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COMMON PREBOARD EXAMINATION 2008-09
COMPUTER SCIENCE- CLASS- XII

Marking scheme

1(a) On program execution, the compiler starts execution from the function main(). This function calls the other functions of the program. The main() is special function used in c++ to tell the computer where the program starts. (1 mark for the main definition and 1 mark for the reason)

(b) string.h, ctype.h (½ marks each)

(c) (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;
```

(1/2 mark each)

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(); }
```

(1/4 mark for each error)

(e). Output is 2 (2 marks for correct output)

(f) 100#21#5
60#11#31 (1½ mark each for the correct output)

2(a) Data hiding term is used so that only relevant information is exposed to the user and rest of the information remains hidden from the user. The class groups its members into 3

like private, public and protected. where private and protected members remains hidden to the outside world.

Example

```
class Student{
    private: int rollno[7];
    protected: char subject
public:
    void calmark();
};
```

(one mark for definition and one mark for example)

(b) Constructor overloading concept is illustrated by function1 and function2 together
Gulfair G1;

Gulfair G11("F0001", 20)

(ii) The scope of data members of class Gulfair is private. These members can be accessed only by the member functions of the class. The scope of data member depends on access specifier. (1 marks each for correct answer)

(c) class COMPETITION

```
{
    private:
        int event_no;
        char details[30];
        int score;
        char qualified;
public:
    void input();
    void Award(int);
    void show();
};
void COMPETITION::input()
{
    cout<<"Enter the event number";
    cin>>event_no;
    cout<<"Enter the details";
    gets(details);
    cout<<"enter the score";
    cin>>score;
}
void COMPETITION::Award(int cut_off_score)
{
    if(score>cut_off_score)
        qualified='Y';
    else
        qualified='N';
}
void COMPETITION::show()
{
    cout<<"Event number"<<event_no;
    cout<<"Details"<<details;
```

```

cout<<"Score"<<score;
cout<<"qualified"<<qualified
}

```

(½ mark for correct syntax of class header)
(½ for correct declaration of data members)
(1 mark for checking the cut_off_marks)
(1marks each for writing Show() and Input() functions)

(d)(i) Multiple Inheritance(1 mark for correct answer)
(ii)None or All the above functions can be called
(1 mark for correct answer)
(iii)Data members scode,schname,Attendance,TotMarks,salary

Member functions:-

schdisplay(),schentry(),sentry(),sdisplay(),TEntry(),TDisplay(),Assignsal()

(1 Mark for all correct members)

IV.schentry(),schdisplay()

(1 Mark for all correct member functions)

(No marks to be awarded for partially correct answers.

3(a) void swaparray(int arr[],int size)

```

int mid,oddval,midval,temp;
Mid=size/2;
If(size%2==0)
oddval=0;

```

else

```

{oddval=1;
midval=arr[mid];
}

```

```

for(int i=0;i<mid;i++)

```

```

Temp=arr[i];

```

```

arr[i]=arr[mid+i+oddval];

```

```

arr[mid+i]=temp;

```

```

}

```

```

If(oddval==1)

```

```

arr(size-1)=midval

```

}(1 mark for correct function header with proper arguments)

(1 mark for correct loop)

(1 mark for checking even /odd position)

(1 mark for replacing array elements)

(b)Address of Array[i][j] along the coloumn

Base Address+W[(i-1)+j-L2)*M]

Address of [6][5]=Base Address+8[(6-1)+(5-1)*20]=B.A+8*5+4*20

2000 =B.A+8*85

B.A = 2000-680

=1320

Address of [3][2]=1320+8[(3-1)+(2-1)*20]

=1320+8*22

=1496.

(1 mark for writing correct formula), 1 mark for calculating Base address, 1 mark for writing correct formula to calculate address of [3][2]
1 mark for calculating address of Array[3][2]

```
( c)#include<iostream.h>
#include<conio.h>
struct node
{float data;
node *link;
};
Node*push(node *top,float val)
{
node *temp;
temp=new node;
temp->data=val;
temp->link=NULL;
if(top==NULL)
top=temp;
else
{temp->link=top;
top=temp;
}
return(top);}
```

(1 mark should be given for correct header file declaration and 3 marks for programming)

(d). 1 mark for the correct header file and 1 for correct logic of the program.

