CBSE SAMPLE PAPER-01

CBSE Class – XII

Computer Science

Time allowed: 3 hours, Maximum Marks: 70

Instructions:

(i). All Questions are Compulsory.
(ii). Programming Language: Section A : C++.
(iii). Programming Language: Section B: Python.
(iv). Answer either Section A or B, and Section C is compulsory.

Section : A (C++)

Q1 (a). Define Macro with suitable example. (2)

Ans. Macros are preprocessor directive created using # define that serve as symbolic constants. They are created to simplify and reduce the amount of repetitive coding

For instance,
define max (a, b) a>b? a: b
Defines the macro max, taking two arguments a and b. This macro may be called like any function. Therefore, after preprocessing
A = max(x, y);
Becomes A = x>y?x :y ;

(b). Which C++ header file (s) will be included to run /execute the following C++ code?(1)

```
void main( )
{ int Last =26.5698742658;
cout<<setw(5)<<setprecision(9)<<Last; }
```

Ans. iostream.h
iomanip.h

(c). Rewrite the following program after removing any syntactical errors. Underline each

correction made. (2)

```
#include<iostream.h>
void main( )
int A[10];
A=[3,2,5,4,7,9,10];
for( p = 0; p<=6; p++)
{ if(A[p]%2=0)
int S = S+A[p]; }
cout<<S; }
```

Ans.

```
#include<iostream.h>
void main( )
{ int A[10] = {3,2,5,4,7,9,10};
int S = 0,p;
for(p = 0; p<=6; p++)
{ if(A[p]%2==0)
S = S+A[p]; }
cout<<S;
}
```

(d). Find the output of the following C++ program: (2)

```
#include<iostream.h>
void repch(char s[])
{
for (int i=0;s[i]!='\0';i++)
{
if(((i%2)!=0) &&(s[i]!=s[i+1]))
{
s[i]='@';
}
else if (s[i]==s[i+1])
{
```

```
s[i+1]='!';
i++;
}
}
}
void main()
{
char str[]="SUCCESS";
cout<<"Original String"<<str
repch(str);
cout<<"Changed String"<<str;
}
```

Ans. Original String SUCCESS
Changed String S@C!ES!

(e). Find the output of the following : (3)

```
#include<iostream.h>
void switchover(int A[ ],int N, int split)
{
for(int K = 0; K<N; K++)
if(K<split)
A[K] += K;
else
A[K]*= K;
}
void display(int A[ ] ,int N)
{
for(int K = 0; K<N; K++)
(K%2== 0) ?cout<<A[K]<<"%" : cout<<A[K]<<endl;
}
void main( )
{ int H[ ] = {30,40,50,20,10,5};
switchover(H,6,3);
```

display(H,6);
}

Ans. 30%41
52%60
40%25

(f). Observe the following C++ code and find out , which out of the given options (i) to (iv) are the expected correct output. Also assign the maximum and minimum value that can be assigned to the variable 'Go'. (2)

```
void main()
{ int X [4] ={100,75,10,125};
int Go = random(2)+2;
for (inti = Go; i< 4; i++)
cout<<X[i]<<"##";
}
```

(i) 100##75
(ii) 75##10##125##
(iii.) 75##10##
(iv.)10##125#

Ans.(f) (iv) is the correct option.
Minimum value of Go = 2
Maximum value of Go = 3

Q2 (a). Differentiate between data abstraction and data hiding. (2)

Ans.(a) Data hiding can be defined as the mechanism of hiding the data of a class from the outside world. This is done to protect the data from any accidental or intentional access. Data hiding is achieved by making the members of the class private.
Data abstraction refers to, providing only essential information to the outside world and hiding their background details. Members defined with a public label are accessible to all parts of the program. The data abstraction view of a type is defined by its public members.

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

```
class Exam
{
int Rollno;
char Cname[25];
float Marks ;
public :
Exam( ) //Function 1
{
Rollno = 0 ;
Cname="";
Marks=0.0;
}
Exam(int Rno, char candname) //Function 2
{
Rollno = Rno ;
strcpy(Cname,candname);
}
~Exam( ) //Function 3
{
cout << "Result will be intimated shortly" << endl ;
}
void Display( ) //Function 4
{
cout << "Roll no :"<<Rollno;
cout<<"Name :" <<Cname;
cout <<" Marks:"<<Marks;
}
} ;
```

(i) Which OOP concept does Function 1 and Function 2 implement. Explain?

