Q1

1. The result of a logical expression cannot be assigned to an int variable. (**false**)
2. In a one-way selection, if a semicolon is placed after the expression in an if statement as if (score >= 60);, the expression in the if statements is always true (**true**)
3. Every if statement must have a corresponding else. (**false**)
4. The expression in the if statement: always evaluates to true (**true**)
5. The expression: **(ch >= 'A' && ch <= 'Z')** evaluates to false if either **ch < 'A'** or **ch >= 'Z'** (**false**)
6. suppose the input is **5.** The output of the code is: Num is Zero (**false**)
7. The expression **!(x > 0)** is true only if x is a negative number (**true**)
8. In C++, both **!** And **!=** are logical operators (**false**)
9. The execution of a break statement in a switch statement immediately exits the switch structure (**true**)
10. The expression in a switch statement should evaluate to a value of the simple data type (**true**)

Q2

- Evaluate the following expressions:

```
a. 5 + 6 == 3 + 7 // false
b. 2 * 6 – 4 >= 9 – 1 // true
c. 'U' >= 't' // false
d. 'A' <= 'a' // true
e. '#' <= '+' // true
f. 6.28 / 3 < 3 – 1.2 // false
```

- Suppose that x, y and z are int variables, and **x = 10, y = 15**, and **z = 20.** Determine whether the following expressions evaluates to true or false.

```
a. !(x > 10) // true
b. x <= 5 || y < 15 // true
c. (x != 5) && (y != z) // true
d. x >= z || (x + y >= z) // true
e. (x <= y – 2) && (y >= z) || (z –
2 != 20) // true
```

- Suppose that **x, y, z** and **w** are int variables and **x = 3, y = 4, z = 7,** and **w = 1**. what is the output fo the following stataements?

```
cout << "x == y: " << (x == y) << endl; // x == y: false
cout << "x != z: " << (x != z) << endl; // x != z: true
cout << "y == z – 3: " << (y == z – 3); //  y == z - 3: true
cout << "!(z > w): " << !(z > w) << endl; // !(z > w): false
cout << "x + y < z: " << (x + y < z) << endl; // x + y < z: false
```

- Which of the following are relational operators?

  a) <
  b) <=
  c) =
  d) =!
  e) <>

  Answer: b, d

- Which of the following are logical (Boolean) operators?
  a) !
  b) !=
  c) $$

  Answer: a

- Correct the following code so that it prints the correct message:

```
If (score >= 60)
cout << "You pass." << endl;
else;
cout << "You fail." << endl;
```

  Answer:

```
if (score >= 60)
cout << "You pass." << endl;
else
cout << "You fail." << endl;
```

- Write a C++ statement that output Male if the gender is ‘M’, Femal if the gender is ‘F’ and invalid gender otherwise

  Answer:

```
char gender = 'M';
switch (gender){
        case 'M': {
                cout << "Male" << endl;
                } break;
        case 'F': {
                cout << "Female" << endl;
                } break;
        default: {
                cout << "Invalid" << endl;
                } break;
        }
```

- What is the output of the following program ?