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COMMON PRE-BOARD EXAMINATION 2008-09.
COMPUTER SCIENCE (CLASS-XII)
MARKING SCHEME

1. (a) (i) Arrays bring together a group of items of the same data type whereas structures bring together a group of related data items of any data type.

(1)

- (ii) Structures are declared with Keyword struct. By default, all members are public in a structure, on the other hand, all members are private by default in classes.

(1)

(b) (i) #include<ctype.h> (½)

(ii) #include<string.h> (½)

(c) Error 1: Reference Variable 'b' must be initialized. (½)

Error 2: Illegal operator >> for cout (½)

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

```
void large(int &a, int &b);
```

```
int main()
```

```
{
```

```
int a=17;
```

```
int x=2;
```

```
int &b=x; (½)
```

```
large(b,a);
```

```
cout<<a<<b; (½)
```

```
}
```

```
void large(int &a, int &b)
```

```
{
```

```
if(a>b)
```

```
a = -1;
```

```
else
```

```
b = -1;
```

```
}
```

(d) oR *-* bYS (3)

(e) Result = 40 (2)

(f) 20 400 420 (2)

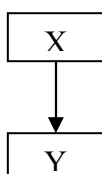
20 20 420

2. (a) Inheritance is the capability of one class of things to inherit capabilities or properties from another class.

(1)

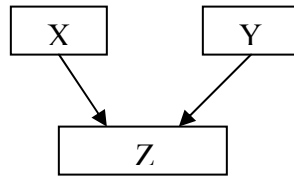
When a subclass inherits only from one base class, it is known as single inheritance.

(½)



When a subclass inherits from multiple base classes, it is known as multiple inheritance.

(½)



(b) B=7

C=5

A=3

B=7

C=6

B=2

C=7

(2)

(c)

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

```
#include<stdio.h>
```

```
#include<string.h>
```

```
class QUARTERS
```

```
{
```

```
private:
```

```
char name_of_society[20];
```

```
int house_number;
```

```
int number_of_members;
```

```
char flat[10];
```

```
float income;
```

```
public:
```

```
void input()
```

```
{
```

```
cout<<"\nEnter Name of Society:";
```

```
gets(name_of_society);
```

```
cout<<"\nEnter house number:";
```

```
cin>>house_number;
```

```
cout<<"\nEnter number of members:";
```

```
cin>>number_of_members;
```

```
cout<<"\nEnter Income:";
```

```
cin>>income;
```

```
}
```

```
void alloc_flat()
```

```
{
```

```
if(income>=50000)
```

```
strcpy(flat, "A Type");
```

```
else
```

(1)

(1)

(1)

```

if((income>=25000)&&(income<50000))
strcpy(flat, "B Type");
else
if(income<25000)
strcpy(flat, "C Type");
cout<<"\n\nThe allocated flat is :"<<flat;
}
void show() (1)
{
cout<<"\nName of Society :"<<name_of_society;
cout<<"\nHouse Number :"<<house_number;
cout<<"\nNumber of members:"<<number_of_members;
cout<<"\nFlat Type :"<<flat;
cout<<"\nIncome :"<<income;

}
};

```

- (d) (i) Multilevel Inheritance (1)
(ii) 76 bytes (1)
(iii) Data members : No_of_players, Venue (1)
(iv) Member functions: initialize(), olympicsentry(),olympicsdisp(),
outdooreentry(), outdoordisp(), hockeyentry(), hockeydisp() (1)

3(a)

```

void Swap(int A[],int size) (1/2)
{
int i,j,tmp,mid=size/2; (1/2)
if(size%2==0)
j=mid; (1/2)
else
j=mid+1; (1/2)
for(i=0;i<mid;i++,j++) (1/2)
{
tmp=A[i]; (1)
A[i]=A[j] * 2;
A[j]=tmp;
}
} (1/2)

```

- (b) $MAT[1][J]=B+W((I-L1)+M(J-L2))$ (1/2)
 $MAT[2][4]=B+2((2-1)+20(4-1))$ (1/2)
 $1000=B+2(1+20X3)$ (1/2)
 $1000=B+122$ (1/2)
 $B=1000-122$
 $B=878$ (1/2)
 $MAT[15][10]=978+2((15-1)+20(10-1))$ (1/2)
 $=978+2(14+20X9)$ (1/2)

=978+388

=1366

(1/2)

(c)

```
struct NODE
```

(1/2)

```
{
int data;
NODE *link;
};
```

```
Node * del_Q(NODE *front, int &val)
```

(1/2)

```
{
NODE * temp;
clrscr();
if(front==NULL)
```

(1/2)

```
{
cout<<"Queue Empty";
```

(1/2)

```
val=-1;
```

```
}
```

```
else
```

```
{
```

```
temp=front;
```

```
front=front->link;
```

(1/2)

```
val=temp->data;
```

(1/2)

```
temp->link = NULL;
```

(1/2)

```
delete temp;
```

(1/2)

```
}
```

```
return (front);
```

```
}
```

(d)

```
void sum(int A[5][5],int m,int n)
```

```
{
```

```
int i,j,sumrow[5],sumcol[5];
```

```
for(i=0;i<m;i++)
```

(1/2)

```
{
```

```
sumrow[i]=0;
```

```
for(j=0;j<n;j++)
```

```
sumrow[i]+=A[i][j];
```

(1/2)

```
}
```

```
for(j=0;j<n;j++)
```

(1/2)

```
{
```

```
sumcol[j]=0;
```

```
for(i=0;i<m;i++)
```

```
sumcol[j]+=A[i][j];
```

(1/2)

```
}
```

```
cout<<"\nRow sum=\n";
```

```
for(i=0;i<m;i++)
```

```
cout<<sumrow[i]<<"\n";
```

```

for(i=0;i<n;i++)
cout<<sumcol[i]<<"\n";
}

```

(e)

Operation	Stack Status	Output
((
True	(True
&&	(&&	
False	(&&	True False
)		True False &&
		True False && (½)
!	!	True False &&
(! (True False &&
False	! (True False && False (½)
	! (True False && False
True	! (True False && False True
)	!	True False && False True (½)
		True False && False True !
	Empty	True False && False True ! (½)

4.(a) tellg()- used in random file access. It is used to return the current file pointer in terms of bytes.
seekg()- used to place the file pointer at the required position.

