Homework 2

Group A

1- Describe two ways to write a comment in a C++ program

//   single line comment

/*   multiple lines comment
       multiple lines comment   */

2- Is this program true or accepted in C++

main( ) { 22;}   accepted – no errors but does nothing

3- Determine if the following identifiers are valid or not and why?

   a. **R2d2**   valid
   b. **H2O**   valid
   c. **secondCousinonceRemoved**   valid
   d. **2nBirthday**   not valid starts with a digit
   e. **the_united_states_of_America**   valid
   f. **_Time_**   not valid must start with an alphabet
   g. **_12345**   not valid must start with an alphabet
   h. **x(3)**   not valid parentheses are not allowed
   i. **cost_in_$**   not valid $ is not allowed

4- Form a logical expression for each of the following:

   a) Variable score is more than or equal 80 and less than or equal 90.

   b) Variable answer is equal to 'Y' or 'y'

   c) Variable x is an even integer and not equal to 8

   d) Variable ch is an upper case character

   e) Variable ch is a digit 0-9

   Answers:

   a) (score>=80)&&(score<90)
   b) (answer = 'N')||(answer = 'n')
   c) (n%2==0)&&(n!=8)
   d) (n>='A')&&(n<='Z')
   e) (n>='0')&&(n<='9')

5- Determine what is wrong in the following code:

```
if (x==0)
   if (y==0)    cout<<"x and y are both zero.\n";
else   cout<<"x is not zero.\n" ;
```

6- Write a C++ statement that prints "too many" if an integer score is greater than 100

if (score>100) cout<<"too many";

cout<<(score>100?"too many");

7- Determine the error in the following:

a) if (x=0)

    cout <<x<<"=0\n";

      else cout <<x<<"!=0\n";

b) if (x < y < z) cout << x << "<" << y << "<" << z << endl;

c) cin<<count

  if x<y

    min=x

   else min=y;

d) cout<<"Enter n:";

  cin>>n;

  if (n<0) cout <<"That is negative. Try again.\n";

  cin>>n;

  else

  cout<<"O.K. n="<<n<<endl;

8- What is the difference between?

if (n>2) {   if (n<6) cout <<"OK";   } else cout<<"NG";

if (n>2) {   if (n<6) cout <<"OK";   else cout<<"NG";   }

9- Determine if the following is right or wrong:

a) !p||!q is the same as !(p||q)   wrong

  !p||!q = !(p&&q)   !p&&!q = !(p||q)

b) !p is the same as !!!p   right

c) P&&(q||r) is the same as p&&q||r

Group B

1- Write a C++ program to read a students' score in Statistics and print if he is successful or failing.

2- Write a C++ program to calculate and print out the almsgiving on an amount of money only if it is more than or equal 10000.

3- Write a C++ program to enter an integer and determine if it is positive, negative or zero.

4- Write a C++ program to enter two integers and an operation to be executed on them and calculate the result. Use switch – case.

5- Write a C++ program to read the user's age and print a message "you are a child" if age is less than 18, "you are an adult" if age is more than or equal 18 and less than 65 or "you are a senior citizen" if age is more than or equal 65.

6- Write a C++ program to read a character and print a message "it is a vowel" if character is one of (a,e,i,o,u), "it is an operator" if character is (+,-,*,/) or "it is something else" if any other character. Use if – else, then use switch – case.

7- Write a C++ program to read two integer values and use the conditional expression (?) to find and print out if one of them is a 'multiple' or 'not multiple' of the other.

8- Write a C++ program to read 4 integer values and print out them in reverse order.

9- Write a C++ program to read 4 integers ,find and print the maximum and the minimum.

10-   Write a C++ program to find and print out the solutions of a quadratic equation in one variable. $ax^2 + bx + c = 0$

11-   Write a C++ program to count the characters, numeric and spaces in a written paragraph.

12-   Write a C++ program to enter the income in US Dollars, calculate and print out the income taxes according to the following table:

income	Tax value
0<income<=15000	7.5% of the income
15000<income<=30000	10% of the income
30000<income<=55000	15% of the income
income>55000	20% of the income