

# KENDRIYA VIDYALAYA SANGATHAN, CHENNAI REGION

## REVISION Examination 2013

### COMPUTER SCIENCE (083)

#### CLASS – XII

Time Allowed: 3 Hours

Maximum Marks: 70

#### Instructions:

- (i) **All** questions are compulsory.
- (ii) Programming Language : C++, SQL

1. (a) Differentiate between run time error and syntax error with the help of suitable example. 2

(b) Write the name of the header files for the following: 1  
(i). delay() (ii). fabs()

(c) Rewrite the following program after removing the syntactical error(s) (if any). 2  
Underline the correction.

```
#include<iostream.h>
structure SwimmingClub
{
    int mem number;
    char memname[20];
    char memtype[]="LIG";
};
void main()
{
    SwimmingClub per1,per2;
    cin<<"Member Number: ";
    cin>>memnumber.per1;
    cout<<"Member Nmae: ";
    cin>>per1.membername;
    per1.memtype="HIG";
    per2=per1;
    cin<<"Member Number: "<<per2.membernumber;
    cin<<"Member Name: "<<per2.memname;
    cin<<"Member Type: "<<per2.memtype;
}
```

(d) Write the output of the following code:

2

```
#include<iostream.h>
int global = 10;
void callme(int &x, int y)
{
    x -= y;
    y = x * 10;
    cout<<x<<':'<<y<<endl;
}
void main()
{
    int global = 7;
    callme(::global,global);
    cout<<global<<':'<<::global<<endl;
    callme(global,::global);
    cout<<global<<':'<<::global<<endl;
}
```

(e) Write the output of the following code:

3

```
#include<iostream.h>
void pass(int *ptr)
{
    for(int *pt=ptr ; pt<ptr+2 ;pt++)
        cout<<*pt<<'-' ;
        cout<<endl;
}
void main()
{
    int box[] = {10,33,17,12,20};
    pass(box);
    pass(box+1);
    pass(&box[2]);
}
```

(f) In the following program what is the expected value of myscore from options (i) to (iv). Justify your answer.

2

```
#include<iostream.h>
#include<stdlib.h>
void main()
{
    randomize();
    int score[]={25,20,34,56,72,63},myscore;
    myscore=score[2+random(2)];
    cout<<myscore<<endl;
}
```

(i) 25 (ii) 34 (iii) 20 (iv) None

2. (a) Differentiate between abstract class and concrete class. 2

(b) Answer the questions (i) and (ii) after going through the following class: 2

```
class mammal{
    public:
        char category[20];
        mammal( char xname[])           // function1
        {
            strcpy(category, xname)
        }
        mammal(mammal &t);               //function2
};
```

- (i) Create an object, such that it invokes function1.
- (ii). Write complete definition for function2.

(c) Define a class TravelPlan in C++ with the following description: 4

Private Members:

- PlanCode of type long
- Place of type string
- NOT(No\_of\_Travellers) of type integer
- NOB(No of Buses) of type integer

Public Members:

- A constructor to assign initial values of PlanCode as 1001, Place as "Agra", NOT as 5, NOB as 1
- A function NewPlan() which allows users to enter PlanCode, Place and NOT. The function assigns the value of NOB as per the following conditions:

Number of Travellers	Number of Buses
Less than 20	1
Equal to or more than 20 and less than 40	2
Equal to 40 or more than 40	3

A function ShowPlan() to display the content of all the data members.

(d) Consider the following declarations and answer the questions given below: 4

```
class parent
{
    char name[20];
protected:
    int son;
public:
    void inputdata(char, int);
    void outputdata();
};
class father : protected parent
{
```

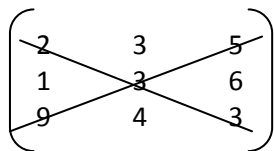
```

        int daughter;
protected :
        int baby;
public :
        void readdata(int, int);
        void writedata();
};
class mother : private father
{
int X;
public : void fetchdata (int);
void displaydata();
};

```

- (i) Name the base class and derived class of the class father.
- (ii) Name the data members that can be accessed from function displaydata();
- (iii) Name the member function which can be accessed by an object of mother class.
- (iv) Is the member function outputdata() accessible to the object of father class?

3. (a) Write a function in C++ two input int arrays arranged in ascending order and their sizes as arguments and one output array and an output variable for the size of result array as arguments and it merges both the input arrays in output array such that the output array is in ascending order. If any element is common in both the input array only one copy of it will go in the output array. Define the function. 3
- (b) An array DATA[1..10][1..10] requires 4 bytes for each element. If the base address of the array is 1500, determine the location of DATA[4][5], when the array is row wise. 3
- (c) Define(write code of) two important function of dynamic stack containing names of cities. 4
- (d) Write a C++ function to print both the diagonal of a square matrix. E.g. 2  
Then the output should be:



Diagonal 1: 2 3 3  
Diagonal 2: 5 3 9

- (e) Evaluate the following postfix expression using a stack and show the contents of the stack after each operation. 2  
100, 40, 8, +, 20, 10, -, +, \*
4. (a) Given the following code:

```

#include<fstream.h>
#include<conio.h>
void main()
{ ifstream fin;

```

```

clrscr();
fin.open("a.txt",ios::in);
int size=0;
..... // statement 1
size=..... ; //statement 2
cout<<size;
fin.close();
getch();
}

```

Write statement 1 and statement 2 using seek..() and tell..() so that it calculate the file size.

