


```

void newarr(int *num,int n = 9)
{

    for(int i=0;i<n;i++)
    {
        if(num[i] / 100 != 0)
            num[i] = num[i] - 100;
        else
            num[i] = num[i] + 100;
    }
}
//newarr
void main()
{
    int n[] = { 182,24,163,45,158,164,75,18,194}l;
    newarr(n,4);
    displayarr(n,6);
    newarr(n,8);
    displayarr(n);
}

```

(e) Find the output of the following program.

3

```

#include <iostream.h>
int counter1(int m,int n = 1)
{
    int r, s = 0;
    while( m != 0)
    {
        r = m % 10;
        r = r * n;
        s = s*10 + r;
        m = m / 10;
    }
    return s;
}

```

```

}
int counter2(int m , int n = 1)
{
    int r, s = 0;

    while( m != 0)
    {
        r = m % 10;
        r = r + n;
        s = s*10 + r;
        m = m / 10;
    }
    return s;
}
void main()
{
    int data=1234;
    data = counter2(data,3);
    cout<<data<<endl;
    data = counter1(data);
    cout<<data<<endl;
    data = counter1(data,2);
    cout<<data<<endl;
}

```

(e) What are the first and last values of **i** output by this loop? 2

```

n = 10;
i = 0;
while (++i < n)
{    cout<<i<<endl;    }

```

2. (a) What is copy constructor? What do you understand by constructor overloading? 2

(b) Define a class **Movie** in C++ with the description given below: 4

Private Members:

Name_of_movie	of type character array(string)
Date_of_release	of type character array(string)
Name_of_director	of type character array(string)
Star	of type int
Total_print_release	of type int

Public Members:

A constructor to assign initial values as follows:

Name_of_movie	NULL
Date_of_release	1/1/2007
Name_of_director	NULL
Star	2
Total_print_release	100

A function calculate_star() which calculates and assigns the value of data member Star as follows:

Total Print Release	Star
≥ 1000	5
$< 1000 \ \& \ \geq 500$	4
$< 500 \ \& \ \geq 300$	3
$< 300 \ \& \ \geq 100$	2
< 100	1

A function EnterMovie() to input the values of the data members Name_of_movie, Date_of_release, Name_of_director and Total_print_release

A function ShowMovie() which displays the contents of all the data members for a movie.

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

4

```
class country
{
    int h;
protected:
    int s;
public:
```

```

        void input(int);
        void output();
};
class state : private country
{
    int t;
protected:
    int u;

public:
    void indata(int,int);
    void outdata();
};
class city : public state
{
    int m;
public:
    void display(void);
};

```

- (i) Name the base class and derived class of the class state.
- (ii) Name the data members that can be accessed from function display();
- (iii) Name the member function(s), which can be accessed from the objects of class city.
- (iv) Is the member function output() accessible by the objects of the class state?

(d) Answer the questions (i) and (ii) after going through the following program: **2**

```

class Match
{
    int Time;
public:
    Match()    //Function 1
    {
        Time = 0;
    }
};

```

```

        cout<<"Match commences "<<<endl;
    }
    void Details() //Function 2
    {
        cout<<"Inter Section Basketball Match"<<endl;
    }
    Match(int Duration) //Function 3
    {
        Time = Duration;
        cout<<"Another match begins now"<<endl;
    }
    Match(Match &M) //Function 4
    {
        Time = M.Duration;
        Cout<<"Like Previous Match"<<endl;
    }
};

```

- (i) Which category of constructor – Function 4 belongs to and what is the purpose of using it?
- (ii) Write statements that would call the member Functions 1 and 3.

3 (a) Write a function in c++ which accepts a 2D array of integers, number of rows and number of columns as arguments and assign the elements which are divisible by 3 or 5 into a one dimensional array of integers. **3**

If the 2D array is

12	3	9	14
24	25	16	31
19	32	45	27
11	5	28	18

The resultant 1D arrays is 12 , 3 , 9 , 24 , 25 , 45 , 9 , 5 , 18

(b) An array M[15][35] is stored in the memory along the column with each of its elements occupying 8 bytes. Find out the base address and the address of an element M[2][5], if the element M[5][10] is stored at address 4000. **4**

(c) Write a function in C++ to insert a node containing movie's information, from a dynamically allocated Queue of movie implemented with the help of following structure: **4**

```
struct movie
{
    int MNo;
    char MovieName[30];
    movie *link;
};
```

(d) Write a function in C++ which accepts an integer array and size as arguments and sort all the elements in ascending order using selection sort technique. **3**

(e) Evaluate the following Postfix expression showing the stack contents. **2**

16 , 2 , 6 , + , / , 2 , * , 1 , -

4. (a) Following program intends to display a text file with each word in new line. **1**

```
#include<fstream.h>
void main()
{
    ifstream fin("abc.txt");
    char word[20];
    while( !fin.eof() )
    {
        _____ //statement 1
        cout<<word<<endl;
    }
    _____ //statement 2
}
```

Complete the above program by providing missing functionality.

(b) Write a function in C++ to count and display the number of words starting with alphabet 'u' or 'U' or 't' or 'T' or 'k' or 'K' present in a text file "poem.txt". **2**

Example

If the file "poem.txt" contains the following lines,

Kamlesh is captain of Udaipur cricket team.

Tourist generally visit Zoo of udaipur.

Today telephone is dead, please note down complain.

