KING SAUD UNIVERSITY
COLLEGE OF APPLIED STUDIES AND COMMUNITY SERVICE
CSC 1101
Tutorial (3)

Q1.Where possible, write equivalents for the following equations using C++ statements:

1. $3a + 4yx - 6$

2. $\frac{3a}{b+4}$

3. $\frac{a+b+c}{3}$

Q2. Suppose a, b, sum are integer variables and c is a double variable; and a=3 and b=5 and c=14.1. What value is assigned to each variable after each statement executes?

1. sum = a+(int) c* 2 ;

2. sum= b/2+a*2;

3. c= b/2+a*2;

4. sum=a*++b/2;

5. sum= b++ - ++a;

6. sum= b%3+ (int)c;

Q3. State the order of evaluation of the operators in each of the following C++ statements and show the value of x after each statement is performed

- x = (3 * 9 * (3 + (9 * 3 / (1+2))));
- x = (3 * 9 * (3 + 9 * 3 / (1+2)));
- x = 3 * 9 * 3 + 9 * 3 / (1+2) ;
- x = 3 * 9 * 3 + 9 * 3 / 1+2;

Q4. what is the output of the following c++ code lines:
a.

```
#include <iostream>
 #include <iomanip>
 using namespace std;

 int main() {
 int  z, m, n;
 cout<<"Enter two integers";
 cin>>m>>n; //assume the user entered 12 & 14 respectively
 m /=4;
 n=(n-7)/7*10-3;
 z=n%4;
 cout<<"m = " ;
 cout.width(7);
```

```
   cout.fill('@');
   cout<<m<<"   ";
   cout.precision (3);
   cout << showpoint <<"n= "<<n<<"   ";
   cout <<"z= "<<z<<endl;

   return 0;
}
```

b.

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

   int main() {
   int  n1,n2;
   float average;
   cout<<"Enter first number";
   cin>>n1;   //assume the user entered 10
   cout<<"Enter second number";
   cin>>n2;   //assume the user entered 13
   average=(n1 + n2)/2;
   cout<<"the average grade is "<< average <<endl;
   return 0;
}
```

Q5. Where possible, write equivalents for the following statements using compound assignment operators:

- r = r / 10; ➔
- z = z * x + 1; ➔
- q = q + r * m; ➔

Q7. Assume the following:

int j = 6; int k = 10; int n; bool b = false;

Give the value that is assigned, or illegal.

a) _____ n = k++;

b) _____ n = (k++);

c) _____ n = ++k;

d) _____ n = 7++;

e) _____ n = k++ + ++j;

f) _____ __ n = k+++++j;

g) _____ n = k = j = 5;

h) _____ n = k = (j = 5);

i) _____ n = (k = j) = 5;

j) _____ 3 = 4;

k) _____ n = k; n += 1;

2.12 What, if anything, prints when each of the following C++ statements is performed? If nothing prints, then answer "nothing." Assume x = 2 and y = 3.

a) `cout << x;`
b) `cout << x + x;`
c) `cout << "x=";`
d) `cout << "x = " << x;`
e) `cout << x + y << " = " << y + x;`
f) `z = x + y;`
g) `cin >> x >> y;`
h) `// cout << "x + y = " << x + y;`
i) `cout << "\n";`

2.14 Given the algebraic equation $y = ax^3 + 7$, which of the following, if any, are correct C++ statements for this equation?

a) `y = a * x * x * x + 7;`
b) `y = a * x * x * ( x + 7 );`
c) `y = ( a * x ) * x * ( x + 7 );`
d) `y = (a * x) * x * x + 7;`
e) `y = a * ( x * x * x ) + 7;`
f) `y = a * x * ( x * x + 7 );`

4.2 Write four different C++ statements that each add 1 to integer variable x.

4.6 State the values of *each* of these `int` variables after the calculation is performed. Assume that, when each statement begins executing, all variables have the integer value 5.

a) `product *= x++;`
b) `quotient /= ++x;`

4.31 What's wrong with the following statement? Provide the correct statement to accomplish what the programmer was probably trying to do.

```
cout << ++( x + y );
```

5.17 *(What Prints?)* Assume i = 1, j = 2, k = 3 and m = 2. What does each statement print?

a) `cout << ( i == 1 ) << endl;`
b) `cout << ( j == 3 ) << endl;`
c) `cout << ( i >= 1 && j < 4 ) << endl;`
d) `cout << ( m <= 99 && k < m ) << endl;`
e) `cout << ( j >= i || k == m ) << endl;`
f) `cout << ( k + m < j || 3 - j >= k ) << endl;`
g) `cout << ( !m ) << endl;`
h) `cout << ( !( j - m ) ) << endl;`
i) `cout << ( !( k > m ) ) << endl;`

Important Note:

Common Programming Error 5.10

Although 3 < x < 7 is a mathematically correct condition, it does not evaluate as you might expect in C++. Use (3 < x && x < 7) to get the proper evaluation in C++.