- (b) Write a function in C++ which opens a text file sample.txt and count the number of lines present in the file and displays it. 2

(c) class book

```

{
int book_no;
char book_name[20];
float price;
public:
void enter_book_Details( )
{
cin>> book_no>> price; gets(book_name);
}
void show_book_Details( );
int checkbookno(int bookno)
{
If(book_no==bookno)
Return(0);
Else
Return (1);
};

```

Write a function deleteBook() in C++ that deletes the required book record from the binary file BOOKS.DAT based on book\_no.

5. (a) Differentiate between DDL & DML. Also give example. 2

- (b) Consider the following tables Product and Client. Write SQL commands for the statement (i) to (iv) and give outputs for SQL queries (v) to (viii). 6

**TABLE: Product**

P_ID	ProductName	Manufacturer	Price
TP01	Talcom Powder	LAK	40
FW05	Face Wash	ABC	45
BS01	Bath Soap	ABC	55
SH06	Shampoo	XYZ	120
FW12	Face Wash	XYZ	95

**TABLE: Client**

C_ID	ClientName	City	P_ID
------	------------	------	------

01	Cosmetic Shop	Delhi	FW05
06	Total Health	Mumbai	BS01
12	Live Life	Delhi	SH06
15	Pretty Woman	Delhi	FW12
16	Dreams	Bangalore	TP01

- (i) To display the details of those Clients whose City is Delhi.
- (ii) To Display the details of Products whose Price is in the range of 50 to 100(Both values included).
- (iii) To Display the ClientName, City from table Client and ProductName and Price from table Product, with their corresponding matching P\_ID.
- (iv) To increase the Price of all Products by 10.
- (v) SELECT DISTINCT (City) FROM Client;
- (vi) SELECT Manufacturer, MAX(Price), MIN(Price), COUNT(\*) FROM Product GROUP BY Manufacturer;
- (vii) SELECT ClientName, Manufacturer FROM Product, Client WHERE Client.P\_ID=Product.P\_ID;
- (viii) SELECT ProductName, Price\*4 FROM Product;

- (c) Write SQL commands for the following: 2
- (i). To delete all the records from table Employee;
  - (ii). To add primary key constraint to rollno column in an existing table student.

6. (a) Explain principle of duality with the help of example. 2

(b) Write the SOP expression for the following truth table: 1

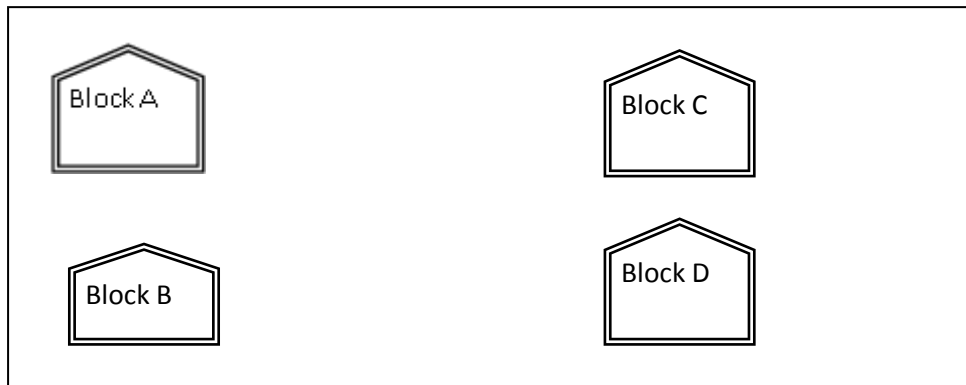
X	Y	Z	F(output)
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

(c) Draw the logical circuit for the following boolean expression using only NAND gates:  $F(x,y) = x'.y' + x.y$  2

(d) Reduce the following boolean expression using K-Map: 3  
 $F(a,b,c,d) = m_0 + m_1 + m_2 + m_3 + m_4 + m_{10} + m_{11}$

7. (a) What do you mean by Open Source Software? 1

- (b) What is PAN? 1
- (c) What is firewall? 1
- (d) Which protocol is used for transferring files from one computer to another? 1
- (e) 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



Center to center distances between various blocks

Block A to Block B	50 m
Block B to Block C	150 m
Block C to Block D	25 m
Block A to Block D	170 m
Block B to Block D	125 m
Block A to Block C	90 m

Number of Computers

Block A	25
Block B	50
Block C	125
Block D	10

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