COMPUTER SCIENCE (Theory)
Class XII - Code : 083
Blue Print

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S.No.	UNIT	VSA (1 Mark)	SA I (2 Marks)	SA II (3 Marks)	LA (4 Marks)	TOTAL
1	**Review of C++ covered in Class XI**	1 (1)	8 (4)	3 (1)		12 (6)
2	**Object Oriented Programming in C++**					
	a) Introduction to OOP using C++		2 (1)		4 (1)	6 (2)
	b) Constructor & Destructor		2 (1)			2 (1)
	c) Inheritance				4 (1)	4 (1)
3	**Data Structure & Pointers**					
	a) Address Calculation			3 (1)		3 (1)
	b) Static Allocation of Objects		2 (1)	3 (1)		5 (2)
	c) Dynamic Allocation of Objects				4 (1)	4 (1)
	d) Infix & Postfix Expressions		2 (1)			2 (1)
4	**Data File Handling in C++**					
	a) Fundamentals of File Handling	1 (1)				1 (1)
	b) Text File		2 (1)			2 (1)
	c) Binary Files			3 (1)		3 (1)
5	**Databases and SQL**					
	a) Database Concepts		2 (1)			2 (1)
	b) Structured Query Language		2 (1)		4 (1)	6 (2)

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6	**Boolean Algebra** a) Introduction to Boolean Algebra & Laws b) SOP & POS c) Karnaugh Map d) Basic Logic Gates	 1 (1) 	 2 (1) 2 (1)	 3 (1) 	 	 2 (1) 1 (1) 3 (1) 2 (1)
7	**Communication & Open Source Concepts** a) Introduction to Networking b) Media,Dvices,Topologies & Protocols c) Security d) Webservers e) Open Source Terminologies	 2 (2) 2 (2) 1 (1) 1 (1)	 	 	 4 (1) 	 2 (2) 4 (1) 2 (2) 1 (1) 1 (1)
	TOTAL	**9 (9)**	**26 (13)**	**15 (5)**	**20 (5)**	**70 (32)**

COMPUTER SCIENCE (Theory)

Class XII - Code : 083

Design of Question Paper for 2009-2010

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TIME : 3 Hrs **MM : 70**

Weightage of marks over different dimensions of the question paper shall be as follows:

A. Weightage to different topics/content units

S.No	Topics	Marks
1	Review of C++ covered in Class XI	12
2	Object Oriented Programming in C++	12
3	Data Structure & Pointers	14
4	Data File Handling in C++	06
5	Databases and SQL	08
6	Boolean Algebra	08
7	Communication and Open Source Concepts	10
	Total	70

B. Weightage to different forms of questions

S.No	Forms of Questions	Marks for each question	No. of Questions	Total Marks
1	Very Short Answer questions (VSA)	01	09	09
2	Short answer questions - Type I (SA I)	02	13	26
3	Short answer questions - Type II (SA II)	03	05	15
4	Long answer questions (LA)	04	05	20
		Total	32	70

C. Scheme of Options

There will be no overall choice. All questions are compulsory.

D. Difficulty level of questions

S.No.	Estimated difficulty level	Percentage of marks
1	Easy	15%
2	Average	70%
3	Difficult	15%

- Based on the above design, two sets of sample papers along with their blue prints and Marking schemes have been included in this document.
- About 20% weightage has been assigned to questions testing higher order thinking (HOT) skills of learners.

COMPUTER SCIENCE (Theory) - Class XII

Sample Question Paper–I

Subject Code - 083

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TIME : 3 Hrs **MM : 70**

No.	Questions	Marks
1.		
(a)	**What is the difference between Global Variable and Local Variable? Also, give a suitable C++ code to illustrate both.**	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[ ]="Sunset Gardens";
	for (int I=5;I<strlen(Msg);I++)
	puts(Msg);
	}
		1

(c)	**Rewrite the following program after removing the syntactical errors (if any). Underline each correction.**
	#include [iostream.h]
	class MEMBER
	{
	int Mno;float Fees;
	PUBLIC:
	void Register(){cin>>Mno>>Fees;}
	void Display{cout<<Mno<<" : "<<Fees<<endl;}
	};
	void main()
	{
	MEMBER M;
	Register();
	M.Display();
	}
		2

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No.	Questions	Marks

(d)	**Find the output of the following program:**
	#include <iostream.h>
	struct GAME
	{ int Score, Bonus;};
	void Play(GAME &g, int N=10)
	{
	g.Score++;g.Bonus+=N;
	}
	void main()
	{
	GAME G={110,50};
	Play(G,10);
	cout<<G.Score<<":"<<G.Bonus<<endl;
	Play(G);
	cout<<G.Score<<":"<<G.Bonus<<endl;
	Play(G,15);
	cout<<G.Score<<":"<<G.Bonus<<endl;
	}
		3