(e)

Scanned elements	Operation	Stack
100	push 100	100
40	push 40	100,40
+	pop 40	
	Pop 100	
Calculate 100+40=140		
20	push 140	140
14	push 20	140,14
-	push 14	140,20,14
	Pop 14	
	Pop 20	
Calculate 20-14=6		
	Push 6	140,6
8	push 8	140,6,8
*	pop 6	
	Pop 8	140,48
+	pop 140	
	Pop 48	188

(2 Mark given if both output and step is correct, otherwise 1 mark)

```
4(a)(i)fil.seekg(2*sizeof(pupil),ios::beg);
(fil.seekg(-1*sizeof(pupil),ios::end);
```

(1/2 mark each)

```
(b)#include<fstream.h>
int avgwordsize()
{
    char ch;
int avg=0;
int wordcount=0;
int charcount=0;
ifstream fin;
fin.open("Report.txt",ios::in||ios::binary);
if(!fin)
    {
        cout<<"cannot open file";
        return 1;
    }
While(fin)
{
    fin.get(ch);
    if(ch==' '||ch=='.' )
        wordcount++;
else
    charcount++;
}if(wordcount>0)
avg=charcount/wordcount;
return avg;}
```

(1 mark for correct header file and 2 marks for logic of the program)

```
( c ) #include<iostream.h>
#include<conio.h>
#include<stdio.h>
class Consumer
{
    int consumeno,char name[21];
    public:
    void Enterdata(){cin>>consumeno;cin.getline(name,21);}
    void dispdata(){cout<<consumeno<<name;
};
void main()
{
clrscr();
char ans='y';while(ans=='y')
{
cout<<"want to add more object";
cin>>ans;
if(ans=='y')
{
consumer c1;
c1.Enterdata();
}}
(2 marks)
```

(Questions 1-6 ,1 mark each)

5(a) 2 marks for correct definition

(b)

(i)SELECT NAME FROM DOCTOR WHERE DEPT="MEDICINE" and EXPERIENCE>10;

(ii)SELECT AVG(BASIC+ALLOWANCE) FROM SALARY WHERE SALARY.ID IN(SELECT ID FROM DOCTOR WHERE DEPT="ENT");

(1/2 mark for using select clause and 1/2 Mark for using avg clause)

(iii)SELECT MIN(ALLOWANCE) FROM SALARY WHERE SALARY.ID IN (SELECT ID FROM DOCTOR WHERE SEX="F")

(1/2 mark should be given for MIN keyword)

(iv)SELECT MAX(CONSULTATION)"Highest Consultation fee" FROM SALARY WHERE SALARY.ID IN(SELECT ID FROM DOCTOR WHERE SEX="M");

(1/2 mark for MAX clause and 1/2 mark for WHERE clause)

(v) 4(1 mark)

(vi) Name Dept Basic
 John ENT 12000

(1 mark should be given if out put is correct)

6. The absorption laws are

(i) $x+x.y=x$ (ii) $x.(x+y)=x$

$X+x.y=x.1+x.y$

$=x.(1+y)$

$=x.1$

$=x$

6.(a)From the Principle of Duality

$x.(x+y)=x$

(2 marks for the correct law)

(b)One mark for correct diagram.

(c)SOP form of Boolean Expression is

$F=A'B'C'+A'B'C+A'BC+AB'C+ABC'$

The Product of Sum(POS) form of Boolean Expression is

$F=(A+B'+C).(A'+B+C).(A'+B'+C')$

(1 mark for SOP expression and 1 mark for POS expression)

(d)Mapping the given function F in a KMap

(1/2 mark each for drawing correct K-Map and plotting 1's correctly)

(1 mark for correct grouping)

(1 mark for correct answer)

The simplified Boolean Expression is

$F(a,b,c,d)=b'd'+a'c'+ab'+a'bd+acd'$

7(a).A router is a special device that directs communicating messages when several computers are connected

(b) One mark for correct answer

(c) Message switching:- 1 mark

Packet switching - 1 mark

(d) i All the wings should adopt co-axial cabling system and the best suitable topology among the wings can be mesh topology. (1 mark)

ii. Server can be placed in Rose building as it is having maximum number of computers. (1 mark for the correct answer)

(iii) modem should be placed in Rose building. Switch should be placed between Dalia and Jasmin

iv. To connect various parts of the city MAN connection can be used. (1 mark)