

INTERNATIONAL INDIAN SCHOOL-DAMMAM
PRELIMINARY EXAM , FEB-2014
SET-1

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SUB: COMPUTER SCIENCE(083)
MAX. MARKS: 70

CLASS : XII
TIME: 3 HOURS

Q.NO	QUESTIONS	MARKS
1		
(a)	Illustrate the purpose of scope resolution operator in C++ with example.	2
(b)	Which C++ header file(s) will be essentially required to be included to run / execute the following C++ code: void main() { char Msg[]="CBSE 2014"; for (int I=5;Msg[I];I++) puts(Msg); }	1
(c)	Rewrite the following program after removing the syntactical errors (if any). Underline each correction. #include " iostream.h" struct MEMBER { int Mno;float Fees; } M=[4, 6 . 50]; void main() { cout<< Mno<<Fees; }	2
(d)	Find the output of the following program: #include<iostream.h> void main() { int C[]= { 11,33,22,55,44}; int *ptr= C; int *t = &C[4]; for(int i =0;i<2; i++) { cout<< C[i]<<"\t"<<*t - - <<'\t'<<*++ptr <<endl; } }	2

(e). Find the output of the following program:

```

#include <iostream.h>
calculate(int x)
{
  if(x%2)
    return ++x;
  else
    return x++;
}
void design( char ch, int n=2)
{
  for(int i=0;i<n;i++)
    cout<<calculate(i)<<ch;
  cout<<endl;
}
void main()
{
  design('*');
  design('@',4);
  design('#',3);
}

```

(f). In the following C++ program what is the expected value from options(i) to(iv) given below: justify your answer

```

#include <iostream.h>
#include<stdlib.h>
void main()
{
  randmize();
  int x = 5, N;
  for(int i =1;i<=4;i++)
  {
    N = 25+ random(x);
    Cout<<N<<" : ";
    x--;
  }
}

```

- i. 29:26:25:28: ii. 24:28:25:26: iii. 29:26:24:28 iv. 29:26:25:26

Q.NO
2.

(a). What do you understand by polymorphism? Give an example illustrating its use in C++ program.

(b). Answer the questions (i) and (ii) after going through the following program:

```

class Match
{
  int Time;
public:
  Match()//Function 1
  {
    Time=0;
    cout<<"Match commences"<<endl;
  }
}

```

```
void Details() //Function 2
{
cout<<"Inter Section Basketball Match"<<endl;
}
```

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```
Match(int Duration) //Function 3
{
Time=Duration;
cout<<"Another Match begins now"<<endl;
}
~Match(){ } // function -4
};
```

- i) Write statements that would call the member Function 2 and function 3
- ii) When function-4 does execute?

(C) Define a class Garments in C++ with the following descriptions:

4

Private Members:

GCode of type string
GType of type string
GSize of type integer
GFabric of type string
Gprice of type float

A function Assign() which calculates and assigns the value of GPrice as follows:

For the value of GFabric as "COTTON"

GType	GPrice(Rs)
TROUSER	1300
SHIRT	1100

Or GFabric other than "COTTON" the above mentioned GPrice gets reduced by 10%.

Public Members:

A constructor to assign initial values of GCode, GType and GFabric with the word "NOT ALLOTTED" and gsize and GPrice with 0.

A function Input() to input the values of the data members GCode, GType, GSize and GFabric and invoke the Assign() function.

A function Display() which displays the content of all data members for a Garment.

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

4

```
class PUBLISHER
{
char Pub[12];
long double Turnover;
protected:
void Register();
public:
PUBLISHER();
void Enter();
void Display();
```

