Programming Fundamentals
Assignment1

Q1) What is the output of the program below:

```
int g_arr[5]={5,9};
int main()
{
        int arr[5] = {4,9,1};
        cout<<arr[2] <<"  " <<arr[4]<<endl;
        cout<<g_arr[1] <<g_arr[3];
        return 0;
}
```

Q2) What is the output of the program below:

```
int main()
{
        int arr[5] = {42,19,11};
        cout<<arr[5] <<arr[6];
        return 0;
}
```

Q3) What is the output of the program below:

```
int main()
{
        int y = 1;

        switch(y)
        {
                cout<< "This is C++" <<endl;
                case 1:
                        cout<< "hey";
                        break;
                case 2:
                        cout<< "hello";
                        break;
        }
        return 0;
}
```

Q4) What is output of program given below:

```
int main()
{
	unsigned char ch = 255;
	while(++ch!=0)
	{
		cout<<++ch<<"  ";
	}
	return 0;
}
```

What will be the output if the condition of the while loop is changed to (ch++!=0)

Q5) How many times will “Hello” be printed?

```
int main()
{
	int x;
	for (x = -1; x <= 10; ++x)
	{
		if (x<5)
			continue;
		else
			break;
		cout<< “Hello” <<endl;
	}
	return 0;
}
```

Q6) What is the output of program below:

```
int main()
{
	intarr[]={2};
	cout<< 0[arr]<<endl;
	cout<< “hello”+3;
	cout<<endl<<“hi\0all”;
	cout<<endl << sizeof(5.4);
	return 0;
}
```

Q7) What is output of below program:

```
int main()
{
	int a[] = {2,3,4};
	int b[] = {2,3,4};
```

```
        if(a==b)
        {
                cout<< “equal”;
        }
        else
        {
                cout<< “unequal”;
        }
}
```

Q8) What is the output of the program given below:

```
void count()
{
        static int count1 = 0;
        int count2 = 0;
        count1++;
        count2++;
        cout<< "\nValue of count1 is” << count1,
        cout<<“\nValue of count2 is” << count2;
}
int main()
{
        count();
        count();
        count();
        return 0;
}
```

Q9) What is the output of the program below:

```
#define max 5
int main()
{
        int i=0;
        i=max++;
        cout<< i++;
        return 0;
}
```

Q10) What is the output of the program below:

```
int main()
{
        int a,b;
        a=1,3,15;
```

```
        b=(2,4,6);
        cout<<a+b;
        return 0;
}
```

Q11) What is the output of the program below:

```
int main()
{
        if(cout<<"C++")
                cout<< "programming";
        else
                cout<< "Language";
        return 0;
}
```

Q12) What least positive integer (except 97) could replace the ?in the code below to display 'a' on the screen?

```
int main()
{
        char c = ?;
        cout<<c;
        return 0;
}
```

Q13) What is the output of the program below:

```
int main()
{
        int i=2,j=2;
        while(i+1?--i:j++)
                cout<< i;
        return 0;
}
```

Q14) What is output of program below:

```
int r();
int main()
{
        for(r();r();r()) {
        cout<< r() <<endl;
        }
        return 0;
}
int r(){
        int static num=7;
           return num--;}
```

Q15) Array of 5 integers is to be passed to an a function. Which of these are invalid function prototypes.

a) void f(int a[])
b) void f(int a[5])
c) void f(int a[6])
d) void f(int a[2])
e) void f(int a[0])
f) void f(int a)
g) void f(int *a)

Q16) What is output of below program:

```
int main()
{
        char str[]={'a','b','c'};
        char str1[]="abc";
        cout << sizeof(str) << endl;
        cout << sizeof(str1);
        return 0;
}
```

Q17) Write a program to display “hello” to the user without using a semicolon anywhere in the code (except for “using namespace std;”).

Q18) Write a program to print the pattern below:

```
*
 **
  ***
   ****
    *****
   ****
  ***
 **
*
```

Q19) Write a program to find whether the year entered by user is a leap year or not.

Q20) Write a program to find if two strings entered by user are anagrams.

Q21) Write a program to display vowels in the string entered by user and the number of times each vowel occurs in the string.

Q22) Write a program to add, subtract and multiply two matrices.

Q23) Write a program to find n^{th} (input n from user) power of the number entered by user without using the already defined pow function in math.h.

Q24) Write a program to find the age of a person in years, months and days. Input the person's DOB and present date, month and year.

Q25) Write a program that replaces each vowel in the text present in a file with the character '#'.

Q26) Write a program that accepts string from user as command line arguments, finds the strings which are palindromes and writes them to a file, separated by new lines. Implementation should be done using subfunctions.
For example if the arguments given by user are: hello hi nitin bye naman, then the program should create a file with the following contents:
nitin
naman

Q27) Write a program to concatenate the contents of two files to a third file. For example:

file1	file2
hello all	welcome
	here

Then file3 must contain
hello all
welcome
here

Q28) Write a function that concatenates two integer arrays into a third array in such a way that the smaller size array elements follow the larger one, for example:
Array1: 11,16
Array2: 12,20,34,56,78,90
Target Array3: 12,20,34,56,78,90,11,16

Q29) Write a program to print the binary equivalent of a positive number.

Q30) Write a function named "subtotal" that takes as its arguments the following:
(1) an array of floating point values
(2) an integer that tells the number of cells in the array.

The function should replace the contents of each cell with the sum of the contents of all the cells in the original array from the left end to the cell in question. Thus, for example, if the array passed to the function looks like this: 5.8 2.6 9.1 3.4 7.0. Then the resultant array should be: 5.8 8.4 17.5 20.9 27.9";