Question No = 1

Q No.1: Write a C++ program to find leap year using if else statement. Leap year Hints: common year has 365 days (feb 28 days). Leap year has 366 days (feb 29 days). year%4==0 leap year.

Answer No = 1

```
//Q.no1

//leap year


#include <iostream>

using namespace std;


int main(){

	int year;


//input from user

	cout<<"Enter Year =  ";

	cin>>year;


//condition for leap year

	if(year%4==0 && year%100!=0 || year%400==0){

		cout<<year<<" is leap year";

	}

	else{

		cout<<year<<" is not leap year";

	}


	return 0;

}
```

Question No = 2

Q No.2: Write a C++ program using switch statement which get month number from user and display month name accordingly.

Answer No = 2

```
//Q.no2


#include <iostream>

using namespace std;


int main(){
	int month;


	//input from user

	cout<<"Enter month =  ";

	cin>>month;


	//conditions of switch statement

	switch(month){

		case 1:

			cout<<"January";

			break;

	}


	switch(month){

		case 2:

			cout<<"Febrauray";

			break;

	}
```

```
switch(month){
        case 3:
                cout<<"March";
                break;
}

switch(month){
        case 4:
                cout<<"April";
                break;
}

switch(month){
        case 5:
                cout<<"May";
                break;
}

switch(month){
        case 6:
                cout<<"June";
                break;
}

switch(month){
        case 7:
                cout<<"July";
                break;
}
```

```
switch(month){
        case 8:
                cout<<"August";
                break;
}

switch(month){
        case 9:
                cout<<"September";
                break;
}

switch(month){
        case 10:
                cout<<"October";
                break;
}

switch(month){
        case 11:
                cout<<"November";
                break;
}

switch(month){
        case 12:
                cout<<"December";
                break;
```

```
        }


        return 0;
}
```

Question No = 3

Q No.3: Write a C++ program that will create 2D array using random numbers and then show these values.

Answer No = 3

```
//Q.no3
//2D array using random num

#include <iostream>
#include <cstdlib>
using namespace std;
int main(){
                int arr[3][4];
//for loop, for creating array using rand()
        for(int i=0; i<3; i++){

                for(int j=0; j<4; j++){
                        arr[i][j]=rand()%100;  //rand() ftn for generating random num(0 to 99)
                }

        }

        cout<<"display arry" <<endl;

//for loop for displaying Array
```

```
cout<<"["<<endl;


        for (int i=0; i<3; i++){
                for (int j=0; j<4; j++){
                        cout<<" "<<arr[i][j]<<" ";
                }
                cout<<endl;
        }


cout<<"]";


        return 0;


}
```

Question No = 4

Q No.4: Write user defined function namely arrayFunction() in C++ which will initialize array by taking values from user at run time and then call this function in main function which will return this array from the calling function to the called function (to the main function) and then show all items of this array in main function using both for loop.

Answer No = 4

```
//Q.no4


#include <iostream>
#include <cstdlib>
#include <time.h>
using namespace std;



int* arrayFunction(int n){
```

```
        int* array1=new int [n];  //Allocating memory to variable & Assigning to pointer
        cout<<"Enter num of elements of array ";

        for (int i=0; i<n; i++ ){
                cin>>array1[i];
        }
        return array1;

}


int main(){

        int a;

//taking input from user
        cout<<"How many num of elements you want in the array ";
        cin>>a;

//passing num of elements to arrayfunction
        int* array2=arrayFunction(a);

//displaying elements of aaray
        cout<<"Elements of an array are = ";

        cout<<"[";
        for (int i=0; i<a; i++){
                cout<<" "<<array2[i]<<" ";
        }
```

```
cout<<"]";


return 0;

}
```

Question No = 5

Q No.5: Game of Random Number Generate random number from 0 to 100 and after generating random number show this message to user “Number generated, try to guess it”. Take any number from user using cin statement by showing message “Enter your guess number:” _for guessing. Compare this guess number to the randomly generated number. If this guess number is greater than randomly generated then show message like “Your number is high, please try again” _and if this guess number is less than randomly generated number then show message i.e. “Your number is low, please try again”. Continue this process using while or do while loop until you find random number. After finding random number show this message “You found random number in count attempts”. Initialize count variable to count number of attempts/tries for finding a number. If the count value is less than or equal to 5 then show “Excellent” message else show “Good” message to the user.

