

CBSE Sample Papers Computer Science Class XII

TIME: 3 Hrs

Marks: 70

INSTRUCTIONS: All the questions are compulsory.

- i. Presentation of answers should be neat and to the point.
- iii. Write down the serial number of the question before attempting it and write all sub Question serially.
- iv. Leave 1-2 lines gap before starting a new answer.

Question-1

- a. What is Inheritance? Give an example. 1
- b. Write the names of the header files to which the following belong: 2
 - i) sqrt()
 - ii) isalpha
 - iii) puts()
 - iv) strcpy()
- c. Rewrite the corrected code for the following program .Underline each correctio (if any) 2

```
# include<iostream.h>
Structure Swimmingclub
{
int memnumber;
char memname[20];
char memtype[ ] = "LIG";
};
void main( )
{
Swimmingclub per1,per2;
cin>>"Member number";
cin >>memnumber.per1:";
```

Success Comes in Way...

```

cout<< " Member name:";
cin>>per1. Member name;
per1.memtype="HIG";
per2=per1;
cin>> "Member number: "<<per2.memnumber;
cin>>"Member name:"<<"per2.memname;
cin>>" Member number :"<< per2.memtype;
}

```

d. What will be the output of the following program:

1

```

#include <iostream.h>
#include<ctype.h>
#include<conio.h>
#include< string.h>
void Newtext(char String[ ], int &Position)
{
char *pointer = String;
int Length =strlen(String);
for(; Position<Length-2;Position+=2;
{
*(Pointer Position)=toupper(*(Pointer Position));
}
}
}

```

e. What will be the output of the following program:

1

```
#include<iostream.h>

void main( )

{      clrscr( );

      int v1=5, v2=10;

      for(int x =1; x<=2; x++)

      {

cout<<" ++ v1<<"\t"<<v2 -- <<endl;

cout<<" -- v2<<"\t" <<v1++<<endl;}

}
```

f. Write the definition for a function Sumseries () in c++ with two

4

Arguments/parameters double x and int n .The function should return a value of type double and it should perform sum of the following series.

$$x - x^2 / 3! + x^3 / 5! - x^4 / 7! + x^5 / 9! - \dots \dots n.$$

Success Comes in Way...

Question-2

a. Given the following C++ code answer the questions (i) to (ii).

2

```
class TestMeOut

{

Public: ~ TestMeOut( ) //Function 1

{      cout<<" Leaving the examination hall:"<<endl;}

TestMeOut ( ) // Function2
```

```

cout<< appearing for the examination :"<<endl;}

void MyWork( ) // Function3

{ cout<<," Attempting the Question:"; }

};

```

- i. In object Oriented programming what is Function 1 referred as and when does it get invoked / called?
- ii. In OOP's what is Function 2 referred as and when does it get invoked / called?

b. Define a class TravelPlan in C++ with the following descriptions: 4

Private Members:

PlanCode	of type long
Place	of type character array (string)
Number	of travellers of type integer
Number_of_buses	of type integer

Public Members:

A constructor to assign initial values of Plan Code as 1001, Place as "Agra",

Number_of_travellers as 5, Number_of_buses as 1

A function NewPlan() which allows user to enter PlanCode, Place and

Number_of_travellers. Also, assign the value of Number_of_buses 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 on screen.

c. Define the term Data Hiding in the context of Object Oriented Programming.

Give a suitable example using a C++ code to illustrate the same. 2

d. What is the purpose of seekp () and seekg () 1

e Write a code snippet to open a binary file in both input/ output modes. 1

Question-3

a. Define a function SwapArray (int [], int), that would accept a one dimensional integer array Numbers and its size N. The function should rearrange the array in such a way that the values of alternate locations of the array are exchanged (assume the size of the array to be even) 3

If the array initially contains : (2,5,9,14,17,8,19,16)

Then after rearranged the array should contain: (5, 2, 14, 9, 8, 17, 16, 19)

b. An Array [15][10] is stored in the memory with each element occupying 2 bytes of scope. Assuming the base address of ARR to be 2000, compute the address of

ARR[7][8],when the array is stored.