(e)	**Find the output of the following program:**
	#include <iostream.h>
	void Secret(char Str[ ])
	{
	for (int L=0;Str[L]!='\0';L++);
	for (int C=0;C<L/2;C++)
	if (Str[C]=='A' || Str[C]=='E')
	Str[C]='#';
	else
	{
	char Temp=Str[C];
		2

No.	Questions	Marks

	Str[C]=Str[L-C-1];
	Str[L-C-1]=Temp;
	}
	}
	void main()
	{
	char Message[ ]="ArabSagar";
	Secret(Message);
	cout<<Message<<endl;
	}	

(f)	**In the following program, if the value of Guess entered by the user is 65, what will be the expected output(s) from the following options (i), (ii), (iii) and (iv)?**
	#include <iostream.h>
	#include <stdlib.h>
	void main()
	{
	int Guess;
	randomize();
	cin>>Guess;
	for (int I=1;I<=4;I++)
	{
	New=Guess+random(I);
	cout<<(char)New;
	}
	}
	(i) ABBC
	(ii) ACBA
	(iii) BCDA
	(iv) CABD
		2

No.	Questions	Marks
2.		
(a)	**What do you understand by Data Encapsulation and Data Hiding? Also, give a suitable C++ code to illustrate both.**	2
(b)	**Answer the questions (i) and (ii) after going through the following class:**	2

```
class Seminar
{
int Time;
public:
Seminar()                                   //Function 1
{
Time=30;cout<<"Seminar starts now"<<end1;
}
void Lecture()                              //Function 2
{
cout<<"Lectures in the seminar on"<<end1;
}
Seminar(int Duration)                       //Function 3
{
Time=Duration;cout<<"Seminar starts now"<<end1;
}
~Seminar()
                                            //Function 4
{
cout<<"Vote of thanks"<<end1;
}
};
```

i) In Object Oriented Programming, what is Function 4 referred as and when does it get invoked/called?

ii) In Object Oriented Programming, which concept is illustrated by Function 1 and Function 3 together? Write an example illustrating the calls for these functions.

No.	Questions	Marks
(c)	**Define a class TEST in C++ with following description:** **Private Members** • TestCode of type integer • Description of type string • NoCandidate of type integer • CenterReqd (number of centers required) of type integer • A member function CALCNTR() to calculate and return the number of centers as (NoCandidates/100+1) **Public Members** • A function SCHEDULE() to allow user to enter values for TestCode, Description, NoCandidate & call function CALCNTR() to calculate the number of Centres • A function DISPTEST() to allow user to view the content of all the data members	4

(d)	**Answer the questions (i) to (iv) based on the following:**
	class PUBLISHER
	{
	char Pub[12];
	double Turnover;
	protected:
	void Register();
	public:
	PUBLISHER();
	void Enter();
	void Display();
	};
	class BRANCH
	{
	char CITY[20];
	protected:
	float Employees;
		4

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No.		Questions	Marks

		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 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 class BRANCH.	
	(iii)	Write the names of all the members which are accessible from member functions of class AUTHOR.	
	(iv)	How many bytes will be required by an object belonging to class AUTHOR?	
3.	(a)	Write a function in C++ to merge the contents of two sorted arrays A & B into third array C. Assuming array A and B are sorted in ascending order and the resultant array C is also required to be in ascending order.	3
	(b)	An array S[40][30] is stored in the memory along the row with each of the element occupying 2 bytes, find out the memory location for the element S[20][10], if the Base Address of the array is 5000.	3
	(c)	Write a function in C++ to perform Insert operation in a dynamically allocated Queue containing names of students.	4
	(d)	Write a function in C++ to find the sum of both left and right diagonal ele-	2

No.	Questions	Marks
	ments from a two dimensional array (matrix).	
	(e) Evaluate the following postfix notation of expression:	2
	20, 30, +, 50, 40, - ,*	
4.		
(a)	**Observe the program segment given below carefully and fill the blanks marked as Statement 1 and Statement 2 using seekp() and seekg() functions for performing the required task.**	1

```
#include <fstream.h>
class Item
{
int Ino;char Item[20];
public:
//Function to search and display the content from a particular record number
void Search(int );
//Function to modify the content of a particular record number
void Modify(int);
};
void Item::Search(int RecNo)
{
fstream File;
File.open("STOCK.DAT",ios::binary|ios::in);
_____                    //Statement 1
File.read((char*)this,sizeof(Item));
cout<<Ino<<"==>"<<Item<<endl;
File.close();
}
void Item::Modify(int RecNo)
{
fstream File;
File.open("STOCK.DAT",ios::binary|ios::in|ios::out);
```

```
cout>>Ino;cin.getline(Item,20);
_____                                    //Statement 2
File.write((char*)this,sizeof(Item));
File.close();
}
```