Ans(i) Constructor Overloading /Polymorphism , as multiple definitions for Constructors are given in the same scope. Function 1 is a Default constructor and function 2 is a

Parameterized constructor.

(ii) What is Function 3 called? When will it be invoked?

Ans(ii) Function 3 is a Destructor which is invoked when the object goes out of scope.

(c). Define a class Candidate in C++ with the following specification : (4)

Private Members :
A data members Rno(Registration Number) type long
A data member Cname of type string
A data members Agg_marks (Aggregate Marks) of type float
A data members Grade of type char
A member function setGrade () to find the grade as per the aggregate marks obtained by the student. Equivalent aggregate marks range and the respective grade as shown below.

Aggregate Marks	Grade
>=80	A
Less than 80and >=65	B
Less than 65 and >=50	C
Less than 50	D

Public members: A constructor to assign default values to data members: Rno=0,Cname="N.A",Agg_marks=0.0
A function Getdata () to allow users to enter values for Rno. Cname, Agg_marks and call function setGrade () to find the grade.
A function dispResult( ) to allow user to view the content of all the data members.

Ans. (c) class Candidate
{ long Rno;
char Cname[20];
float Agg_marks;
char Grade;
void setGrade()
{ if (Agg_marks>= 80)

```
Grade = 'A';
else if(Agg_marks<80 && Agg_marks>=65)
Grade = 'B';
else if (Agg_marks<65 && Agg_marks>=50)
Grade ='C';
else
Grade='D';
}
public:
Candidate()
{
Rno=0;
Strcpy(Cname,"N.A.");
Agg_marks=0.0;
}
void Getdata ()
{
cout<<"Registration No";
cin>>Rno;
cout<<"Name";
cin>>Cname;
cout<<Aggregate Marks";
cin>>Agg_marks;
setGrade();
}
void dispResult()
{
cout<<"Registration No"<<Rno;
cout<<"Name"<<Cname;
cout<<Aggregate Marks"<<Agg_marks;
}
```

(d). Give the following class definition answer the question that is follow: (4)

class University

```
{
char name [20];
protected :
char vc[20];
public :
void estd();
void inputdata();
void outputdata();
}
class College : protected University
{ int regno;
protected
char principal()
public :
int no_of_students;
void readdata();
void dispdata ( );
};
class Department : public College
char name[20];
char HOD[20];
public :
void fetchdata(int);
void displaydata( ); }
```

(i) Name the base class and derived class of college. (1)

Ans. Base class: University
Derived class: Department

(ii) Name the data member(s) that can be accessed from function displaydata().

Ans. char name[20],char HOD[20], char principal(),int no_of_students, char vc[20].

(iii) What type of inheritance is depicted in the above class definition?

Ans. Multilevel Inheritance.

(iv) What will be the size of an object (in bytes) of class Department?

Ans. 85 bytes.

Q 3 (a). An integer array A [30][40] is stored along the column in the memory. If the element A[20][25] is stored at 50000, find out the location of A[25][30]. (3)

Ans. A[i][j] = B+W ×[No.of rows ×(I-Lr)+(J-Lc)]
A[20][25] = B+ 2×[30x(20-0)+(25-0)]
50000= B+2×[30×(20-0)+(25-0)]
B = 48750
A[7][10] = 48750+ 2×[30×(7-0)+(10-0)]
= 49190

(b). Write the definition of functions for the linked implemented queue containing passenger information as follows: (4)

```
struct NODE
{ int Ticketno;
char PName[20];
NODE * NEXT; };
class Queueofbus
{ NODE *Rear, *Front;
public:
Queueofbus()
{ Rear = NULL;
Front = NULL; };
void Insert();
void Delete();
~Queueofbus()
{ cout<<"Object destroyed"; }
};
```