Answer No = 5

```
//Q no.5
//Game of Random Number


#include <iostream>
#include <cstdlib>
#include <ctime>
using namespace std;
int main(){


    int num, guess, attempts;
    srand(time(0));  //seed num generator for diff values
    num=rand()%101 ;  //to get 0 to 100


    cout<<"Number generated, try to guess it"<<endl;


    do{
```

```
            cout<<"\nEnter your guess num from 1-10 =   ";
            cin>>guess;
            attempts++;   //counter for attempts



        //condition for help in guessing correct num
        if(guess>num){
            cout<<"Your number is high, please try again\n"<<endl;
        }
        else if(guess<num){
            cout<<"Your number is low, please try again"<<endl;
        }
        else{
            cout<<"\n.............You found random number............."<<endl;

            //conditions for appreciating
            if(attempts<=5){
                cout<<".....................Excellent....................."<<endl;
                cout<<"You found random number in "<<attempts<<" count attempts "<<endl;

            }
            else{
                cout<<".....................Good....................."<<endl;
                cout<<"You found random number in "<<attempts<<" count attempts \n ";
            }
        }
}
        while(guess!=num);
```

```
    return 0;
}
```

Question No = 6

Q No.6: Write a program to find out the length of string by using pointers?

Answer No = 6

```
//Q.no6
//find out the length of string by using pointers

#include <iostream>
using namespace std;

int main(){
    char string[100];
    char * pt = string;       //assigning string to the pointer
    int count;                //for counting length


    //input from user
    cout<<"Enter your string  : ";
    cin>>string;


    //loop for calculating length of string
    while(*pt !='\0') //so, the loop will run till the end of the string
    {
        count++;     //incrementing counter
        pt++;        //updating to next location in the string
```

```
        }


        //
        cout<<"The lenght of string is = "<<count;


        return 0;
}
```

Question No = 7

Q No.7: Create a structure called Volume that uses three variables of type Distance to model the volume of a room. Initialize a variable of type Volume to specific dimensions, then calculate the volume it represents, and print out the result. To calculate the volume, convert each dimension from a Distance variable to a variable of type float representing feet and fractions of a foot, and then multiply the resulting three numbers.

Answer No = 7

```
//Q.no7


#include <iostream>
#include <string>
using namespace std;


struct Distance{
        int feet;
        float inches;
};


struct volume{
        Distance length;
        Distance width;
        Distance height;
```

```
};

float foot(Distance a){

        return(a.feet+a.inches/12);  //converting inches to feet also

}

int main(){
        volume room;

//input of feet and inches for length
        cout<<"Input lenght: "<<endl;
        cout<<"Enter feet= ";
        cin>>room.length.feet;

        cout<<"Enter inches= ";
        cin>>room.length.inches;

//input of feet and inches for width
        cout<<"Input width: "<<endl;
        cout<<"Enter feet= ";
        cin>>room.width.feet;

        cout<<"Enter inches= ";
        cin>>room.width.inches;

//input of feet and inches for height
```

```
        cout<<"Input height: "<<endl;
        cout<<"Enter feet = ";
        cin>>room.height.feet;

        cout<<"Enter inches= ";
        cin>>room.height.inches;

//total volumne = multiply the resulting three numbers.
        float total;
        total=foot(room.height)*foot(room.length)*foot(room.width);
        cout<<"Volume of room is = "<<total;


        return 0;
}
```

Question No = 8

Q No.8: Define a class batsman with the following specifications:

Note: for user understanding purposes you should write comment with each line of code.

Private members:

bcode	4 digits code number
bname	20 characters
innings, not out, runs	integer type
batAvg	it is calculated according to the formula – batavg =runs/(innings-notout)
calcavg()	Function to compute batavg

Public members:

readdata()	Function to accept value from bcode, name, innings, notout and invoke the function calcavg()
displaydata()	Function to display the data members on the screen.

Answer No = 8

```
//Q.no8
//class batsman

#include <iostream>
using namespace std;

class batsman{
	private:
		int bcode;
		char bname[20];
		int innings, notout,  runs;
		int batAvg;

		void calcavg(){
			if(innings!=notout){
				batAvg=runs/(innings-notout);
			}
			else{
					batAvg=0;
			}

		}

	public:

//Function to accept value from bcode, name, innings, notout and invoke the function calcavg()
		void readdata(){
			//inputs from user
			cout<<"Enter batsman code =";
```

```
                cin>>bcode;

                cout<<"Enter batsman name =";
                cin>>bname;

                cout<<"Enter innings =";
                cin>>innings;

                cout<<"Enter notout =";
                cin>>notout;

                cout<<"Enter runs =";
                cin>>runs;

                calcavg();
        }

        //Function to display the data members on the screen
        void displaydata(){
                cout<<"\nBatsman code = "<<bcode<<"\nbatsman name =
"<<bname<<"\ninnings = "
                <<innings<<"\nnotout = "<<notout<<"\nruns = "<<runs<<"\nbatavg ="<<batAvg;

        }

};

int main(){
        batsman b1;
```

```
        b1.readdata();
        b1.displaydata();


        return 0;
}
```

.....The End.....