(b) **Write a function in C++ to count the number of lines present in a text file "STORY.TXT".** **2**

(c) **Write a function in C++ to search for a BookNo from a binary file "BOOK.DAT", assuming the binary file is containing the objects of the following class.** **3**

```
class
{
int Bno;
char Title[20];
public:
int RBno(){return Bno;}
void Enter(){cin>>Bno;gets(Title);}
void Display(){cout<<Bno<<Title<<endl;}
};
```

5.

(a) **What do you understand by Degree and Cardinality of a table?** 2

Consider the following tables ACTIVITY and COACH and answer (b) and (c) parts of this question:

Table: ACTIVITY

A Code	ActivityName	Stadium	Participants Num	Prize Money	Schedule Date
1001	Relay 100x4	Star Annex	16	10000	23-Jan-2004
1002	High jump	Star Annex	10	12000	12-Dec-2003
1003	Shot Put	Super Power	12	8000	14-Feb-2004
1005	Long Jump	Star Annex	12	9000	01-Jan-2004
1008	Discuss Throw	Super Power	10	15000	19-Mar-2004

No.	Questions	Marks
	Table: COACH	

PCode	Name	Acode	
1	Ahmad Hussain	1001	
2	Ravinder	1008	
3	Janila	1001	
4	Naaz	1003	

(b) **Write SQL commands for the flowing statements:** 4

(i) To display the names of all activities with their Acodes in descending order.

(ii) To display sum of PrizeMoney for the Activities played in each of the Stadium separately.

(iii) To display the coach's name and ACodes in ascending order of ACode from the table COACH

(iv) To display the content of the Activity table whose ScheduleDate earlier than 01/01/2004 in ascending order of ParticipantsNum.

(c) **Give the output of the following SQL queries:** 2

(i) SELECT COUNT(DISTINCT ParticipantsNum) FROM ACTIVITY;

(ii) SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM ACTIVITY;

(iii) SELECT Name,ActivityName FROM ACTIVITY A,COACH C

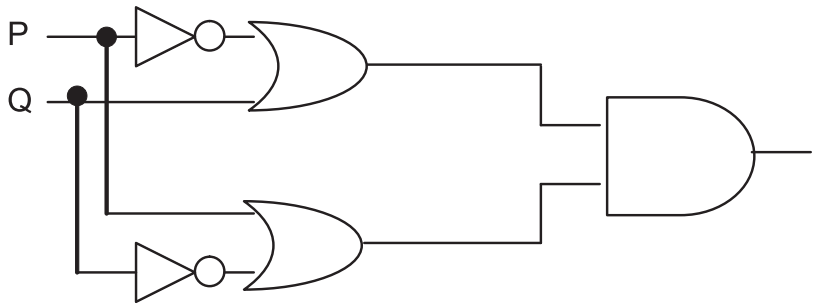
WHERE A.Acode=C.Acode AND A.ParticipantsNum=10;

(iv) SELECT DISTINCT Acode FROM COACH;

6.

(a) State and verify Demorgan's Laws algebraically. 2

(b) Write the equivalent Boolean Expression for the following Logic Circuit 2



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No.	Questions	Marks

(c) Write the POS form of a Boolean function F, which is represented in a truth table as follows: 1

U	V	W	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	1
1	1	1	1

(d) Reduce the following Boolean Expression using K-Map: 3

F(A,B,C,D)= (0,1,2,4,5,6,8,10)

7.

a) Compare any two Switching techniques. 1

b) Which of the following is not a Client Side script: 1

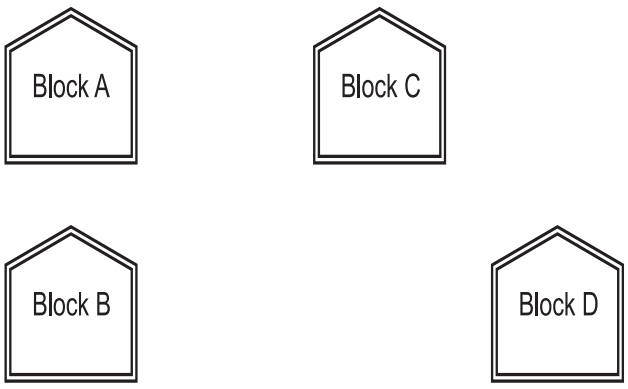
(i) VB Script (ii) Java Script

(iii) ASP (iv) PHP

c) If someone has hacked your Website, to whom you lodge the Complain? 1

d) What do you mean by IP Address? How is it useful in Computer Security? 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

