**C Programming - Laboratory Exam 1: Operators and Expressions**

**Part 1: Operator Identification (15 points)**

**A. Classify the following operators by writing their correct class (Arithmetic, Relational, Logical, or Assignment) in the space provided.**

1. + : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. = : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. > : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. && : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \* : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. || : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. != : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. -= : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. <= : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. Arithmetic
   2. Assignment
   3. Relational
   4. Logical
   5. Arithmetic
   6. Logical
   7. Relational
   8. Assignment
   9. Relational

**B. For the following scenarios, choose the most appropriate operator (**&&**,**||**,**!**) to complete the logical condition.**

1. You can log in to a system **if** the username is correct **AND** the password is correct.  
   Operator: \_\_\_\_\_\_\_\_
2. You can get a student discount **if** you are a student **OR** you are under 18 years old.  
   Operator: \_\_\_\_\_\_\_\_
3. A door will open **if** it is **NOT** locked.  
   Operator: \_\_\_\_\_\_\_\_

**Part 2: Expression Evaluation (25 points)**

**Evaluate the following expressions step-by-step. Show your work and write the final result. Assume the following variable values:**  
int a = 10, b = 5, c = 2;  
int result;

1. result = a + b \* c;
   * **Work:**
   * **Final Result:** result = \_\_\_\_\_\_
2. result = (a + b) % c;
   * **Work:**
   * **Final Result:** result = \_\_\_\_\_\_
3. result = a / c + b;
   * **Work:**
   * **Final Result:** result = \_\_\_\_\_\_
4. result = a > b && b < c;
   * **Work:** (First, evaluate a > b. Then, evaluate b < c. Finally, apply &&).
   * **Final Result:** result = \_\_\_\_\_\_ (Write 1 for True, 0 for False)
5. result = !(a == b) || (c <= b);
   * **Work:**
   * **Final Result:** result = \_\_\_\_\_\_ (Write 1 for True, 0 for False)