Ans. void Queueofbus::Insert()

```
{ NODE *p = new NODE;
cout<<"Enter Ticket no"
cin>>p->ticketno;
cout<<"Enter Name";
cin>>p->Pname;
p->NEXT = NULL;
if (rear == NULL)
{ Rear = p;
Front = Rear;
}
else
{ Rear -> NEXT = p;
Rear = Rear -> NEXT;
}
}
```

(c). Write a function to sort any array of n elements using insertion sort . Array should be passed as argument to the function. (3)

Ans.

```
void insertsort( int a[],int n)
{
int p,ptr;
//Assuming a[0]=int_min i.e. smallest integer
for(p=1;p<=n;p++)
{
temp=a[p];
ptr=p-1;
while(temp<a[ptr])
{
a[ptr+1]=a[ptr]; // Move Element Forward
ptr--;
}
a[ptr+1]=temp; // Insert Element in Proper Place
}
```

(d). Write a function NewMAT(int A[][],int r,int c) in C++, which accepts a 2d array of integer and its size as parameters divide all those array elements by 6 which are not in the range 60 to 600(both values inclusive) in the 2d Array . (2)

Ans. void NewMAT(int A[][],int r,int c)
{
for (int i = 0;i<r;i++)
for(j=0;j<c;j++)
if ((A[i][j]>=60)&&(A[i][j]<=600))
A[i][j]/=6 ;

or

A[i][j] = A[i][j]/6;
}

(e). Evaluate the following postfix expression using stack and show the contents after execution of each Operations:470,5,4,^,25,/,6,* 2

Ans.

S.no	Symbol	Operation	Stack	Result
1	470	push(470)	470	
2	5	push(5)	470,5	
3	4	Push(4)	470,5,4	
4	^	Pop(4)	470,5	
0		Pop(5)	470	
		Perform(5^4)		
		Push(625)	470,625	
5	25	Push(25)	470,625,25	

6	/	Pop(25)	470,625	
		Pop(625)	470	
		Perform(625/25)	470	
		Push(25)	470,25	
7	6	Push(6)	470,25,6	
8	*	Pop(6)	470,25	
		Pop(25)	470	
		Perform(25*6)	470	

Q4 (a).Consider a file F containing objects E of class Emp. (1)

(i) Write statement to position the file pointer to the end of the file.

Ans. F.seekg(0,ios::end);

(ii) Write statement to return the number of bytes from the beginning of the file to the current position of the file pointer.

Ans. F.tellg();

(b). Write a function RevText() to read a text file " Input.txt " and Print only word starting with 'I' in reverse order . (2)

Example: If value in text file is: INDIA IS MY COUNTRY
Output will be: AIDNI SI MY COUNTRY

Ans. void RevText()
{ ifstream in ("Input.txt");
char word[25];
while(in)

```
{ in>>word;
if (word[0]=='I')
cout<<strrev(word);
else
cout<<word;
}
```

(c). Write a function in C++ to search and display details, whose destination is "Chandigarh"from binary file "Flight.Dat". Assuming the binary file is containing the objects of the following class: (3)

```
class FLIGHT
{ int Fno; // Flight Number
char From[20]; // Flight Starting Point
char To[20]; // Flight Destination
public:
char * GetFrom ( ); { return from; }
char * GetTo( ); { return To; }
void input() { cin>>Fno>>; gets(From); get(To); }
void show( ) { cout<<Fno<< ":"<<From << ":" <<To<<endl; }
};
```

Ans.
```
void Dispdetails()
{ ifstream fin("Flight.Dat");
Flight F;
while (fin)
{ fin.read((char*)&F,sizeof(F))
if (strcmp(F.GetTo(),"Chandigarh"))
F.show();
}
}
```

Section : B (Python)

Q1. (a). List one similarity and one difference between List and Dictionary data type. (2)

Ans. Similarity : Both List and Dictionary are mutable datatypes.
Dissimilarity: List is a sequential data type i.e. they are indexed.
Dictionary is a mapping data type. It consists of key: value pair.
Eg: L =[1,2,3,4,5] is a list
D= {1:"Ajay",2:"Prashant,4:"Himani"} is a dictionary where 1,2,4 are keys and "Ajay",Prashant,"Himani" are their corresponding values.