Black 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

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

e1) Suggest a cable layout of connections between the blocks.

e2) Suggest the most suitable place (i.e. block) to house the server of this organisation with a suitable reason.

e3) Suggest the placement of the following devices with justification

(i) Repeater

(ii) Hub/Switch

e4) 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?

f) What do you mean by Spam Mails? How can you protect your mailbox from Spams? 1

g) Mention any two advantages of Open Source Software over Proprietary Software. 1

COMPUTER SCIENCE (Theory) - Class XII

Marking Scheme

Sample Question Paper–I

Subject Code - 083

TIME : 3 Hrs **MM : 100**

<table>
<tr><th>No.</th><th>Answers </th><th>Marks</th></tr>
<tr><td>1.
(a)</td><td>
<table>
<tr><th>Global Variable</th><th>Local Variable</th></tr>
<tr><td>• It is a variable which is declared outside all the functions
• It is accessible throughout the program</td><td>• It is a variable which is declared with in a function or with in a compound statement
• It is accessible only within a function/ compound statement in which it is declared</td></tr>
</table>
<pre>
#include <iostream.h>
float NUM=900;   //NUM is a global variable
void LOCAL(int T)
{
int Total=0;   //Total is a local variable
for (int I=0;I<T;I++)
Total+=I;
cout<<NUM+Total;
}
void main()
{
LOCAL(45);
}
</pre>
(1 Mark for two differences)
</td><td>2</td></tr>
</table>

No.	Answers	Marks
	(1 Mark for the suitable example) OR (Full 2 Mark for explanation of differences with the help of an example) OR *(1 Mark for only example with no explanation)*	
(b)	(i) string.h (ii) stdio.h *(½ Mark for mentioning each correct header filename)*	1

(c)	#include <iostream.h>
	class MEMBER
	{
	int Mno;float Fees;
	public:
	void Register(){cin>>Mno>>Fees;}
	void Display(){cout<<Mno<<":"<<Fees<<endl;}
	};
	void main()
	{
	MEMBER M;
	M.Register();
	M.Display();
	}
	(½ Mark each correction)
		2

(d)	111:60 112:70 113:85 *(1 Mark for each correct line of output)*	3

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No.	Answers	Marks
(e)	#agaSbarr *(2 Marks for correct line of output)*	2
(f)	(i) ABBC *(2 Marks for mentioning correct option)*	2
2.		

(a)	Data Encapsulation: Wrapping up of data and functions together in a single unit is known as Data Encapsulation. In a class, we wrap up the data and functions together in a single unit.
	Data Hiding: Keeping the data in private visibility mode of the class to prevent it from accidental change is known as Data Hiding.
	class Computer
	{
	char CPU[10];int RAM; (Data Hiding)
	public: (Data Encapsulation)
	void STOCK();
	void SHOW();
	};
	(½ Mark each for appropriate definitions)
	(1 Mark for appropriate example showing both)
		2

(b)	i) Destructor, it is invoked as soon as the scope of the object gets over.
	(½ Mark for mentioning destructor)
	(½ Mark for remaining answer)
	ii) Constructor Overloading (or Function Overloading or Polymorphism)
	Seminar S1; //Function 1
	Seminar S2(90); //Function 3
	(½ Mark for mentioning the correct concept)
	(½ Mark for the example)
		2

No.	Answers	Marks

(c) 4

```
class TEST
{
int TestCode;
char Description[20];
int NoCandidate,CenterReqd;
void CALCNTR();
public:
void SCHEDULE();
void DISPTEST();
};
void TEST::CALCNTR()
{
CenterReqd=NoCandidate/100 + 1;
}
void TEST::SCHEDULE()
{
cout<<"Test Code                    ";cin>>TestCode;
cout<<"Description                  ";gets(Description);
cout<<"Number                       ";cin>>NoCandidate;
CALCNTR();
}
void TEST::DISPTEST()
{
cout<<"Test Code                    "<<TestCode<<endl;
cout<<"Description                  "<<Description<<endl;
cout<<"Number                       "<<NoCandidate<<endl;;
cout<<"Centres                      "<<CenterReqd<<endl;;
}
```

(½ Mark for correct syntax for class header)

(½ Mark for correct declarations of data members)

(1 Mark for appropriate definition of function CALCNTR())

(1 Mark for appropriate definition of SCHEDULE() with a call for CALCNTR())

