to present a seminar on the topic “Keys in RDBMS”. Prepare the seminar report. (5 Score)
10. There are different data models of which one is currently used in all business transactions. Specify it and discuss in detail. (5 Score)

11. Consider the following table and write relational algebra operations for the following.

Accno	Name	Branch	Amount
1001	Kumar	calicut	10000
1002	Salim	Trivandrum	25000
1003	Fida	Kottayam	18000
1004	John	kannur	30000
1005	Raju	Thrissur	5000

a) To display those tuples from DEPOSIT relation where amount is greater than 25000.

b) To display only Accno and amount of all depositors (3 Score)

12. STUDENT

Regno	Name	Scores
101	Priju	70
102	Anupama	68
103	Ruksana	94
104	Nancy	87
105	Anu	77

GRADE

Regno	Scores	Grade
101	70	B+
102	68	B
103	94	A+
104	87	A
105	77	B+

Consider the relations STUDENT and GRADE given above and predict the output of the following relational operations in table format.

1.  $\sigma_{\text{score}>80}(\text{STUDENT})$

2.  $\Pi_{\text{Regno,Score}}(\text{STUDENT})$

3.  $\sigma_{\text{Regno}<103}(\text{GRADE})$

4.  $\sigma_{\text{Grade}='B+'}(\text{GRADE})$

5.  $\Pi_{\text{Regno,name}}(\sigma_{\text{score}>70}(\text{STUDENT}))$  (5 score)

13.R1

Regno	Name	Grade
1200	Babu	A
1201	Lulu	A+
1202	Sunu	B

R2

Regno	Name	Grade
1203	Biju	D
1201	Lulu	A+

Show the output of the following relational operations.

a)  $R_1 - R_2$  b)  $R_1 \cup R_2$  c)  $R_1 \cap R_2$  (3 Score)

CHAPTER 12-STRUCTURED QUERY LANGUAGE

1.a.Classify the following SQL commands.

Create table,insert into,alter table,delete,update,drop table

b.List the features of each category (% Score)

2.a.Choose the odd one from the following.

Primary key,Unique,Distict,Default,Check

b.Justify your choice.(2 Score)

3.As a part of your school project you are asked to create a table student with fields rollno,name,date of birth and score in IT.The constaints required are rollno is the primary key.Name cannot be empty and score in IT should be less than 60.

4.A table employee consists of fields employeeno,name,designation and salary.Consider that you are forced to give access to this table for an engineer from another company.But for security reasons you need to hide salary from him.

a)Name the concept that provides this engineer,s facility to work on this table without viewing salary.

b)Write SQL query for implementing this.(3 Score)

5.Name the most appropriate SQL data type required to store the following data.

a)Name of a student.(Max 70 Characters)

b)Date of birth of a student.

c)Rollno. Of a student(in the range 1 to 50)

d)Percentage of marks obtained (correct to 2 decimal places)

6.a)From the list given below select the names that cannot be used as a table name.

Adm\_no\_date,Salary2006,Table,Column\_name,Address (2 Score)

b)Justify your selection (2 Score)

7.A table student consists of fields admno,name,sex and percent,where admno and percent are of numeric type and others are charcter type.Latha needs to enter 10 records in to this table using an SQL statement.

Write an SQL statement to help Latha to enter these 10 records into the student table by executing a single query.(3 Scores)

8.A table named student is given below

Rollno	Name	Batch	Percentage
1	Hari	Commerce	80
2	Binu	Science	85
3	Saritha	Humanities	
4	Vimala	Science	90
5	Sindhu	Science	75
6	Biju	Commerce	77
7	Vinod	Humanities	

Write answeres for the questions based on the above table.(3 Score)

- SQL statements to display the different courses available without duplication.
- SQL statement to display the name and batch of the students whose percentage has a null value.
- Output of the query select count(percentage) from student

9.The structure of a table book is given below

bookno integer

title varchar(200)

Author Varchar(100)

Price dec(5,2)

Write SQL query to

- Insert an additional column purchase date of type date to the books table.

b) After the existing column price so that a book costing more than 10 lakhs can be inserted into the table book. (2 Score)

10. Write SQL queries to

a) Create a table employee with the fields given below

empno-integer

name –char(70)

desig-char(30)

dateofbirth-date

salary-decimal(7,2)

b) List the name of all employees whose names second letter is 'a'

c) List the name and designation of employees whose designation is not 'manager'.

d) Increase the salary of all employees by 10 percent.

e) Remove all managers whose salary is less than rs.10000 from the table. (5 Score)

11. A table student consists of fields rollno, name, batch and percent

write SQL statements to

a) Display rollno and name of students whose percentage is less than 90 and greater than 70

b) Display rollno and name of all students in science batch whose percentage is more than 90.

c) Display names of all students in commerce and science batches.

d) Display the average percent of students in each batch.

e) Display rollno and name in the ascending order of batch and descending order of percent (5 Score)

CHAPTER 13-DATA COMMUNICATION

1. Which among the following modes of transmission is the fastest? Justify.

a) Serial communication b) Parallel communication (3 Score)

2. Arun is in charge of networking the computers in your newly built computer lab.

a) Suggest any two options for communication media that can be used for connecting computers in your school lab.

b) Explain the structures and features of both. (3 Score)

3. Consider the two signals given below.

Sound waves, data transfer inside a computer.

Identify the types of signals and compare them based on their characteristics.

4. In the figure given below, identify x and y.

fig:

5. You need to transfer a biodata file stored in your computer to your friend's computer who lives 10 KM away using the telephone network.

a) Name the devices used for this at both the ends.

b) Explain how the file is sent and received inside the device, once a connection between two computers is established (3 Score)

6. Categorise the following

a) telephone transmission, traffic on narrow bridge, data transfer to computer monitor, two way traffic, one way traffic, walkie talkie

b) Explain the features of each category. (3 Score)

7. Draw and explain the structure of the television cable in your house. (3 Score)

8. a) Name the protocol used to transfer any file from one computer to another

b) Explain a feature of this protocol (2 Score)

9. Answer the following questions from the list given below.

[router,modem,bridge,gateway]

a) device used to connect a network using TCP/IP protocol and a network using IPX/SPX protocol.

b) Device that can convert a message from one code to another and transfer from one network to a network of another type.

c) Device used to link two networks of the same type.(3 Score)

10. A factory that uses several powerful motors needed to use cables for its computer network inside its factory. Suggest a type of cable that is economical. Justify your answer. (3 Score)

11. Find the most suitable match(2 Score)

1. Web site	a. file with extension.htm
2. Home page	b. www.yahoo.com
3. webpage	c. first page of a web site
4. portal	d. www.keralapsc.org

12. Given below is the website address of a company as given in its advertisement.

<http://www.airtel.in>

Identify and explain the purpose of the different parts of this address (3 Score)

12. Attenuation can be avoided by using-----

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