

Sample paper- 2013

Class - XII

Subject: Computer Science (083)

Time Allowed: 3 Hr.

M.M.70

General Instructions:

- All questions are compulsory.
 - Programming Language- C++.
 - The question paper contains 8 printed pages and 7 questions.
-

Q1.

a) Differentiate between *call by value* and *call by reference* with example. 2

b) Name the header file(s) that shall be needed for successful compilation of the following C++ code. 1

```
void main( )  
{  
  Int x=10, y=5;  
  int z= -9;  
  gotoxy(x,y);  
  cout<<abs(z);  
}
```

c) Hussain has just started working as programmer in the WORLD SOFTWARE company. In the company, he has got his first assignment to develop a small C++ module to find the smallest number out of a given set of numbers stored in a one dimensional array. Somehow he has committed a few logical mistakes while writing this code and so he is not getting the desired result from the code. Find out the mistakes and correct this C++ code so that it provides the desired result (do not add any new statement in the code). Underline each correction made: 2

```
void SMALLFIND(int ARR,int Size)           // Statement 1  
{  
  int SMALL=ARR[1];           //Statement 2  
  for (int C=2;C<Size; // C++) //Statement 3  
    if (ARR[C]>SMALL) //Statement 4  
      ARR[C]=SMALL; // Statement 5  
  return SMALL; // Statement 6  
}
```

d) What will be the output of the following program: 3

```
#include<iostream.h>  
#include<ctype.h>  
typedef char chr;
```

```
void mian()
{
char * notes;
chr str= "vR2Cool";
int L=6;
Notes= str;
while(L>=3)
{
str[L]= (isupper(str[L]) ? tolower(str[L]): toupper(str[L]));
cout<< Notes <<endl;
L- -;
Notes ++
}
}
```

e) In the following program, find the correct possible output(s) from the options:

2

```
#include<iostream.h>
#include<stdlib.h>
void main()
{
randomize();
char city[ ]={"PKD", "EKM", "TVM", "KOL", "CAL"};
int ZEN;
for(int i=0;i<3;i++)
{
ZEN=random(2)+1;
cout<<city[ZEN]<<"@";
}
}
```

- (i) PKD@ EKM @TVM@
- (ii) EKM @TVM@ EKM @
- (iii) TVM@KOL@CAL@
- (iv) TVM@ EKM @TVM@

f) Find the output of the following program:

2

```
#include<iostream.h>
void Modify(int &a, int b=10)
{ if(b%10==0)
a+=5;
for(int i=5;i<=a;i++)
cout<<b++<<".";
cout<<endl;
}
```

```
void Disp(int x)
{
if(x%3==0)
Modify(x);
else
Modify(x,3);
}
void main()
{ Disp(3);
Disp(4);
Modify(2,20);
}
```

Q2.

a) What is meant by function overloading? Explain with example. 2

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

```
class patient
{
char disease[20];
int age;
public:
patient ( )           //Constructor1
{
strcpy(disease,"Cancer");
age=18;
}
patient (char *s, int a)   //Constructor2
{
strcpy(disease,s);
age = a ;
}
patient (patient &p);      //Constructor3
~ patient ( )           //Destructor
{
cout<<"Memory Deallocate"; }
};

void main( )
{
patient p1("Fever",24);           //Statement1
patient p3(p1);                   //Statement2
}
```

(i) When p3 object is created , which constructor will be invoked and why?

(ii) Write complete definition for Constructor3

C) Define a class Applicants with the following information: 4

Private members

- rollno of type int
- Name of type character with size as 30
- Category of type character ('G' for general , 'S' for Schedule caste , 'T' for Schedule Tribe)
- Fees of type Float
- Function calc() to calculate fees of the student on the basis of category entered as :
Category 'G' then Fees is 12000



<http://www.cbseguess.com/>

Category 'S' then Fees is 4000

Category 'T' then Fees is 3500

Public members

- A constructor to initialise category as a blank character and fees as 0.
- A function to input Roll number , name and category of the student, and call calc().
- A function to display all the information of the applicant.

www.cbseguess.com

Other Educational Portals

www.icseguess.com | www.ignouguess.com | www.aipmtguess.com | www.aieeeguess.com | www.niosguess.com | www.iitguess.com

d) Answer Questions 1 to 4 after going through the following code:

4

```
class drama {
char dname[20];
int Dduration;
protected:
char dactors[10][20];
public:
void enterdrama( );
void displaydrama( ); };

class realityshow { char rname[15];
int Rduration;
protected:
char Rparticipants[15][20];
public:
void enterreality ( );
void displayreality( ); };
```

```
class tvprog : public drama, private realityshow, public news
{
    char chnlgrp[20];
    Float pkgcost;
    public:
    void enterprog( );
    void displayprog( ); };
```

- Write the names of all members accessible from displayprog() of class tvprog.
- Write name of all data members accessible from object of class tvprog.
- Calculate size of an object of class tvprog.
- Write the order for the call of the constructors when object of class tvprog is declared.