(1 Mark for appropriate definition of DISPTEST())

(d) **(i)** None of data members are accessible from objects belonging to class AUTHOR. 4

No.	Answers	Marks
	(1 Mark for correct answer) **(ii)** Haveit(), Giveit() *(1 Mark for correct answer)* **(iii)** Data members: Employees, Acode, Aname, Amount Member function: Register(), Enter(), Display(), Haveit(), Giveit(), Start(), Show(), *(1 Mark for correct answer)* **(iv)** 70 *(1 Mark for correct answer)*	

3.	**(a)** void AddNSave(int A[ ],int B[ ],int C[ ],int N,int M, int &K)
	{
	int I=0,J=0;
	K=0;
	while (I<N && J<M)
	if (A[I]<B[J])
	C[K++]=A[I++];
	else
	if (A[I]>B[J])
	C[K++]=B[J++];
	else
	{
	C[K++]=A[I++];
	J++;
	}
	for (;I<N;I++)
	C[K++]=A[I];
	for (;J<M;J++)
	C[K++]=B[J];
	}
	(½ Mark for correct Function Header)
	(½ Mark for correct initialization of required variables)
	(½ Mark for correct formation of loop)
	(½ Mark for appropriate conditions and assignments in the loop)
	(½ Mark for appropriately transferring the remaining elements from first array)
	(½ Mark for appropriately transferring the remaining elements from second array)
		3

No.	Answers	Marks
(b)	Given, W=2 N=40 M=30 Base(S)=5000 Row Major Formula: Loc(S[I][J]) =Base(S)+W*(M*I+J) Loc(S[20][10]) =5000+2*(30*20+10) =5000+2*(600+10) =5000+1220 =6220 *(1 Mark for writing correct formula (for column major) OR substituting formula with correct values)* *(1 Mark for writing calculation step - at least one step)* *(1 Mark for correct address)*	3

(c)	struct NODE
	{
	char Name[20];
	NODE *Link;
	};
	class QUEUE
	{ NODE *R,*F;
	public:
	QUEUE();
	void Insert();
	void Delete();
	};
	void QUEUE::Insert()
	{
		4

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No.	Answers	Marks

```
NODE *Temp;
Temp=new NODE;
gets(Temp->Name);
Temp->Link=NULL;
if (Rear==NULL)
{
Rear=Temp;
Front=Temp;
}
else
{
Rear->Link=Temp;
Rear=Temp;
}
}
```

(1 Mark for creating a new node and assigning/entering appropriate values in it)
(1 Mark for checking if Queue is Empty)
(1 Mark for assigning Rear and Front as Temp - if Queue is Empty)
(1 Mark for eassigning Rear->Link as Front and Rear as Temp)

(d) 2

```
void DiagSum(int M[][4],int N,int M)
{
int SumD1=0,SumD2=0;
for (int I=0;I<N;I++)
{
SumD1+=M[I][I];SumD2+=M[N-I-1][I];
}
cout<<"Sum of Diagonal 1:"<<SumD1<<endl;
cout<<"Sum of Diagonal 2:"<<SumD2<<endl;
```

No.	Answers	Marks
(e)	} *(½ Mark for correct function header)* *(½ Mark for initialization of SumD1 and SumD2 as 0)* *(½ Mark for appropriate loop)* *(½ Mark for correct expression for adding each diagonal elements)* Step 1: Push 20 Step 2: Push 30 20 Step 3: + Pop Op2=30 → 20 Pop Op1=20 Op2=30 → Push 50 Step 4: Push 50 50 Step 5: Push 40 50 50	2

No.	Answers	Marks

Step 6: -

		Pop			Pop		Push
		Op2=40			Op1=50		
50					Op2=40	10	
50			50			50	

Step 7: *

		Pop			Pop		Push
		Op2=10			Op1=50		
					Op2=10		
50						500	

Step 8: Pop

		Result
		500

(½ Mark for correctly evaluating each operator)

(½ Mark for the correct result)

4. a) 1

```
File.seekg(RecNo*sizeof(Item));     //Statement 1
File.seekp(RecNo*sizeof(Item));     //Statement 2
```

(½ Mark for each correct Statement)

(b) 2

```
void CountLine()
{
ifstream FIL("STORY.TXT");
int LINES=0;
char STR[80];
```

No.	Answers	Marks

```
        while (FIL.getline(STR,80))
         LINES++;
        cout<<"No. of Lines:"<<LINES<<endl;
        f.close();
        }
```

(½ Mark for opening STORY.TXT correctly)
(½ Mark for initializing a counter variable as 0)
(½ Mark for correctly reading a line from the file)
(½ Mark for correctly incrementing the counter)