(b). Observe the following Python functions and write the name(s) of the module(s) to which they belong: (1)

(a). uniform() (b). findall()

Ans. a. random b.re

(c). Rewrite the following Python program after removing all the syntactical errors (if any),underlining each correction.: (2)

```
def checkval:
x = raw_input("Enter a number")
if x % 2 = 0 :
print x,"is even"
else if x<0 :
print x,"should be positive"
else ;
print x,"is odd"
def checkval():
x = raw_input("Enter a number")
if x % 2 = = 0 :
print x,"is even"
elif x<0 :
print x,"should be positive"
else :
print x,"is odd"
```

Ans. Rewrite the following Python program after removing all the syntactical errors (if any), underlining each correction.:

```
def checkval:
x = raw_input(“Enter a number”)
if x % 2 = 0 :
print x,”is even”
else if x<0 :
print x,”should be positive”
else ;
print x,”is odd”
def checkval():
x = raw_input(“Enter a number”)
if x % 2 = = 0 :
print x,”is even”
elif x<0 :
print x,”should be positive”
else :
print x,”is odd”.
```

(d). Find the output of the following Python program: (3)

```
def makenew(mystr):
newstr = " "
count = 0
for i in mystr:
if count%2 !=0:
newstr = newstr+str(count)
else:
if islower(i):
newstr = newstr+upper(i)
else:
newstr = newstr+i
count +=1
newstr = newstr+mystr[:1]
print "The new string is :",newstr
makenew(“sTUdeNT")
```

Ans. The new string is: S1U3E5Ts.

(e). Find the output of the following program. (2)

```
def calcresult () :
i = 9
while i> 1 :
if (i % 2 == 0):
x = i%2
i = i-1
else :
i = i-2
x = i
print x**2
```

Ans. def calcresult () :
i = 9
while i> 1 :
if (i % 2 == 0):
x = i%2
i = i-1
else :
i = i-2
x = i
print x**2
49
25
9
1

(f). Observe the following Python code and find out , which out of the given options i) to iv) are the expected correct output(s).Also assign the maximum and minimum value that can be assigned to the variable 'Go'. (2)

```
import random
```

X =[100,75,10,125]
Go = random.randint(0,3)
for i in range(Go):
print X[i],"##",

(i) 100##75##10
(ii) 75##10##125##
(iii) 75##10##
(iv)10##125##100

Ans. 100 ## 75 ## 10 ##
Minimum Value that can be assigned to Go is 0
Maximum Value that can be assigned to Go is 3

Q2 (a). Discuss the strategies employed by python for memory allocation? (2)

Ans. Python uses two strategies for memory allocation- Reference counting and Automatic garbage collection:

Reference Counting: works by counting the number of times an object is referenced by other objects in the system. When an object's reference count reaches zero, Python collects it automatically.

Automatic Garbage Collection: Python schedules garbage collection based upon a threshold of object allocations and object de-allocations. When the number of allocations minus the number of deal locations are greater than the threshold number, the garbage collector is run and the unused block of memory is reclaimed.

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

class Toy :
tid =0;
tcat = " "
def __init__(self):// Function1
..... // Blank 2

(i). Explain relevance of Function 1.

Ans. __init__ function is used to initialize the members of a class. It is automatically invoked when the object of the class is created.

(ii). (a). Fill in the blank2 with a statement to create object of the class TOY.

(b). Write statement to check whether tprice is an attribute of class TOY.

Ans. (a). T=Toy()

(b). hasattr(T,tprice)

(c). Define a class Train in PYTHON with following description: (4)

Data Members
src of type string
Tnm of type string
dest of type string
charges of float

• A member function Get data to assign the following values for Charges

Dest	Charges
Mumbai	1000
Chennai	2000
Kolkatta	2500

Public members

· A constructor to initialize the data members.

