

KENDRIYA VIDYALAYA SANGATHAN CHENNAI REGION
COMMON PREBOARD EXAMINATION 2008-09
COMPUTER SCIENCE

CLASS- XII

Time Allowed: 3 hours

Max.Marks : 70

1. (a) Why main() so special in C++. Give at least two reasons. 2

(b) Write the names of the header files to which the following belong

(i) strcat()

(ii) atoi()

1

(c) Rewrite the following program after removing the syntactical errors
(if any)

```
(i) #include <iostream.h>
void main()
{
    const MAX=0;
    int a,b;
    cin << a >> b;
    if(a>b) MAX=a;
    for(x=0,x<MAX;x++) cout << x;
}
```

2

(d) #include <iostream.h>

```
Main()
{
    int ch=9,sch=90;
    char S[2,2];
    if ch<=9
        cout << ch;
    for(int x=0;x<2;x++)
        for(int y=0;y<2;y++)
        {
            if(y==0) S[x][y]='A';
            else
                cout >> S[x][y];
        }
    getch(); }
}
```

2

(e) #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;

```

2

(f) Find out put of the following

```

#include<iostream.h>
struct land
{
    int    l;
    int    b;
    int    area;
};

void calarea(land &h1,int y=10)
{h1.area=h1.l*h1.b;
h1.area/=y;
h1.l++;
h1.b++;}

void main()
{
    land one={20,50},two={10,30};
    calarea(one);
    cout<<one.area<<'# '<<one.l<<'# '<<one.b;
    cout<<endl;
    calarea(two,5);
    cout<<two.area<<'# '<<two.l<<'# '.'<<two.b;

}

```

3

2.(a) Define the term data hiding in the context of Object Oriented Programming. Give a suitable example using C++ code to illustrate the same. 2

```

(b) #include<iostream.h>
#include<string.h>
class Gulfair
{
    char flightno[5];
    int no_of_passengers;
public:
    Gulfair() //function1
    {
        strcpy(flightno,str);

```

```

        no_of_passengers=0;
    }
    Gulfair(char str,int n) //function2
    {
        strcpy(flightno,str);
        no_of_passengers=n;
    }
    void input() //function3
    {cin>>flightno:
    cin>>no_of_passengers;
    }
~Gulfair()
{cout<<"counter closed"}; //function4

```

- (i) In an object oriented programming , which concept is illustrated by function1 and function 2 together? write the statements to call these function
- (ii) What is the scope of the two data members of the class Gulfair?What does scope of data members depend on? 2

(c) Define a class with complete function definition COMPETITION in C++ with the following specifications

Private members

Event_no integer
 details char(30)
 score integer
 qualified char

public members

input() To take input for event_no,description and score
 Award() To award qualified as "Y if score is more than the cutoff_score passed as int to the function else award'N'
 Show() To display all details 4

(d)Answer the questions I to IV based on the following code 4

```

class Instructor
{ char Tno[5],Tname[20],Dept[10];
  int workload;
protected
float salary;
void Assigsal(float);
public
    Instructor()
    void Tentry();
    void Tdisplay();
};
class Student
    char Admno[10],Sname[20],Stream[10];
protected:
    int attendance,TotMarks;
public:

```

```

        student();
        void sentry();
        void sdisplay();
    };
class school:public student,public instructor
    { char scode10,sname[20];
public:
    school();
    void schentry();
    void schdisplay();
    };

```

(i) Which type of inheritance is depicted in the above example?

(ii) Identify the member functions that cannot be called directly from the objects of class school from the following :

Tentry(),sdisplay(),schentry()

(iii) Write name of all the member(s) accessible from member functions of class school

(iv) If class school was derived privately from class Instructor and privately from class student, then, name the member function(s) that could be accessed through objects of school class

3.(a) Write a function in C++ which accepts an integer array and its size as arguments /parameters and exchanges the value of first half side elements with the second half side elements of the array.

Example if an array of six elements has initial contents as

10,11,12,91,86,65, The function should re arrange the array as

91,86,65,10,11,12

4

(b) An array[10][15] is stored in the memory along the column with each element occupying 4 bytes. Find out the Base Address and address of the element Array[3][2] if the Array [6][5] is stored at the address 2000.

4

(c) Write a function in C++ to perform Push operation on a dynamically allocated stack containing integers.

4

(d) Write a function in C++ to sort an integer array of 10 elements using selection sort.

2

(e) Evaluate the following post fix expression using stack and show the contents of stack after each operation

100,40,+,20,14,-,8,*,+

2

4.(a) A “pupil.dat” file exist, with the objects of class STUDENTS. Assuming, the file has just opened through the object fil ofstream class.

(i) Give a single command to place the file pointer to the third record from beginning

(ii) In continuation to the above, command, give a command to bring file pointer to the beginning of the last record

1

(b) Write a function in C++ to calculate the average word size in a text file “Report.txt”, each word is separated by single space or full stop.

2

(c) Write a function in C++ to assign a new object in a binary file "customer.dat", Assume the binary file is containing the objects of following class

Class consumer

