

## CBSE Computer Science Sample Papers Class 12

### General Instructions

- 1) This paper is of 70 marks
- 2) This paper consists of Question-1 to Question-7
- 3) Marks are allotted to each question separately.
- 4) Internal Choices are provided wherever required.

### Question-1

#### 1. (a) Explain as per instructions: [2 Marks]

Write the prototype of a function named Area, which take a float as value parameter and return a double type value. The parameter should have a default value 5.2.

#### 1. (b) Write the names of the header files to which the following belong: [1 Marks]

- i) puts()
- ii) sin()

#### 1. (c) Rewrite the following program after removing the syntactical error(s) if any. Underline each correction. [2 Marks]

##### Code:

```
#include
void main()
{
    First=10, Second=20;
    Jumpto(First; Second);
    Jumpto(second);
}
void Jumpto(int N1, int N2=20)
{
    N1=N1+N2;
    cout>>N1>>N2
}
```

#### 1. d) Write the names of the header files which are not necessary to execute the following C++ code. [3 Marks]

##### Code:

```
#include
#include
#include
```

```

#include
#include void main()
{ char c, String[ ] = " System Design ";
for(int i=0; String[i]!='\0';i++)
if(isdigit(String[i]))
cout<<endl;
else
{
c=toupper(String[i]);
cout<<c;
}
}

```

**1. e) Find output of the following program segment: [2 Marks]**

**Code:**

```

int A[][4] = {{11,21,32,43}, {20,30,40,50}};
for (int i = 1; i<2; i++)
for (int j = 0; j<4; j++)
cout<<A[i][j]<<"*\n";

```

**f) Find output of the following program segment: [2 Marks]**

**Code:**

```

int a = 5;
void demo(int x, int y, int &z)
{ a += x+y;
z = a+y;
y += x;
cout<<x<<"*"<<y<<"*"<<z<<endl;
}
void main()
{ int a = 3, b = 4;
demo(a,b);
demo(a,b);
}

```

**Question-2**

**2. a) Write a function to accept three integers and return the smallest of three numbers (use conditional operator) [2 Marks]**

**2. b)** What is the similarity and difference between break and continue statements?

**i)** Give the output of the following program: **[3 Marks]**

```
Code: #include<iostream.h>
int g=20;
void Func(int &x, int y)
{
x=x-y;
y=x*10;
cout<<x<<','<<y<<"\n";
}
void main()
{
int g=7;
Func(g,::g);
cout<<g<<','<<::g<<'\n';
Func(::g,g);
cout<<g<<','<<::g<<'\n';
}
```

**2. c)** Differentiate between a Run Time Error and Syntax Error. Also give suitable examples of each in C++. **[2 Marks]**

**2. d)** Write a function **SWAP2BEST (int ARR[], int Size)** in C++ to modify the content of the array in such a way that the elements, which are multiples of 10 swap with the value present in the very next position in the array. For example : If the content of array ARR is 80, 66, 45, 20, 44, 54 The content of array ARR should become 56, 80, 45, 44, 20, 54 **[4 Marks]**

### **Question-3**

**3. a)** An array T[20][10] is stored in the memory along the column with each of the elements occupying 2 bytes. Find out the memory location of T[10][15], if the element T[3][9] is stored at the location 7800. **[1 Marks]**

**3. b)** Write a function in C++ to perform Insert operation in a static circular Queue containing Book's information (represented with the help of an array of structure BOOK). **[2 Marks]**

```
Code: Struct BOOK
{
int bookno;
char Title[20];
};
```

**3. c)** Write a function CHANGE( ) in C++, which accepts a 2d array of integer and its size as parameters and divide all those array elements by 7 which are not in the range 70 to 700 and find the square root of all other elements. **[3 Marks]**

or

**3. d)** Evaluate the following postfix expression.

2, 3, ^, 4, 5, -, 6, \*, /

**3. e)** Observe the program segment given below carefully and fill in the blanks marked as Line 1 and Line 2 using fstream functions for performing the required task. 1 **[4 Marks]**

**Code:** #include

class Library

{

long Ano; //Ano- Accession Number of the Book

char Title[20]; //Title- Title of the Book

int Qty; //Qty- Number of Books in Library

public:

void Enter(int); //Function to enter the content

void Display(); // Function to display the content

void Buy (int Tqty)

{

Qty+=Tqty;

} //Function to increment in Qty

long GetAno() {return Ano;}

};

void BuyBook(long BAno, int BQty)

//BaNo-> Ano of the book purchased

//QBty-> Number of books purchased

{

fstream File;

File.open("STOCK.Dat", ios :: binary | ios::in | ios::out);

int Position=-1;

Library L;

while (Position== -1 && File.read((char\*)&L,sizeof (L)))

if(L.GetAno()==BAno)

{L.Buy(BQty); //To update the number of Books

Position = File.tellg( )-sizeof(L);