· A function InputData() to allow the user to enter the values

· A function displaydata() to display all and call get data function

Ans. class train:
def __init__(self):

```
_src=""
_tnm=""
_dest=""
_charges=0.0
def getdata(self):
if self._dest=="mumbai" or self._dest=="MUMBAI":
self._charges=1000
elif self._dest=="chennai" or self._dest=="CHENNAI":
self._charges=2000
elif self._dest=="kolkata" or self._dest=="KOLKATA":
self._charges=2500
def inputdata(self):
self._src=raw_input("enter the source of journey")
self._tnm=raw_input("enter the train name")
self._dest=raw_input("enter the destination")
def displaydata(self):
print "the source of journey is",self._src
print "the name of the train is",self._tnm
print "the destination of the train is",self._dest
t.getdata()
print "the charges for your journey",self._charges
```

(d). Observe the following class definition and answer the question that follow: (2)

```
class ParentClass(objects):
def__init__(self)
self,x = 1
self.y = 10
def print(self):
print(self.x, self.y)
class ChildClass(ParentClass):
def__init__(self):
super(ChildClass, self).init_() # Line 1
self,x = 2
```

self.y = 20
c = ChildClass()
c.print()

(a). Explain the relevance of Line1.

Ans. super() function is used to call the methods of base class which have been extended in derived class.Also it is the importance of derived class __init__() to invoke the base class __init__()

(b). What type of inheritance is being demonstrated in the above code?

Ans. Single level Inheritance.

(e). Write a user defined function findname(name) where name is an argument in Python to delete phone number from a dictionary phonebook on the basis of the name ,where name is the key. (2)

Ans. def findname(name):
if phonebook.has_key():
del phonebook[name]
else:
print”Name not found”
print "Phonebook Information"
print "Name",'\t',"Phone number"
for i in phonebook.keys():
print i,'\t',phonebook[i]

Q3(a). Explain try..except...else ... with the help of user defined function def divide(x, y)which raises an error when the denominator is zero while dividing x by y and displays the quotient otherwise. (3)

Ans. def divide(x, y):
try:
result = x / y
except ZeroDivisionError:

print "division by zero!"
else:
print "result is", result
In the above example: try block consists of code that can raise an error. When y(denominator) gets a 0 value, ZeroDivisionError is raised which is handled by except clause. In case of no exception else statement is executed.

(b). Write a user defined function arrange elements(X), that accepts a list X of integers and sets all the negative elements to the left and all positive elements to the right of the list. (3)

Eg: if L =[1,-2,3,4,-5,7] , the output should be: [-2,-5,3,4,7]

Ans. def arrangelements(X):
L=len(X)
for i in range(L):
if a[i]<0 and i!=0:
j=i
while j!=0 and a[j-1]>0 :
a[j],[j-1]=a[j-1],a[j]
j=j-1

(c). Consider the following class definition :- (3)
class book ():
bk = []
def _ init _ (self, bno):
self .bno = bno
def addbook (self):
.....
def removebook (self):
.....
The class book is implemented using Queue. Keeping the same in mind, complete the function definitions for adding a book addbook() and deleting a book removebook() .

Ans. def addbook(self):

```
a=input("enter book number: ")
book.bk.append(a)
def removebook (self):
if (book.bk==[]):
print "Queue empty"

else:
print "deleted element is: ",book.bk[0]
del book.bk[0]
```

(d). Write a python function generate fibo(n) where n is the limit using a generator function Fibonacci (max) where max is the limit n that produces Fibonacci series.(3)

Ans.
```
def Fibonacci (max):
a, b = 0, 1
while a <= max:
yield a
a, b = b, a + b
def generatefibo(n)
for i in Fibonacci (n):
print i,
```

(e). Evaluate the following postfix using stack & show the content of the stack after the execution of each: 20, 4, +, 3, -, 7, 1 2

Ans.

S.no	Symbol	Operation	Stack	Result
1	20	Push(20)	20	
2	4	Push(4)	20,4	
3	+	Pop(4)	20	
4		Pop(20)		
		Perform(20+4)		
		Push(24)	24	

5	**3**	**Push(3)**	**24,3**	
6	**-**	**Pop(3)**	**24**	
		Pop(24)		
		Perform(24-3)		
		Push(21)	**21**	
7	**7**	**Push(7)**	**21,7**	
8	**/**	**Pop(7)**	**21**	
		Pop(21)		
		Perform(21/7)		
		Push(3)	**3**	**Result=3**
9		**Pop(3)**		

Q4 (a). Consider the following code : (1)
f = open ("mytry", "w+")
f.write ("0123456789abcdef")
f.seek (-3,2) //1
printf.read(2) //2
Explain statement 1 and give output of 2.