```

};
class BRANCH
{
char CITY[20];
protected:
float Employees;
public:
BRANCH();
int bno;
void Haveit();
void Giveit();
};
class AUTHOR : private BRANCH , public PUBLISHER
{
int Acode;
char Aname[20];
float Amount[3];
public:
AUTHOR();
void Start();
void Show();
};

```

(i) Write the names of data members, which are NOT accessible from objects belonging to class AUTHOR.

(ii) Write the names of all the member functions which are accessible from objects of BRANCH

(iii) Write the order of execution of constructors when you create object of class AUTHOR.

(iv) How many bytes will be required by an object belonging to class AUTHOR?

Q.NO

3(a)

Write a user defined function in C++ SHIFT(int [], int) that would accept one dimensional integer array. The function should shift the negative numbers of an array to left and the positive numbers to right without using second array.

For example if array initially contains

3 -5 1 3 7 0 -15 3 -7 -8

Then after shifting negative to left and positive to right array should contain:

-5 -15 -7 -8 3 1 3 7 0 3

3

(b).

An array Arr[40][10] is stored in the memory along the column with each element occupying 4 bytes. Find out the address of the location Arr[3][6] if the location Arr[30][10] is stored at the address 9000

3

(c).

Write a user defined function in C++ MAX(int X[] [10] , int N, int M) to find and return the maximum number in stored in two dimensional array X.

2

(d).

Convert the following infix expression into postfix expression with help of stack; and show the status of stack after each execution .

2

A * B + (C - D)/F

(e). Write a COMPLETE PROGRAM IN c++ to implement dynamically allocated queue containing names of cities. 4

Q.NO 4 (a) A binary file "Students.dat" contains data of 100 students where each student's data is an object of the following class: 1

```
class Student
{
long Rno;char Name[20];
public:
void EnterData() {cin>>Rno; cin.getline(Name,20);
void ShowData() {cout<<Rno<<" - "<<Name<<endl;}
};
```

With reference to this information, write output of the following program segment:

```
ifstream File; Student S;
File.open("STUDENTS.DAT",ios::binary|ios::in);
File.seekg(0, ios::end);
Cout<<File.tellg();
```

(b). Write a function to read a text file PARA.TXT and replace every sequence of consecutive space by a single space and display file content on the screen. 2

For example if the file PARA, TXT contains the following :

This is to test.

The output should be : This is to test.

(c). Given a binary file PHONE.DAT, containing records of the following: 3