(c) 3

```
        void BookSearch()
        {
        fstream FIL;
        FIL.open("BOOK.DAT",ios::binary|ios::in);
        BOOK B;
        int bn,Found=0;
        cout<<"Enter Book No. to search…"; cin>>bn;
        while (FIL.read((char*)&S,sizeof(S)))
         if (FIL.RBno()==bn)
        {
        S.Display();
        Found++;
        }
        if (Found==0) cout<<"Sorry! Book not found!!!"<<endl;
        FIL.close();
        }
```

(½ Mark for opening BOOK.DAT correctly)
(½ Mark for reading each record from BOOK.DAT)
(½ Mark for correct loop / checking end of file)
(1 Mark for comparing Book number)
(½ Mark for displaying the matching record)

No.	Answers	Marks
5.		
(a)	Degree: Number of Columns in a table Cardinality: Number of rows in a table *(1 Mark for each definition)*	2
(b)	(i) SELECT Acodes, ActivityName FROM ACTIVITY ORDER BY Acode DESC; *(1 Mark for correct query)* OR *(½ Mark for partially correct answer)*	4
	(ii) SELECT SUM(PrizeMoney), Stadium FROM ACTIVITY GROUP BY Stadium; *(1 Mark for correct query)* OR *(½ Mark for partially correct answer)*	
	(iii) SELECT Name, Acode FROM COACH ORDER BY Acode; *(1 Mark for correct query)* OR *(½ Mark for partially correct answer)*	
	(v) SELECT * FROM ACTIVITY WHERE SchduleDate<'01-Jan-2004' ORDER BY ParticipantsNum; *1 Mark for correct query)* OR *(½ Mark for partially correct answer)*	
(c)		2
	(i) 3 *(½ Mark for correct output)*	
	(ii) 19-Mar-2004 12-Dec-2003 *(½ Mark for correct output)*	

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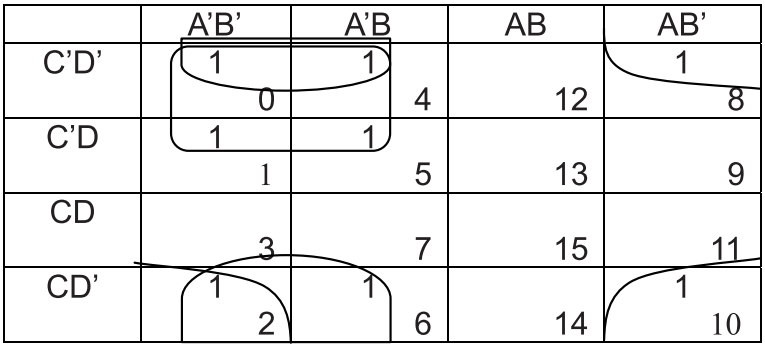
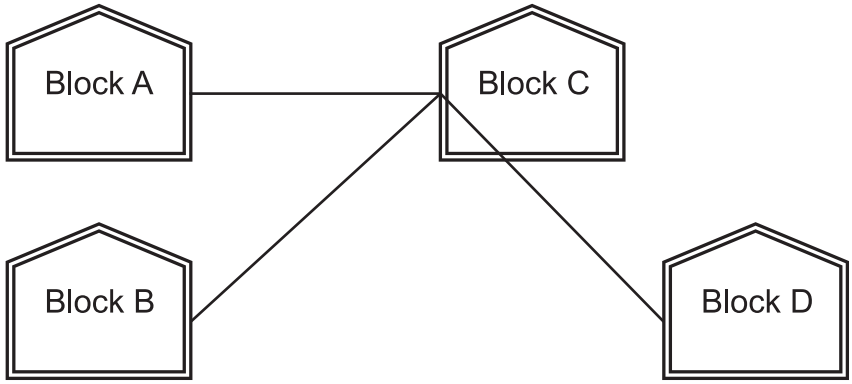
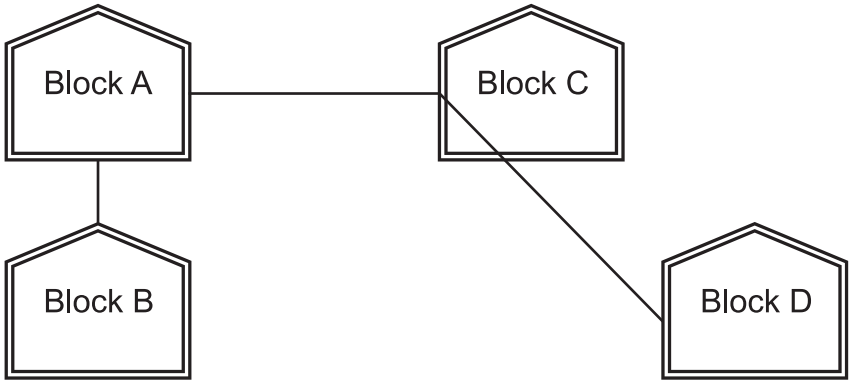
No.	Answers	Marks
	(iii) Ravinder Discuss Throw *(½ Mark for correct output)* (iv) 1001 1003 1008 *(½ Mark for correct output)*	
6.	(X+Y)' = X'.Y' Verification (X+Y)'.(X+Y) = X'.Y'.(X+Y) 0 = X'.Y'.X + X'.Y'.Y 0 = X'.X .Y'+ X'.0 0 = 0 .Y'+ 0 0 = 0 + 0 0 = 0 L.H.S = R.H.S *(1 Mark for stating any one of the Demorgan's Law)* *(1 Mark for verifying the law)*	2
(b)	F(P,Q)=(P'+Q).(P+Q') *(2 Marks for the final expression)* OR *(1 Mark for any one of the correct terms out of P'+Q or P+Q')*	**2**
(c)	F(U,V,W) = (U+V+W').(U+V'+W').(U'+V+W') *(1 Mark for the correct expression)*	1