//Line1: To place the file pointer to the required position;

```

_____ ;
//Line 2: To write the object L on to the binary file
_____ ;
}
if (Position == -1)
cout<< "No updation done as required And no found.";
File.close();
}

```

**Question-4**

4. (a) State and prove the De-Morgan's Theorem (Any One) algebraically. [2 Marks]

b) Draw a Logical Circuit Diagram using NAND gates for the following Boolean Expression:  $A \cdot (B + C')$  [2 Marks]

c) State Duality Principle. Give the dual of  $(A + BC + AB)$  [1 Marks]

d) Obtain a simplified form for a Boolean expression: [4 Marks]

$F(U, V, W, Z) = \sum (0, 1, 3, 5, 6, 7, 10, 14, 15)$

**Question-5**

5. a) Verify the following using Truth Table:  $X + Y \cdot Z = (X + Y) \cdot (X + Z)$  [2 Marks]

(b) Write the SOP form of a Boolean Function F, which is represented in a truth table as follows: [4 Marks]

X	Y	Z	F
0	0	0	1
0	0	1	0
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) Reduce the following Boolean Expression using K-Map:  $F(A,B,C,D) = \sum(2,3,4,5,6,7,8,10,11)$  [2 Marks]

**Question-6**

6. a) What is cardinality and degree explain with an example. [1 Marks]

b) Consider the following tables WORKER and PAYLEVEL and answer (b) and (c) parts of this question: [4 Marks]

**Table: WORKER**

ECODE	NAME	DESIG	PLEVEL	DOJ	DOB
11	Radhey Shyam	Supervis	P001	13-Sep-2004	23-Aug-1981
12	Chander Nath	Operator	P003	22-Feb-2010	12-Jul-1987
13	Fizza	Operator	P003	14-Jun-2009	14-Oct-1983
15	Ameen Ahmed	Mechanic	P002	21-Aug-2006	13-Mar-1984
18	Sanya	Clerk	P002	19-Dec-2005	09-Jun-1983

**Table: PAYLEVEL**

PLEVEL	PAY	ALLOWANCE
P001	26000	12000
P002	22000	10000

<b>P003</b>	<b>12000</b>	<b>6000</b>
-------------	--------------	-------------

**(b) Write SQL commands** for the following statements: **[2.5 Marks]**

**(i)** To display the details of all Workers, descending order of DOB.

**(ii)** Write a command to delete the records of workers having name starts with 'F'.

**(iii)** Write a command to modify the records of by adding their pay by 1000 having allowance>10000.

**(iv)** To add a new row with the following :

**19 "Kishore", "Operator", "P003". "19-Jun-2008", "11-Jul-1984"**

**(v)** write a command to display the name, designation of workers having pay+allowance <30000

**(vi)** write a command to delete all the records of worker table with all its contents and structure.

**(c) Give the output** of the following SQL queries : **[2.5 Marks]**

**(i)** SELECT COUNT (PLEVEL), PLEVEL FROM WORKER GROUP BY PLEVEL;

**(ii)** SELECT MAX(DOB), MIN(DOJ) FROM WORKER;

**b**SELECT Name, Pay FROM WORKER W, PAYLEVEL P WHERE W.PLEVEL = S.PLEVEL AND P.ECODE<13;

**(iii)** SELECT PLEVEL, PAY+ALLOWANCE FROM PAYLEVEL WHERE PLEVEL = 'P003';

### **Question-7**

**7.a)** Write a function COUNT\_TO( ) in C++ to count the presence of a word "to" (independent word only) in a text file "NOTES.TXT" **[4 Marks]**

**Example:**

If the content of the file "NOTES.TXT" is a follows:

It is very important to know that

Smoking is injurious to health.

Let us take initiative to stop it.

The function COUNT\_TO( ) will display the following message:

Count of – to- in file: 3

Note: In the above example, 'to' occurring as a part of word stop is not considered.

**7. b)** Write a function in C++ to search for a Toy having a particular Toy Code (Tcode) from a binary file "TOY.DAT" and display its details (Tdetails), assuming the binary file is containing the objects of following class: 3 **[4 Marks]**

**Code:** class TOYSHOP

```
{
int Tcode; //Toy Code
char Tdetails[20];
```

```
public:
int RTcode()
{
return Tcode;
}
void AddToy()
{cin>>Tcode;gets(Tdetails);}
void DisToy()
{cout<<Tcode<<Tdetails<<endl;}
};
```

**7. c)** Write a udf in c++ to find the count the middle character of the words in text file "MYDATA.txt"  
Having value 'D' or 'd'. **[3 Marks]**

**or**

**7. d)** Write a statement using seekg,tellg, seekp, tellp to set the position of reading object after the 5th object of the class BANK. Write the second statement to find the byte position after writing the 5th object. **[3 Marks]**