i) Row wise ii) Column Wise 3

c. Answer the following (i) to (iv) based on the following code: 4

```
class PUBLISHER
```

```
{
```

```
    class Pub[12];
```

```
    double Turnover;
```

```
protected:
```

```
    void Register ();
```

```
public:
```

```
    Publisher ();
```

```
    void Enter( );
```

```
    void Display( );
```

```
};
```

```
class BRANCH
```

```
{
```

```
    char CITY[20];
```

```
protected:
```

```
    float Employees;
```

```
public:
```

```
    BRANCH();
```

```
    void Haveit();
```

```
    void Giveit();
```



```

};

class Author: private BRANCH , public PUBLISHER
{
    int Acode;

    char Aname[20];

    float amount;

public:
    AUTHOR( );

    void Start( );

    void Show();
};

```

- i. Write the names of the data members, which are accessible from objects belonging to class AUTHOR .
- ii. Write the names of all the member functions which are accessible from objects belonging to the class BRANCH.
- iii. Write the names of all members which are accessible from member functions of class AUTHOR.
- iv. How many bytes will be required by an object belonging to class AUTHOR?

d. Explain Polymorphism in C++ with an example.

2

Question-4

- a.** Assuming that a text file named TEXT1.TXT already contains some text written into it, write a function named vowel words(), that reads the file TEXT.TXT and creates

a new file named TEXT2.TXT, which shall contain only those words from the file TEXT1.TXT which starts with an uppercase vowel (i.e with 'A', 'E', 'I', 'O', 'U').

For example, if the file TEXT1.TXT contains Carry Umbrella and Overcoat When it Rains.

Then the file TEXT2.TXT shall contain Umbrella Overcoat

b. Assuming the class STOCK as follows:

2

```
class STOCK
{
    int ItNo;
    char Item[10];
public:
    void getdata( ) { cin>> ItNo, gets(Item);}
    void putdata( ) { cout<< ItNo << " " <<Item<<endl; }
};
```

Write a function in c++ to perform the following.

- i) Write the objects of STOCK to a Binary File.
- ii) Read the objects of STOCK from Binary File and Display them on screen.

c. If fstream.h header file is included in a file handling program, what header file we may not include ? Explain.

1

d. Observe the program segment carefully and answer the question that follows: 1

```
class item
{
    int item_no;
    char item_name[20];
public:
```

```
void enterDetail( );
void showDetail( );
int getItem_no( ){ return item_no;}
};

void modify(item x, int y )
{
    ofstream File;
    File.open( "item.dat", ios::binary | ios::in | ios::out) ;
    item i;
    int recordsRead = 0, found = 0;
    while(!found && File.read((char*) &i , sizeof (i)))
    {
        recordsRead++;
        if(i . getItem_no( ) == y )
        {
            _____//Missing statement

            File.write((char*) &x , sizeof (x)); 44

            found = 1;
        }
    }

    if(! found)
        cout<<"Record for modification does not exist" ;
    File.close() ;
}
```

If the function modify () is supposed to modify a record in the file "item.dat ", which item_no is y, with the values of item x passed as argument, write the appropriate statement for the missing statement using seekp () or seekg (), whichever is needed, in the above code that would write the modified record at its proper place.

Question-5

- a. Write a function in C++ to read and display records of all the members whose Membership type is "L" or "M" from a Binary file "CLUB.dat" contains objects of class CLUB which is defined as follows. 1

Class CLUB

```
{  
    int Mno;  
    char Mname[20];  
    char type;  
public  
    void register( );  
    void display( );  
    char Type( ){ return Type;}  
};
```

- b. Write a function in C++ which accepts an integer array and its size as arguments and assigns the elements into a two dimensional array of integers in the following format 2

If the array is 1,2,3 The resultant 2D array should be

1	2	3
1	2	0
1	0	0

- c. Write a function Sortscore in c ++ to sort an array of structure "Examinee" in descending order of Score using Bubble Sort. Assume the following definition of structure . 2

```

struct Examinee
{
    long rollno;
    char name[20];
    float score;
};

```

d. Write a function Merge () in C++ to merge two given arrays A in ascending order, B in descending order into a third array C which should be in ascending order. The size of the arrays A, B, C should be M, N, and M + N respectively. 3

e. Distinguish between the following two statements: 1

```

time T1(13, 10, 25); //statement 1
time T1 = time(13,10,25); //statement 2

