

Exam 1 - Review Questions

Exam is on Wednesday 3 – 10 - 2021

Please Note that :

- **You must take the exam. No excuses will be accepted. I will not give a makeup exam regardless of the reason and a grade of zero will be assigned.**
- **You must log in with your net ID.**
- **You must have the camera on until you are done with your exam.**
- **Must leave the zoon session as soon as you are done with the exam.**
- **Exam is open notes only. You are not allowed to use any other resources such as the internet or Code::Blocks or any other IDE.**
- **Questions are given thru Canvas. You must answer the questions and submit your solution thru Canvas as well.**
- **Questions are shuffled and you will not be able to go back to your answered questions.**
- **Questions are T/F , multiple choice , conceptual and writing programs**
- **You will get a zero if any of the above was violated.**

Note : I will not post the solutions. We will go over the solutions on Monday.

Answer the following :

1) If a is 5, b is 10, c is 15 and d is 0 then what are the truth values of the following expressions?

- (a) $c == a+b$
- (b) $a != 7$
- (c) $b <= a$
- (d) $a > 5$
- (e) $a+d >= c-b$
- (f) $d/a < c*b$

2) Construct a logical expression to represent the following condition

Weight is greater than 168 but less than or equal 189

3) Assume that $\text{int } x = 10;$ $\text{int } y = 20;$
indicate the order of evaluation for the following expression

$\text{int } z = (x + y) * (x - y) / (2 * y) \% y;$

and show the final value of the variable z

4) Assume that $\text{int } x = 10;$ $\text{int } y = 5;$ what is the final value of the variable x.

```
x++;  
x -= 10;  
x *= 5;
```

5) Is the following expression a valid expression. (Yes or No) .
If it is a valid expression evaluate the expression. If it is not, explain why ?

`(5 != 4) && (((3 > 5) || (10 <= 10)) && true)`

6) Which of the following tests **could** “crash”? Why or why not?

```
if ( (x == 0) && (1/x > 2))  
    cout << “Reciprocal of x is bigger than 2” << endl;
```

```
if ( (x > 0) || (sqrt(x) < 9))  
    cout << “x is between 0 and 3” << endl;
```

7) Suppose we want to store the value 1.5 into a double variable d.
Which of the following would **not** work?

- a. `d = 3.0/2;`
- b. `d = 1.5;`
- c. `d = 3/2;`
- d. `d = 1 + 0.5;`
- e. all of the above will work

8) Assuming that i is some integer, what is the difference between:

```
if ( (i % 2) == 0)
    cout << "i is an even number " << endl;
    cout << "i is an odd number " << endl;
```

```
if ( (i % 2) == 0)
    cout << "i is an even number " << endl;
else
    cout << "i is an odd number " << endl;
```

9) Convert the following code into a switch structure.

Make the switch structure as short as possible (do not repeat code).

```
if (i == 3 || i == 5)
    {
        n++;
        tryagain = 0;    }
else if (i == 4 || i == 10)
    {
        n = 5;    }
else if (i == 6)
    {
        n = 6;    }
else {
    n = 0;
    tryagain = 1;    }
```

10) Write an `if` statement that will give 5 extra credit points to students who answer Question A correctly, and 10 extra points if they answer Question A and Question B correctly. Name the variable `intBonus`.

11) Correct the logical error of the following code if there is a logical error. Show the output

```
int i = 0;
int sum = 0;
for ( ; i < 4 ; ) {
    if (i = 0) {
        i++;
        cout << "\n" << sum << "\n";
        continue;
    }
    sum += i;
    i++;
    cout << "\n" << sum << "\n";
}

cout << "\n\n" << sum << "\n\n";
```

- 12) Convert the following nested for loops to its equivalent nested while loops and nested do .. while loops. What is the output of the following code :

```
for ( int x = 0 ; x < 3 ; x++ ) {  
    for ( int j = 0 ; j < 20 ; j++ ) {  
        cout << "*";  
        if ( j == 10 )  
            break;  
    }  
    cout << endl;  
}
```

- 13) Convert the following nested for loops to its equivalent nested while loops and nested do .. while loops

```
for(int i=1;i<=7;i++){  
    for(int j=7-i;j>=1;--j) cout<<"1";  
    cout<<"\n";  
}
```

- 14) Write a C++ Program that prompts a user to enter a character from the keyboard . The program checks and displays on the screen Whether a character is **Vowel** or **Consonant**.

- 15) Write a for loop that will display all the odd numbers between 1 thru 50 exclusive .