

Homework 6

Q. 1. True/ False Statements

1. The **while** and **for** loops may not be entered at all.
2. Every loop is designed to eventually terminate.
3. All control expressions that work with **if** will also work with **while**.
4. Every **for** loop can be replaced with a **do-while** loop.
5. All three components of the control expression of a **for** loop are evaluated at the beginning of every iteration.
6. Every **while** loop can be replaced with a **for** loop.
7. The presence of all three components, exp1, exp2 and exp3, in the control expression of a **for** loop is mandatory.
8. In a nested loop structure, the outer loop has a one-to-many relationship with the inner loop.

Q. 2. Fill in the Blanks

1. The _____ keyword inside a loop terminates the loop, while the _____ keyword resumes the next iteration.
2. **while** and **for** are _____ loops but **do-while** is an _____ loop.
3. The statements **while (1)** and **for (;)** signify an _____ loop.
4. The statement **for (; scanf("%d", &x) == 1;)** will run an infinite loop as long as the input to **scanf** is an _____.
5. A _____ statement in the inner loop of a nested loop will terminate the program.

Q. 3. Multiple Choice Questions

1. Pick the odd item out: (A) if-else, (B) while, (C) for, (D) do-while.
2. A loop terminates when the control expression evaluates to (A) true, (B) false, (C) 0, (D) B and C.
3. If $x = 0$, the construct **while (x++ < 5)** will execute (A) 0 times, (B) once, (C) 4 times, (D) 5 times.
4. If $x = 0$, the construct **while (++x < 1)** will execute (A) 0 times, (B) once, (C) 4 times, (D) 5 times.
5. In the following code segment, how many times is the **for** loop executed?
for (i = prod = 0; (prod = i * i <= 25); i++)
 printf("hello\n");
(A) 4, (B) 5, (C) 6, (D) infinite.
6. For a nested loop, a **break** in the innermost loop (A) terminates the program, (B) terminates the innermost loop, (C) terminates all loops, (D) none of these.

Q. 4. Programming Assignments

1. Write a program that takes decimal integer as a input from user and display its binary equivalent.
2. Write a program to print multiplication table from 2 to 12 using nested **While loop**. (Provide rows and columns using # **define primitive**.)
3. Write a program to reverse digits of an integer and print the sum of its digits.