No.	Answers	Marks
(d)		3
	F(A,B,C,D)=A'C'+A'D'+B'D'	
	(½ Mark for placing all 1s at correct positions in K-Map) *(½ Mark for each grouping)* *(1 Mark for writing final expression in reduced/minimal form)* **Note:** Deduct ½ mark if wrong variable names are used	
7.		
a)	Appropriate comparison between any two out of Circuit Switching, Message Switching, Packet Switching (1 Mark for writing Appropriate comparison between any two switching technique)	1
b)	(iii) ASP and (iv) PHP are not client side scripts (1 Mark for correct answer)	1
c)	The complaint has to be lodged with the Police under IT Act (1 Mark for correct answer)	1
d)	An Internet Protocol (IP) address is a numerical identification and logical address that is assigned to devices connected in a computer network. An IP Address is used to uniquely identify devices on the Internet and so one can quickly know the location of the system in the network. *(½ Mark for meaning of IP Address)* *(½ Mark for mentioning the usefulness in network security)*	1

No.	Answers	Marks
e)	**e1)** (Any of the following option) Layout Option 1:  Layout Option 2: Since the distance between Block A and Block B is quite short  *(1 Mark for showing any of the above suitable cable layout)* **e2)** The most suitable place / block to house the server of this organisation would be Block C, as this block contains the maximum number of computers, thus decreasing the cabling cost for most of the computers as well as increasing the efficiency of the maximum computers in the network. *(½ Mark for suggesting suitable place and ½ for appropriate reason)*	4

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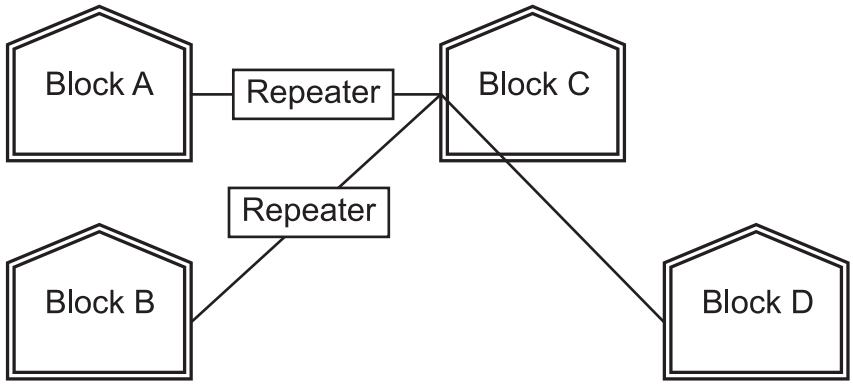
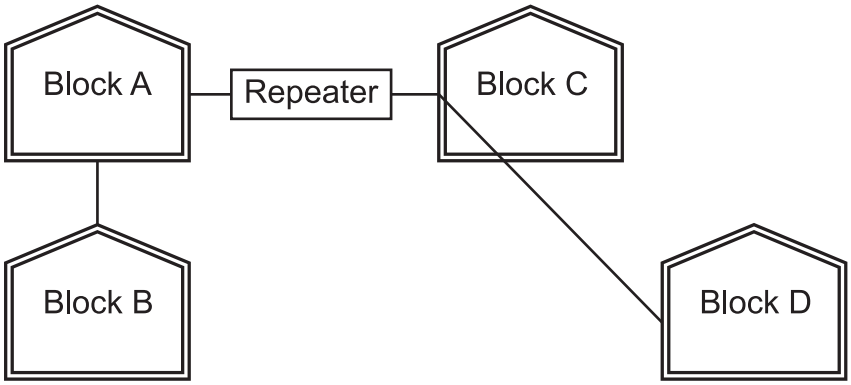
No.	Answers	Marks