Ans. Statement 1 uses seek()method can be used to position the file object at particular place in the file. It's syntax is :fileobject.seek(offset [, from_what]). So,f.seek(-3,2) positions the file object to 3 bytes before end of file. Output of 2 is :de (It reads 2 bytes from where the file object is placed.)

(b). Write a user defined function in Python that displays the number of lines starting with 'H' in the file Para.txt. Eg: if the file contains: (2)

Whose woods these are I think I know.
His house is in the village though;
He will not see me stopping here
To watch his woods fill up with snow.

Then the line count should be 2.

Ans. def countH():
f = open ("Para.txt", "r")
lines =0
l =f.readlines()
for i in l:
ifi[0]=='H':
lines+=1
print "no. of lines is",lines

(c). Consider a binary file Employee.dat containing details such as empno :ename :salary (separator ' :'). Write a python function to display details of those employees who are earning between 20000 and 40000.(both values inclusive) (3)

Ans. def Readfile():
i = open("Employee.dat","rb+")
x = i.readline()
while(x):
I = x.split(':')
if (20000>=float(I[2])<=5000):
print x
x = i.readline()

Section : C

Q1. (a). Differentiate between cardinality and degree of a table with the help of an example. (2)

Ans. Cardinality is defined as the number of rows in a table.
Degree is the number of columns in a table.
Eg: Consider the following tables:

Ac no	Cname
Ac100	Sheela

Ac101	Darsh
Ac102	Kathy

Cardinality of Account table is : 3
Degree of Account table is :2

(b) Consider the following tables FACULTY and COURSES. Write SQL commands for the statements (i) to

(v) and give outputs for SQL queries (vi) to (vii) 6

FACULTY

F_ID	F Name	L Name	Hire date	Salary
102	Amit	Mishra	12-10-1998	12000
103	Nitin	Vyas	24-12-1994	8000
104	Rakshit	Soni	18-5-2001	14000
105	Rashmi	Malhotra	11-9-2004	11000
106	Sulekha	Srivastva	5-6-2006	10000

COURSES

C_ID	F_ID	C name	Fees
C21	102	Grid Computing	40000
C22	106	System Design	16000
C23	104	Computer Security	8000
C24	106	Human Biology	15000
C25	102	Computer Network	20000
C26	105	Visual Basic	6000

(i) To display details of those Faculties whose salary is greater than 12000.

Ans. Select * from faculty
where salary > 12000

(ii) To display the details of courses whose fees is in the range of 15000 to 50000 (both values included).

Ans. Select * from Courses
where fees between 15000 and 50000

(iii) To increase the fees of all courses by 500 of "System Design" Course.

Ans. Update courses set fees = fees + 500
where Cname = "System Design"

(iv) To display details of those courses which are taught by 'Sulekha' in descending order of courses.

Ans. Select * from faculty fac,courses cour
where fac.f_id = cour.f_id
and fac.fname = 'Sulekha'
order by cname desc

(v) Select COUNT(DISTINCT F_ID) from COURSES;

Ans. 4.

(vi) Select MIN(Salary) from FACULTY,COURSES where COURSES.F_ID = FACULTY.F_ID;

Ans. 600.

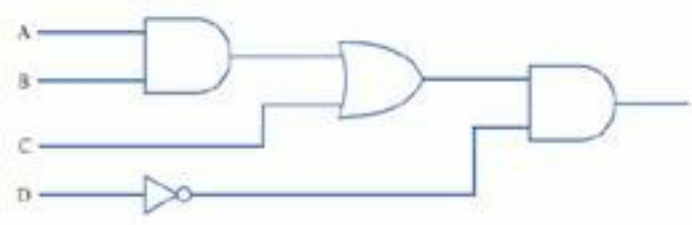
Q2.(a). State and Verify Absorption law algebraically. (2)

Ans. Absorption law states that:
A + AB = A and A . (A + B) = A
Algebraic method:
Taking LHS

A + AB = (A.1) + (A.B) by Identity
= A. (1+B) by Distribution
= A.1 by Null Element
= A

(b). Draw a logic circuit for the following Boolean expression: A.B+C.D'. (2)

Ans.



