

Homework 5: Control Structures-Decision Making

Q 1. TRUE/FALSE STATEMENTS

1. A decision-making construct disturbs the sequential flow of a program.
2. The statement **if (1)** is not a valid C construct.
3. An **if** statement need not have an **else** clause.
4. The control expression of the **if** statement cannot be a function.
5. Every **if** construct can be replaced with **switch**.
6. A variable declared inside a control block is not visible outside the block.
7. Two floating point numbers may not compare equal even if they appear to be so.
8. It doesn't matter whether you use **return 0;** or **return 1;** to terminate a program.
9. Multiple **case** options in **switch** can have a single **break**.
10. The keyword **default** must be used as the last option of a **switch** construct.

Q 2. FILL IN THE BLANKS

1. The sequence $(x > 3)$ in `if (x > 3)` is known as a _____.
2. A compound statement must be enclosed by _____.
3. A solitary `;` placed on a line signifies a _____ statement.
4. The _____ keyword prevents control from falling through in a switch construct.
5. The expression marched by switch must evaluate to an _____ value.
6. The _____ statement doesn't return to the place from where it was executed.
7. A conditional expression comprises a _____ operator that uses the symbols _____ and _____.

Q 3. MULTIPLE-CHOICE QUESTIONS

1. Of the two operators, `&&` and `||`, the `&&` has a
(A) higher priority (B) lower priority (C) same priority.
2. Use of curly braces (`{ }`) for enclosing the body of the `if` statement is
(A) optional (B) recommended (C) compulsory when executing at least two statements (D) compulsory in a nested or ladder `if` structure (E) C and D.
3. Consider the following code:

```
int x = 5;
if (x++ == 10)
    x=0;
```

```
else
    ++x;
```

The final value of x is

1. 5 (B) 6 (C) 7 (D) implementation-dependent.

4. Consider the following code:

```
int x = 5;
if (x = 6)
    x = 0;
else
    x = 10;
```

The value of x is

(A) 10 (B) 0 (C) 5 (D) 6.

5. Select the odd operator out:

(A) && (B) || (C) != (D) !.

6. Consider the following code:

```
int x = 5;
x = x == 5 ? 1 : 10;
```

The value of x is

(A) 1 (B) 5 (C) 10 (D) implementation-dependent.

Q 4. Write a program using **if** that accepts a user-input floating point number and prints

- (i) the largest integer that is smaller than the number.
- (ii) the smallest integer that is greater than the number.

Q 5. A power utility charges the following rates:

Units	Rate/Unit
First 25 units	Rs 4.89
Next 35 units	Rs 5.40
Next 40 units	Rs 6.41
Beyond 100 units	Rs 7.18

write a program that accepts the number of units consumed and prints the total charges payable.

Q 6. Write a program using **switch** that accepts an integer between 1 and 7 and prints whether the number represents a weekend (Saturday or Sunday) or not (Sunday = 1).

Q 7. Write a program using **switch** that checks a user-input integer representing the month number and prints the number of days in that month. The program must combine multiple case options wherever possible.