The function should display the output as **7**

(c) Given a binary file "BUS.DAT", containing records of the following class colony type. **3**

```
class bus
{
    int bus_no;
    char desc[40];
    int distance; //in km
public:
    void bus::read()
    { cin>>bus_no; gets(desc) ; cin>>distance; }
    void bus::display()
```

```

        {      cout<<bus_no; puts(desc); cout<<distance;  }

int bus::retdist()
{      return distance;      }
};

```

Write a function in C++ that would read contents of file “BUS.DAT” and display the details of those buses which travels distance more than 100 km.

5. (a) What is a relation? What is the difference between a tuple and an attribute? **2**

(b) Consider the following tables GAMES and PLAYER. Write SQL commands for the statements (i) to (iv) and give outputs for SQL queries (v) to (viii)

GAMES

6

GCode	GameName	Number	PrizeMoney	Date
101	CaromBoard	2	5000	23-jan-2004
102	Badminton	2	12000	12-dec-2003
103	TableTennis	4	8000	14-feb-2004
104	Chess	2	9000	01-jan-2004
105	LawnTennis	4	25000	19-mar-2004

PLAYER

PCode	Name	GCode
1	Arjun	101
2	Ravi	105
3	Jignesh	101
4	Nihir	103
5	Sohil	104

- i).** To display the name of players who plays CaromBoard.
- ii).** To display details of those game which are having PrizeMoney more than 8000.
- iii).** To display the details of those games whose name starts from character ‘B’.
- iv).** To display sum of PrizeMoney for each of the Number of participation groupings.
(as shown in column Number 2 or 4)

- v). Select COUNT(DISTINCT number) from games;
- vi). Select MAX(date) , MIN(date) from games;

vii). Select AVG(PrizeMoney) from games

Group by Number

Having count(GCode) > 2;

viii). Select GameName from games

Where date BETWEEN '10-Jan-2004' AND '20-Feb-2004';

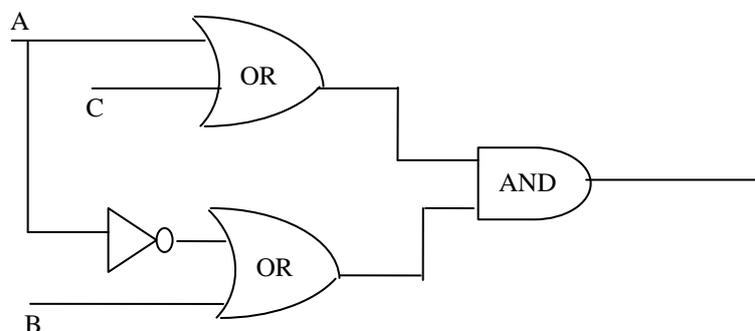
6 (a) State Idempotent Law and verify the same using truth table. 2

(b) Write the Sums of Product form of the function $F(x, y, z)$, truth table representation of

F is given below: 2

X	Y	Z	F
0	0	0	0
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

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



(d) Reduce the following Boolean Expression using K-Map 2

$$F(A,B,C,D) = \prod (0, 1, 2, 3, 4, 5, 10, 11, 15)$$

7. (a) Write one advantage and disadvantage of Star Topology. 1

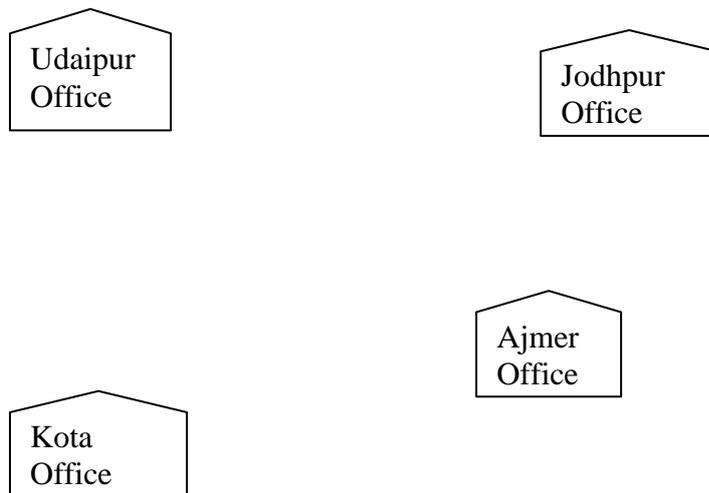
(b) Expand the following terms with respect to Networking. 2

- i). TDM
- ii). SIM
- iii). POP
- iv). HTTP

(c) Explain Web Hosting? 1

(d) Laxmi Marketing Ltd. has four branches in Rajasthan at Udaipur, Kota, Jodhpur and Ajmer. Laxmi Marketing Ltd. wants to establish the networking between all the four offices.

A rough layout of the same is as follows: 4



Approximate distances between these offices as per network survey team are as follows:

Place From	Place To	Distance
Udaipur	Jodhpur	30 m
Jodhpur	Kota	40 m
Kota	Ajmer	25 m
Udaipur	Ajmer	150 m
Jodhpur	Ajmer	105 m
Udaipur	Kota	60 m

In continuation of the above, the company experts have planned to install the following number of computers in each of their offices:

Udaipur	40
Jodhpur	80

Kota	200
Ajmer	60

- i).** Suggest cable layout(s) for connecting the offices.
- ii).** In each of the office the management wants that each LAN segments gets a dedicated bandwidth i.e., bandwidth must not be shared. How can this be achieved?
- iii).** Where would you suggest the placement of server?
- iv).** The company wants to link its head office in Udaipur to its office in London.
 - 1.** Which type of transmission medium is appropriate for such a link?
 - 2.** What type of network would this connection result into?