Both comes under ifstream

½ mark for each correct definition

(b)

```
void calculate()
```

```

{
fstream f;
clrscr();
f.open("TOUR.DAT",ios::in);
char arr[80];
char ch;
int i=0,sum=0,n=0;
while(f)
{
f.get(ch);
arr[i]=ch;
i++;
if(ch==' ')
{
i--;
i=0;
n++;
}
}
cout<<"Total no. blanks:"<<n;
}

```

(½)

(½)

(½)

(1)

(½)

(b) void write()

```

{
PRODUCTS P;
fstream f;
f.open("PROD.DAT",ios::app|ios::out|ios::binary);
int n,I;
clrscr();
cout<<"\nEnter how many records to be added:";
cin>> n;
for(i=0;i<n;i++)
{
P.getproducts();
f.write((char*)&P,sizeof(P));
}
f.close();
}
void read()
{
PRODUCTS P;
fstream f;
f.open("PROD.DAT",ios::in|ios::binary);
char prodname[20];
while(f)
{
f.read((char*)&P,sizeof(P));
strcpy(prodname,P.getproduct());
if(strcmp(prodname,"Ponds Powder")==0)
{
cout<<"\n";
P.showproducts();
}
}
f.close();
}

```

5. (a) A view is a virtual table that does not really exist but is instead derived from one or more underlying base table(s). No stored file is created to store the contents of a view rather its definition is only stored. **(1)**

If we drop a table in which view exists the view is automatically deleted. **(½)**

Yes , we can create View of a View. **(½)**

(b)

[6X1=6]

(i) SELECT Title FROM LIBRARY WHERE Price BETWEEN 100 AND 300;

(ii) SELECT Title , Author FROM LIBRARY WHERE Subject = 'Prog';

(iii) SELECT * FROM LIBRARY WHERE Price >300 ORDER BY Quantity;

(iv) UPDATE LIBRARY SET Price = Price + 315;

(v) 213

(vi) 4370

(vii) 3

(viii)

SUBJECT	MAX(PRICE)	COUNT(*)
DBMS	230	1
DS	320	1
Prog	515	3

6. (a) To Prove : $X(X+Y)=X$

$= X.X+X.Y$

(1/2)

$= X+XY$

(1/2)

$= X(1+Y)$

(1/2)

$= X.1$

(1/2)

$= X$

$= \text{RHS}$

(b) $X.Y' + Z$

$Z + X.Y' [X+Y=Y+X]$

$(Z+X)(Z+Y') [X+YZ=(X+Y)(X+Z)]$

Figure :

[1]

(c) $G(U,V,W)=(U+V'+W)(U+V'+W')(U'+V'+W)(U'+V'+W')$

[4X1/2=2]

(d)

K-Map (1/2)

	Z'W'	Z'W	ZW	ZW'
X'Y'	1	1	1	
X'Y	1	1	1	1
XY		1	1	
XY'		1	1	1

There are 4 groups : 1 Octet , 2 Quads , 1 Pair

The Octet ($m1+m3+m5+m7+m9+m11+m13+m15$) reduces to W

(1/2)

The Quad1 ($m0+m1+m4+m5$) reduces to X'Z'

(1/2)

The quad2 ($m4+m5+m6+m7$) reduces to X'Y

(1/2)

The pair ($m0+m11$) reduces to XY'Z

(1/2)

Therefore final expression is :

$F(X,Y,Z,W)=W+X'Z'+X'Y+XY'Z$

(1/2)

7. (a) A gate way is a device that connects dissimilar networks.

(1)

(b) (i) File Transfer Protocol

(1/2)

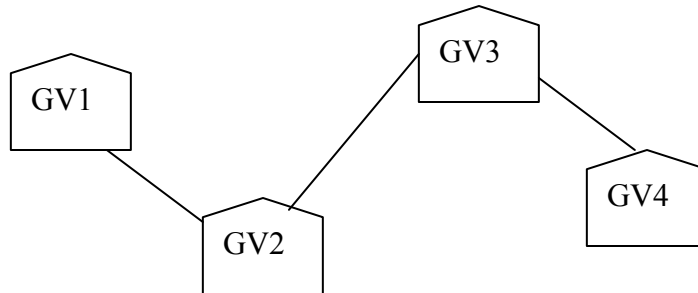
(ii) Network File Server

(1/2)

(iii) Hyper Text Transfer Protocol

(1/2)

- (iv) Uniform Resource Locator (½)
- (c) Cookies are messages that a web server transmits to a web browser so that the web browser can keep track of the user's activity on a specific web site. (1)
- (d) (a) Total cable length required for this layout = 75 mts (½)



- (b) To give dedicated bandwidth, the computers in each building should be connected via switches as switches offer dedicated bandwidths. (1)
- (c) By installing routers in each building, shared internet access can be made possible. (1)
- (d) (i) Satellite as it can connect offices across globe. (½)
- (ii) WAN (Wide Area Network) (½)