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

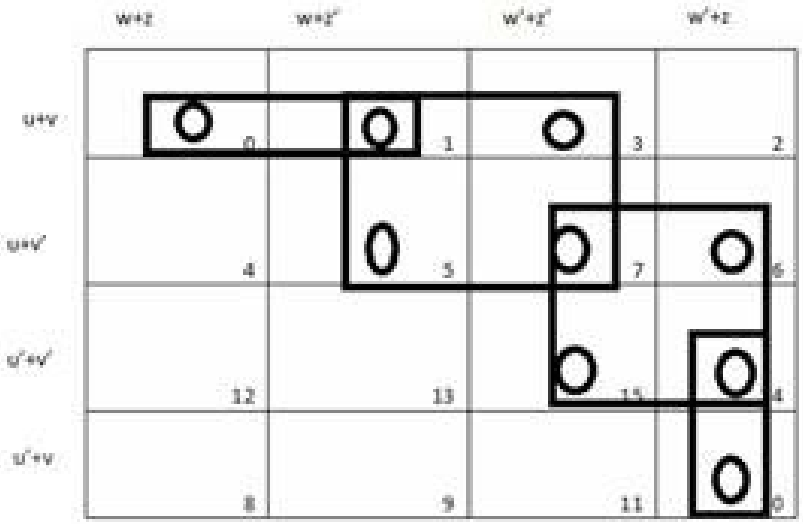
A	B	C	F
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	0

Ans. A'B'C+A'BC'+AB'C'+AB'C

(d). Obtain a simplified from for a Boolean expression: (3)

F (U, V, W, Z) = II (0, 1, 3, 5, 6, 7, 15)

Ans.



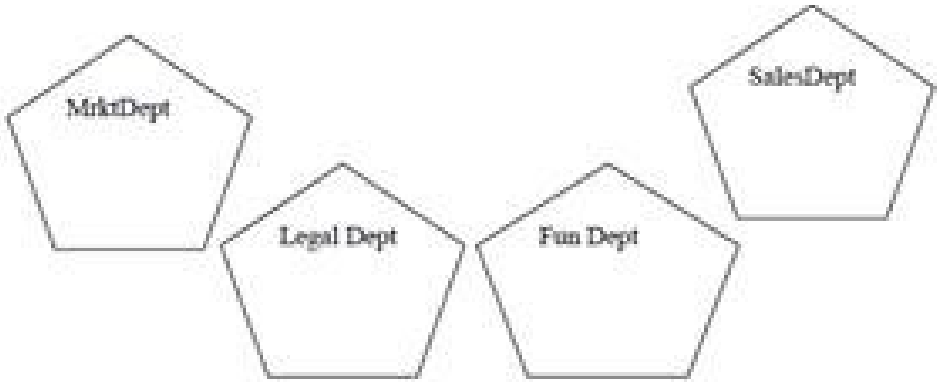
(u+v+w).(u+z').(v'+w').(u'+w'+z)

Q 3.(a) Write any 1 advantage and 1 disadvantage of Bus topology. (1)

Ans. Advantage: Since there is a single common data path connecting all the nodes, the bus topology uses a very short cable length which considerably reduces the installation cost.

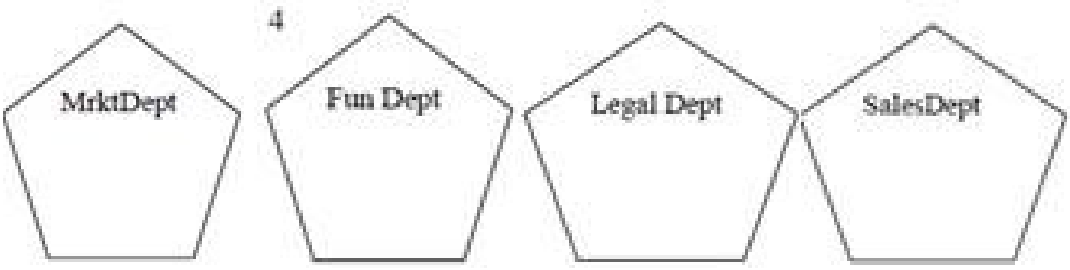
Disadvantage: Fault detection and isolation is difficult. This is because control of the network is not centralized in any particular node. If a node is faulty on the bus, detection of fault may have to be performed at many points on the network. The faulty node has then to be rectified at that connection point.