Q3.

a) Write a function Get1from2() in C++ to transfer the content from two arrays First[] and Second[] to array All[]. The even places (0,2,4.....) of array All[] should get the contents from the array First[] and odd places (1,3,5.....)of the array All[] should get the contents from the array Second[]

3

Eg:

If the First [] array contains 30, 60,90,
And the Second [] array contains 10, 50,80,
Then All [] array should contain 30, 10, 60,50,90,80

- b) An array Array[20][15] is stored in the memory along with column with each element occupying 8 bytes. Find out the base address and address of the element Array[2][3] if the element Array[4][5] is stored at the address 1000. 3
- c) Convert the following infix expression to its equivalent postfix expression Showing stack contents for the conversion : 2
 $(A+B)*(C^{(D-E)}+F)-G$
- d) Write a function to insert an element in a dynamic STACK containing names of employees. Also show the structure used to create elements of STACK. 3
- e) Define a function SWAP() in C++ to interchange the first column elements with the last column elements, for a two dimensional integer array and its size (r & c) passed as the arguments of the function. 3
 Eg: If the array contains: After swapping it should be:

1	3	4	2
4	4	5	4
7	5	6	7
8	4	7	9

2	3	4	1
4	4	5	4
7	5	6	7
9	4	7	8

Q4

- a) Observe the program segment given below carefully, and answer the question that follows: 1

```
class Applicant
{
    long Aid;           //Applicant's Id
    char Name [20]     //Applicant's Name
    float Score;       //Applicant's Score
public:
    void Enroll();
    void Disp();
    void MarksScore(); //Function to change score
    long R_Aid () {return Aid;}
};
void score update(long ID)
{
    ifstream File ;
    File.open ("APPLI.DAT", ios::binary | ios:: in | ios:: out);
    Applicant A;
    int Record=0,Found=0 ;
    while(! Found && File.read ((char*)&A, sizeof(c)))
```

```
{
If( Id==A.R_AID())
{ cout<< "enter new score";
A.MarkScore();
_____ //Statement 1
_____ //Statement 2
Found=1;
}
Record++;
}
If(Found==1) cout<< "Record updated";
File.close();
}
```

Write the statement **to position** the File Pointer at the beginning of the Record for which the Applicant's Id matches with the argument passed, and Statement 2 **to write** the updated Record at that position.

b) Write a program in C++ to read and display the detail of the user whose status is 'A' (i.e., Active) from a binary file "USER.DAT", assuming the binary file is containing objects of class. User, which is defined as follows : 3

```
class USER
{
    int UID;
    char Uname[20];
    char Status; // User Type : A Active I Inactive
public:
    void Register();
    void show();
    char Getstatus () {return Status;} };
```

c) Write a program to read a text file names "Note.txt" and count the occurrences of words "this" and "these". 2

Q. 5.

a) Differentiate between DDL and DML. Also give two examples of each. 2
 b. Consider the following tables Employee and salary. Write SQL commands for the statements (i) to (vi) and give outputs for SQL queries (vii) to (x). 6+2=8

Table : Employee

Eid	Name	Deptid	Qualification	Sex
1	Deepali Gupta	101	MCA	F
2	Rajat Tyagi	101	BCA	M

3	Hari Mohan	102	B.A	M
4	Harry	102	M.A	M
5	Sumit Mittal	103	B.Tech	M
6	Jyoti	101	MCA	F

Table : Salary

Eid	Basic	DA	HRA	Bonus
1	6000	2000	2300	200
2	2000	300	300	30
3	1000	300	300	40
4	1500	390	490	30
5	8000	900	900	80
6	10000	300	490	89

- To display the frequency of employees department wise.
- To list the names of those employees only whose name starts with 'H'
- To add a new column in salary table . the column name is total_sal.
- To store the corresponding values in the total_sal column (basic+da+hra+bonus).
- To display Eid, name, qualification and basic of all employees.
- To display the record of all employees having MCA degree.
- Select name from employee where eid=(select eid from salary where basic= (select max(basic) from salary));
- select max(basic) from salary where bonus >40;
- Select count(*) from employee group by sex;
- select Distinct deptid from Employee;