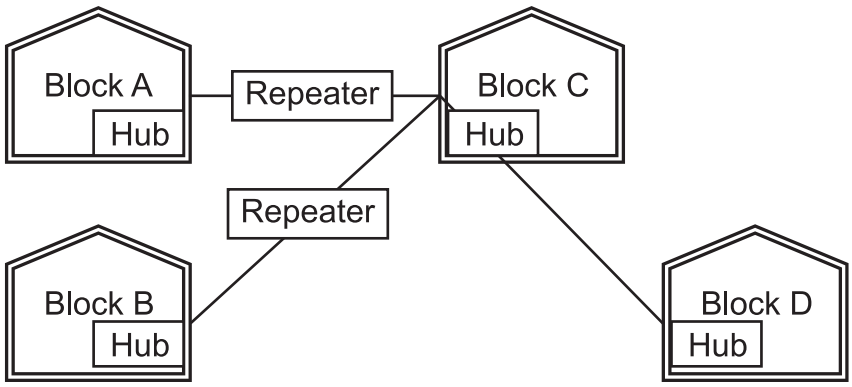
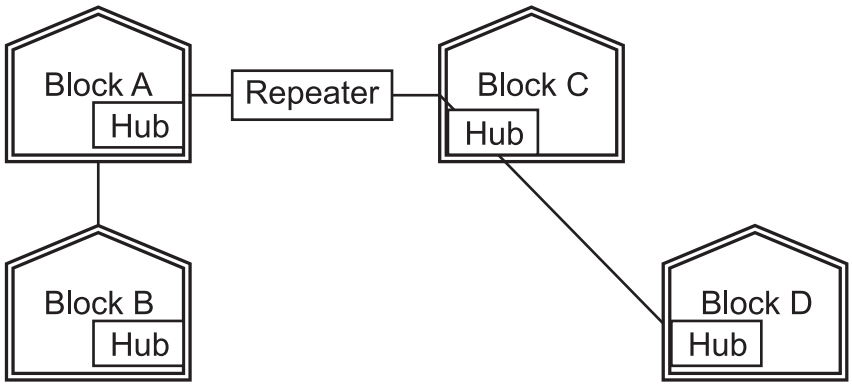
e3) (i) For Layout 1, since the cabling distance between Blocks A and C, and that between B and C are quite large, so a repeater each, would ideally be needed along their path to avoid loss of signals during the course of data flow in these routes.



For layout 2, since the distance between Blocks A and C is large so a repeater would ideally be placed in between this path



(½ Mark for suggesting suitable place for connecting repeater)

No.	Answers	Marks
	(ii) In both the layouts, a hub/switch each would be needed in all the blocks, to interconnect the group of cables from the different computers in each block Layout 1  Layout 2  *(½ Mark for suggesting suitable place for connecting hub)*	
e4)	The most economic way to connect it with a reasonable high speed would be to use radio wave transmission, as they are easy to install, can travel long distances, and penetrate buildings easily, so they are widely used for communication, both indoors and outdoors. Radio waves also have the advantage of being omni directional, which is they can travel in all the directions from the source, so that the transmitter and receiver do not have to be carefully aligned physically. *(1 Mark for appropriate answer)*	
f)	Spam mails, also known as junk e-mail, is a subset of spam that involves nearly identical messages sent to numerous recipients by e-mail. We can protect our mailbox from spams by creating appropriate filters. *(½ Mark for the definition of Spam Mails)* *(½ Mark for the appropriate suggestion for protecting mailbox from it)*	1

No.	Answers myCBSEguide.com A Complete guide for CBSE students	Marks
g)	Open Source's proponents often claim that it offers significant benefits when compared to typical Proprietary Software. Proprietary Software typically favour visible features (giving marketing advantage) over harder-to measure qualities such as stability, security and similar less glamorous attributes. Open Source Software developers are evidently motivated by many factors but favouring features over quality is not noticeable amongst them. For many developers, peer review and acclaim is important, so it's likely that they will prefer to build software that is admired by their peers. Highly prized factors are clean design, reliability and maintainability, with adherence to standards and shared community values preeminent. *(1 Mark for appropriate answer)*	1