```

b) What are memory leaks? Give one reason for memory leaks. 1

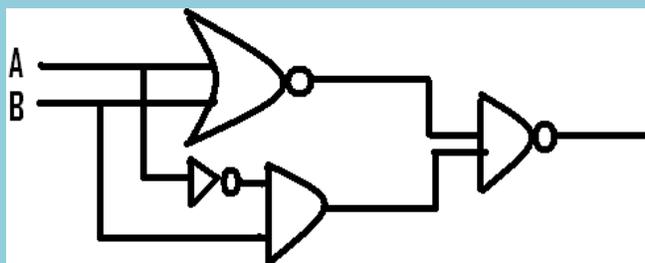
Question-6

a. State De Morgan's Theorems and verify the same using truth table. 2

b. Write the equivalent Canonical Product of Sum Expression for the following Sum of Product Expression

$F(X, Y, Z) = \sum(0, 2, 4, 5)$ 2

c. Write the equivalent Boolean expression for the logic circuit given below: 1



d. State Absorption Law and verify it algebraically. 2

e. Obtain the simplified form of the Boolean Expression using K' Map: 3

$$F(x, y, z, w) = \sum (0, 2, 4, 5, 8, 9, 12, 13, 15)$$

f. **Write** the SOP form of a Boolean Function F(A, B,C) which is represented by the following truth table: 1

A	B	C	F
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

Question-7

(a) Compare any two Switching techniques. 1

(b) Expand the following terminologies: 2

(i) GSM

(ii) XML

(iii) CDMA

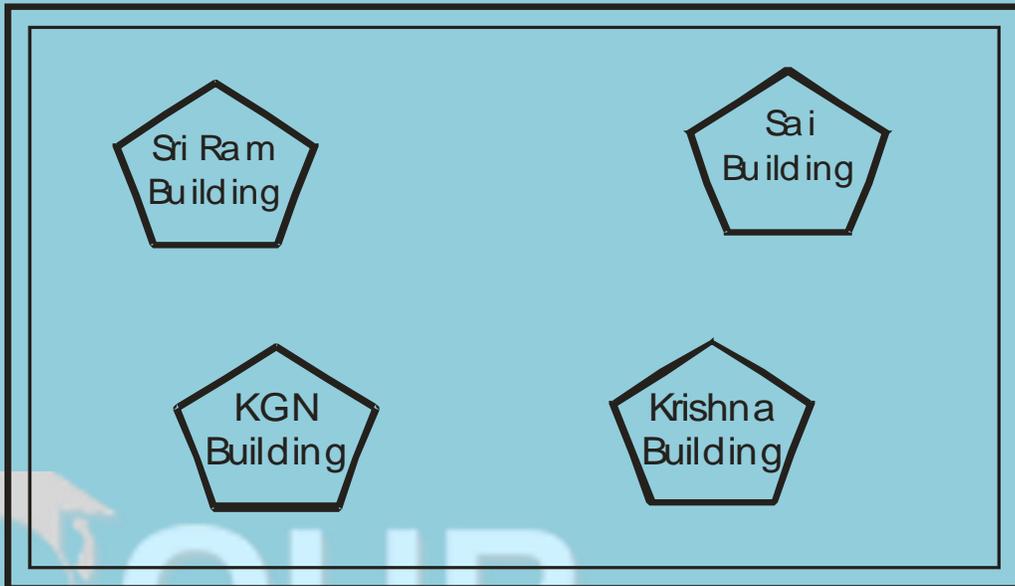
(iv) WLL

(c). What are Bridges? How do they differ from Repeaters? 2

(e). Agrawal Industries has set up its new centre at Lucknow for its office and web based activities. The company compound has four building as shown in the

Diagram below:

4



The distance between various buildings are :

KGN to Sri Ram	65m
Sri Ram to Sai	195m
Sai to Krishna	205m
Krishna to KGN	200m
KGN to Sai	195m
Sri Ram to Krishna	325m

Number of computers are :

KGN Building	158
Krishna Building	125
Sai Building	200
Sri Ram Building	78

- i. Suggest the cable layout of connections between the buildings.
- ii. Suggest the most suitable place to house the server, with a suitable reason.
- iii. Suggest the placement of the following devices with reasons :
- iv. The Institute is planning to link its International office situated in New Delhi.