(b). SunRise Pvt. Ltd. is setting up the network in the Ahmadabad. There are four departments named as MrktDept, FunDept, LegalDept, SalesDept. (4)



Ans. SunRise Pvt. Ltd. is setting up the network in the Ahmadabad. There are four departments named as MrktDept, FunDept, LegalDept, SalesDept.

4



Q4. Distance between various buildings is given as follows:

Mrkt Dept to Fun Dept	**80m**
Mrkt Dept to Legal Dept	**180m**
Mrkt Dept to Sales Dept	**100m**
Legal Dept to Sales Dept	**150m**
Legal Dept to Fun Dept	**100m**
Fun Dept to Sales Dept	**50m**

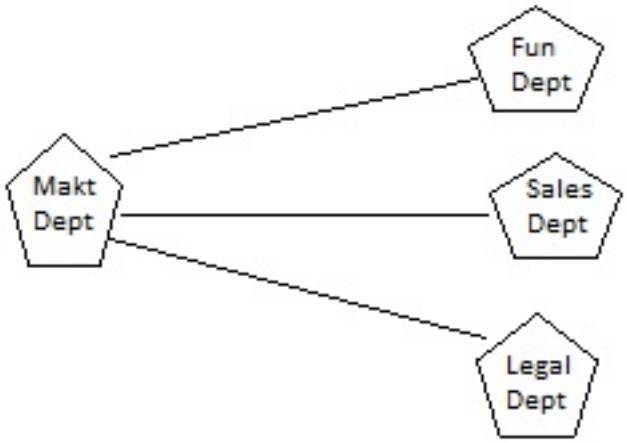
Number of Computers in the buildings:

Mrkt Dept	**20**
Legal Dept	**10**
Fun Dept	**08**
Sales Dept	**42**

(i) Suggest a cable layout of connections between the Departments and specify topology.

Ans. Market Department

Fun department



(ii) Suggest the most suitable building to place the server with a suitable reason.

Ans. As per 80 – 20 rule, Mrkt Dept beacause it has maximium no. of computers.

(iii) Suggest the placement of i) modem ii) Hub /Switch in the network.

Ans. Each building should have hub/switch and Modem in case Internet connection is required.

(iv) The organization is planning to link its sale counter situated in various part of the same city/ which type of network out of LAN, WAN, MAN will be formed? Justify.

Ans. MAN (Metropolitan Area Network).

(c). Name the protocol (1)

(i). Used to transfer voice using packet switched network.

Ans. VOIP (Voice Over Internet Protocol).

(ii).Used for chatting between 2 groups or between 2 individuals.

Ans. IRC(Internet Relay Chat).

(d). What is an IP Address? (1)

Ans. An IP address is a unique identifier for a node or host connection on an IP network. An IP address is a 32 bit binary number usually represented as 4 decimal values, each representing 8 bits, in the range 0 to 255 (known as octets) separated by decimal points. This is known as "dotted decimal" notation. Example:140.179.220.200

(e). What is HTTP? (1)

Ans. HTTP is a protocol that is used for transferring hypertext (i.e. text, graphic, image, sound, video, etc,) between 2 computers and is particularly used on the World Wide Web (WWW).

(f). Explain the importance of Cookies. (1)

Ans. When the user browses a website, the web server sends a text file to the web browser. This small text file is a cookie. They are usually used to track the pages that we visit so that information can be customised for us for that visit.

(g). How is 4G different from 3G? (1)

Ans. 3G technology adds multimedia facilities such as video,audio and graphics applications whereas 4G will provide better than TV quality images and video-links.