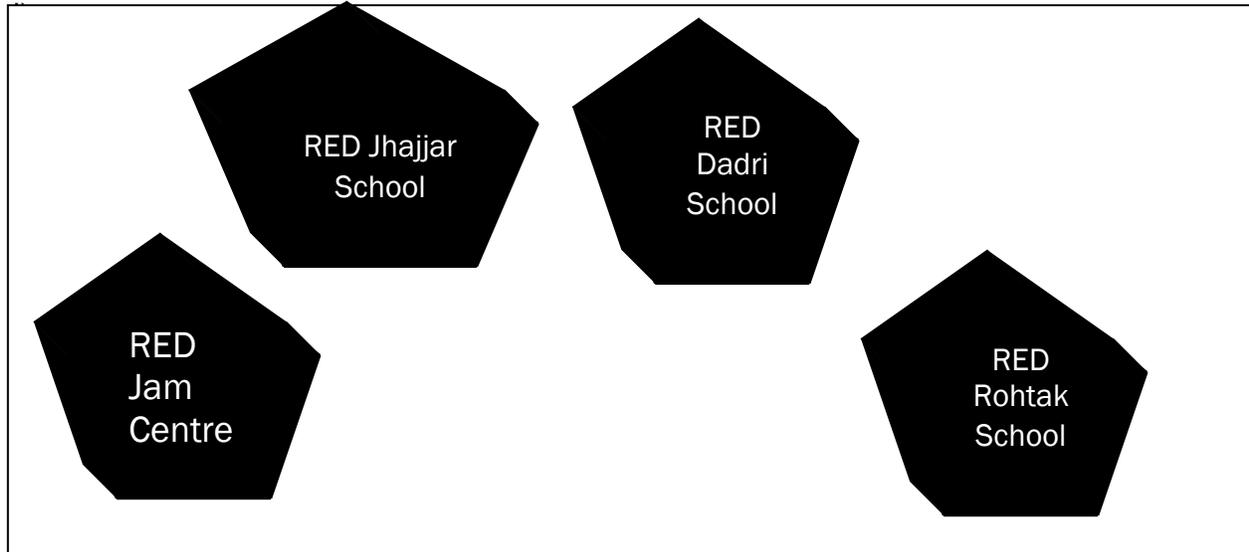
Q6.

- | | |
|---|---|
| a) State and verify Associative Law using Truth Table. | 2 |
| b) Draw the Logic Circuit for the following Boolean Expression:
AB(C'D + B'C) + BC | 2 |
| c) Write the equivalent Canonical Sum of Product for the following Product of Sum
Expression: F(X,Y,Z)= Π(1,3,6,7) | 1 |
| d) Reduce the following Boolean Expression using k-Map:
F(U, V, W, X) = Π (0, 1, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15) | 3 |

Q7.

- | | |
|---|---|
| a) Define the term Bandwidth. Give any one unit of Bandwidth. | 1 |
| b) Expand the following terms?
(i) CDMA (ii) FSF | 1 |
| c) What do you mean by Open Source Software? | 1 |
| d) What is propriety software? Give one example? | 1 |

- d) R.E.D Group of Institute is setting up its Academic School at Rohtak and planning to set up a network. The Institute has 3 academics schools and one administration center as shown in the diagram below:
- e)
f)
g)
h)



Center to center distances between various buildings is as follows:

RED Rohtak School to RED Dadri School	160 M
RED Rohtak School to RED Jhajjar Scholl	190 M
RED Rohtak School to Red Jam Centre	115 M
RED Jhajjar Scholl to Red Jam Centre	125 M
RED Dadri School to RED Jhajjar School	140 M
RED Dadri School to Red Jam Centre	145M

Number of Computers in each of the school /center is follows:

Red Jam Centre	125
RED Jhajjar School	70
RED Dadri School	35
RED Rohtak School	25

- Suggest the most suitable place (i.e school/centre) to install the server of this university with suitable reason.
- Suggest an ideal layout for connecting these school/centre for a wired connectivity.
- Which device will you suggest to be placed/installed in each of these schools/centre to *efficiently* connect all the computers with in these schools/centre?

- The Institute is planning to connect its admission office in the closest big city, which is more than 350 km from the Institution. Which type of network out of LAN, MAN, OR WAN will be formed? Justify your answer.

*******BEST OF LUCK*******

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