```
class Phonlist
{
char Name [20] ;
char Address[30];
char AreaCode[5];
char PhoneNo[15] ;
public:
void Register () ;
Void Show ( ) ;
int CheckCode (char AC[])
{
return strcmp (AreaCode, AC) ;
}
};
```

Write a function TRANSFER () in C++, that would copy all those records which are having AreaCode as "DEL" from PHONE.DAT to PHONBACK.DAT.

Q.NO 5 (a). What do you understand by the terms PROJECTION and UNION in relational algebra? Explain with example. 2

(b)

Consider the following tables . Write SQL commands for the statements (i) to (iv) and write output for(V.)to(viii)

EMP

Empno	Ename	Job	Mgr	Hiredate	Sal	Comm.	Deptno
7839	King	President		17-nov-81	5000		10
7698	Blake	Manager	7839	01-may-81	2850		30
7782	Clark	Manager	7839	09-jun-81	2450		10
7566	Jones	Manager	7839	02-apr-81	2975		20
7654	Martin	salesman	7698	28-sep-81	1250	1400	30
7499	Allen	Salesman	7698	20-feb-81	1600	300	30
7844	Turner	Salesman	7698	08-sep-81	1500	0	30
7900	James	Clerk	7698	03-dec-81	950		30
7521	Ward	Salesman	7698	22-feb-81	1250	500	30
7902	Ford	Analyst	7566	03-dec-81	3000		20
7369	Smith	Clerk	7902	17-dec-80	800		20
7788	Scott	Analyst	7566	09-dec-82	3000		20
7876	Adams	Clerk	7788	12-jan-83	1100		20
7934	Miller	Clerk	7782	23-jan-82	1300		10

DEPT

Deptno	Deptname	Loc
10	Accountaing	New York
20	Research	Dallas
30	Sales	Chicago
40	Operations	Boston

- i. To display the name and salary of all managers working in New York
- ii. To show number of employees having commission
- iii. To display whole table alphabetical order of name
- iv. To increase salary of all manager by 25 and commission by 50
- v. SELECT JOB, SUM(SAL), COUNT(*) FROM EMP GROUP BY JOB;
- vi. SELECT AVG(COMM) FROM EMP ;
- vii. SELECT ENAME, SAL, SAL *12 FROM EMP where job ='manager';.
- viii. SELECT ename FROM EMP WHERE SAL <= 1500;

Q.NO 6 (a).

Verify the following using Boolean Laws.

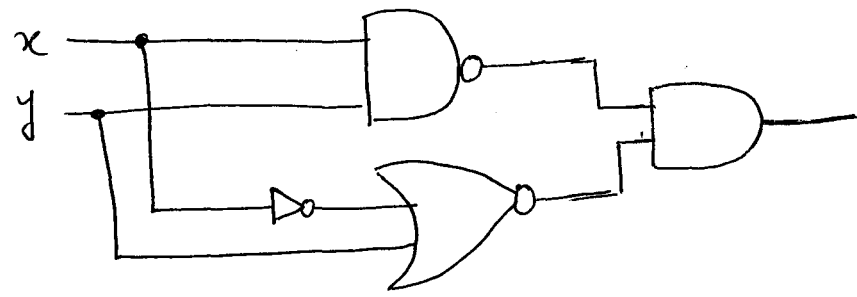
AB +BC+ A'C = AB+ A'C

2

(b)

Obtain the Boolean Expression for the logic circuit shown below:

2



Write the sum of product of the function $F(A,B,C)$ for the following truth table representation of F

1

(c).

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	0

Obtain the minimal form for the following Boolean expression using Karnaugh's Map.

3

(d)

$$F(A,B,C,D) = \prod (0,1,2,4,6,8,9,10,12,14)$$

Q.NO

7 (a)

Differentiate packet switching and message switching technique in network communication,

1

(b). Differentiate between BUS and STAR topology of networks.

1

(c) What do you mean by servers side scripting? Name one server side scripting language.

1

(d). What is web 2.0?

1

(e). Name two propriety softwares along with their application.

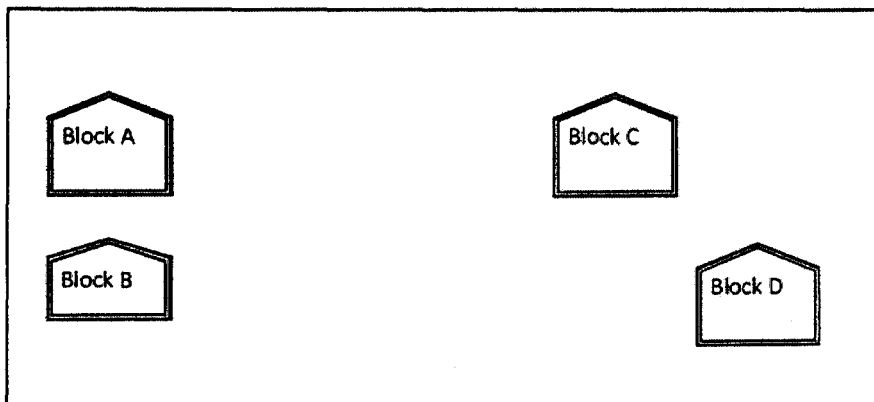
1

(f). How Trojan horses are different from worms.? Mention any one difference.

1

(g). Knowledge Supplement Organisation has set up its new center at Mangalore for its office and web based activities. It has 4 blocks of buildings as shown in the diagram below:

4



Approximate distances between these Units is as follows:

FROM	TO	DISTANCE
A	B	50M
B	C	150M
C	D	25M
A	D	170M
B	D	125M
A	C	90M

In continuation of the above, the company experts have planned to install the following number of computers in each of their office units:

A	25
B	50
C	125
D	10

- (i) suggest a cable layout of connections between the blocks
- (ii) suggest most suitable place (ie block) to house the server of this organization with a suitable reason.
- (iii) Suggest the placement of the following devices with justification
(a). Repeater (b). HUB/SWITCH
- (iv) The organization is planning to link its front office situated in the city in hilly region where cable connection is not feasible. Suggest an economic way to connect it with reasonably high speed?

ALL THE BEST