```
{
int consumeno;
char name[21];
public:
void Enterdata(){cin>>consumeno; cin.getline(name,21);}
void dispdata(){cout<<consumeno,<<name; }
```

3

5.(a)What is an alternate Key? 2

(b)Study the following table Doctor and Salary and write SQL commands for the queries I to IV and give outputs for the SQL queries V to VI. 6

TABLE DOCTOR

ID	NAME	DEPT	SEX	EXPERIENCE
104	John	ENT	M	12
104	Smith	ORTHOPEdic	M	5
107	George	CARDIOLOGY	M	10
114	Lara	SKIN	F	3
109	KGeorge	MEDICINE	F	9
105	Johnson	ORTHOPEdic	M	10
117	Lucy	ENT	F	3
111	Bill	MEDICINE	F	12
130	Morphy	ORTHOPEdic	M	15

TABLE SALARY

ID	BASIC	ALLOWANCE	CONSULTATION
101	12000	1000	300
104	23000	2300	500
107	32000	4000	500
114	12000	5200	100
109	42000	1700	200
105	18900	1690	300
130	21700	2600	300

(I)Display the names of all doctors who are in "MEDICINE" having more than 10 years experience from the table Doctor

(II)Display the average salary of all doctors working in ENT department using the tables Doctor and Salary where salary=BASIC+ALLOWANCE

(III)Display minimum allowance of female doctors

(IV)Display the highest consultation fee among all male doctors

(V)SELECT count(*) from DOCTOR where sex="F"

(VI)SELECT NAME<DEPT<GASIC from DOCTOR,SALARY where DEPT="ENT" and DOCTOR.ID=SALARY.ID

6.(a)State and Verify Absorption Law

2

(b) Draw corresponding Logic Gate for the expression
 $F=(A+B).(A+B')$

1

(c) Given the following truth table derive a Sum of Product (SOP) and Product of Sum (POS) from
of Boolean expression from it

2

A	B	C	F(A,B,C)
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

(d) Obtain a simplified form for the following Boolean Expression using Karnaugh's Map
 $F(a,b,c,d)=\sum(0,1,2,4,5,7,8,9,10,11,14)$

3

7(a) What are Routers?

1

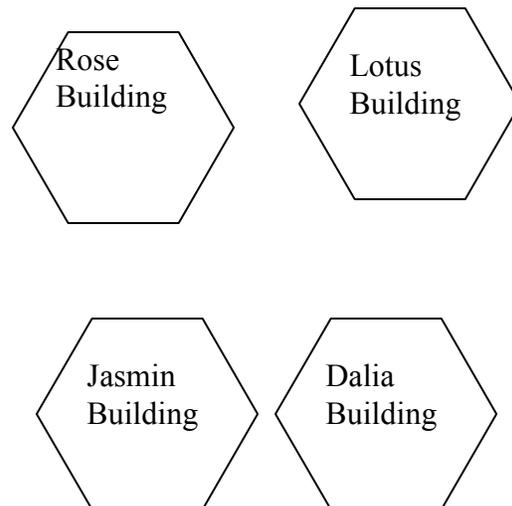
(b) What is the significance of ARPANET in Network.

1

(c) Differentiate between Message switching and Packet switching

2

(c) Manya Industries has set of its new office at Manya Nagar for its Office and web based activities. The company compound has four buildings as shown in the diagram



Centre to centre distances between various buildings is as follows

Jasmin building to Rose Building	50m
Rose building to Lotus building	60m
Lotus building to Dalia building	25m
Dalia building to Jasmin building	170 m
Jasmin building to Lotus building	125m

Rose building to Dalia building	90m
Number of computers in each of the building is as follows	
Jasmin Building	15
Rose Building	150
Lotus Building	15
Dalia Building	25

- (i) Suggest a cable layout of connections between the buildings 1
- (ii) Suggest the most suitable place to house the server of this organization with a suitable reason 1
- (iii) Suggest the placement of the following devices with justification
- (a) Internet connecting Device/Modem
 - (b) switch 1
- (iv) The organization is planning to link its sales counter suitable in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed? justify your answer. 1