

Homework 4: Operators and Expressions

Q1. TRUE/FALSE STATEMENTS

1. The sequence $x+5$ is an expression but not $x=5$.
2. A function cannot be treated as an expression even if it returns a value.
3. The sequence $5;$ is a valid statement in C.
4. For an expression to be evaluated using floating-point arithmetic, at least one operand must be of the floating point type.
5. For evaluating the expression $5 * 10 - 12$, both precedence and associativity of the operators need to be considered.
6. Associativity is invoked when two operators in an expression have the same precedence.
7. The constants 'Z' and 30000 take up the same amount of storage.
8. The expressions $15/9$ and $15.0/9$ have different values.
9. The operand of sizeof must always be enclosed within parentheses.
10. The parentheses in $\text{sizeof}(\text{int})$ are optional.
11. The - in -5 has the same priority as the - in the expression $4-3$.
12. The value of the expression $2,3,x=5$ is 5.

Q2. FILL IN THE BLANKS

1. The * and / represent binary operators but ++ is a ____ operator.
2. The expression $x=10$ has the value ____.
3. The order of evaluation of an expression is determined by the ____ and ____ of the operators.
4. The printf function not only returns a value but also has a ____ ____.
5. In an expression, the char and short operands are converted to ____.
6. A relational expression returns either a ____ or ____ value.
7. The expression $k += 1$ is the same as ____ and ____.
8. The != operator negates the ____ operator.
9. The ?: represents the only ____ operator in C.
10. For $\text{int arr}[20]$, the expression $\text{sizeof arr}/\text{sizeof}(\text{int})$ evaluates to ____.

Q3. MULTIPLE-CHOICE QUESTIONS

- The expressions $x++$ and $++x$ can be used interchangeably
(A) always (B) never (C) sometimes
- If $x = 3$, the statement `printf("%d %d %d", ++X, ++X, X--);` displays
(A) 4 4 3 (B) 4 5 4
(C) 4 5 5 (D) undefined value.
- If x has the value 5, the expression $x > 5$ has the value
(A) 5 (B) 0 (C) 1 (D) no value.
- The expression $7.5 \% 5$ evaluates to
(A) 2 (B) 2.5
(C) an illegal operation (D) an implementation-dependent value.
- For evaluating the expression $x * y - a / b$,
(A) multiplication will be done first (B) division will be done first
(C) subtraction will be done first (D) subtraction will be done last.
- The expression $1.1 * 55L + 2 / 0.75F$ has the data type
(A) double (B) long double
(C) long (D) float.
- The expression `printf("Hello\n")` has the value
(A) 0 (B) 6 (C) 5 (D) 7.
- The expression $2/5 + 5/2$ has the value
(A) 2.5 (B) 2.9 (C) 0 (D) none of these.
- The statement `if(X = 5)`
(A) doesn't cause a compilation error (B) assigns 5 to x
(C) doesn't cause a runtime error (D) all of these (E) none of these.
- The expression $5 ? 6 : 7$ evaluates to
(A) 6 (B) 7 (C) 1 (D) 0.

Q 4. MATCH THE OPERATORS WITH THEIR TYPES:

(A) += (B) % (C) && (D) <= (E) -

(1) relational (2) assignment (3) decrement (4) logical (5) arithmetic.