C Programming Practice

Choose one answer per question. Circle A, B, C, or D.

1. Which C17 standard header supplies the names bool and true in the declaration bool active = true?
   A. <stdbool.h>
   B. <stddef.h>
   C. <stdint.h>
   D. <limits.h>

2. Which declaration creates an int named limit that can be read but cannot be assigned a new value through its name?
   A. static int limit = 12;
   B. int limit = 12;
   C. const int limit = 12;
   D. unsigned int limit = 12;

3. What type does the ordinary C17 character constant 'Q' have?
   A. char
   B. int
   C. unsigned char
   D. double

4. What value does the C expression (3 < 5) + (6 == 6) produce?
   A. 11
   B. 1
   C. 0
   D. 2

5. A C snippet starts with int choice = 0. It then runs if (-2) choice = 4; else choice = 8; What is the resulting value of choice?
   A. 8
   B. 4
   C. 0
   D. -2

6. After the statements int n = 4; int written = n++; what are the values of written and n, in that order?

A. 4 and 5
B. 5 and 5
C. 5 and 4
D. 4 and 4

7. The int variables count and allowed both start at 0. The program evaluates int result = allowed && ++count. What are the resulting values of result and count?

A. 1 and 1
B. 0 and 1
C. 1 and 0
D. 0 and 0

8. What is total after int total = 0; for (int n = 12; n > 0; n /= 2) { total += n; }?

A. 24
B. 21
C. 22
D. 18

9. The int score starts at 0. The program runs switch (2) { case 1: score += 1; break; case 2: score += 2; case 3: score += 4; break; default: score = 8; }. What is score afterward?

A. 6
B. 2
C. 4
D. 8

10. In C17, what are all five elements of the array declared by int counts[5] = {7, 3}?

A. [0, 0, 0, 7, 3]
B. [7, 3, 7, 3, 7]
C. [7, 3, 1, 1, 1]
D. [7, 3, 0, 0, 0]

11. In the same block as int values[6] = {2, 4, 6, 8, 10, 12}, what is the value of sizeof values / sizeof values[0]?

A. 12
B. 3
C. 6
D. 24

12. The function int addThree(int value) { value += 3; return value; } is called as int result = addThree(a), where a is an int set to 4. What are a and result afterward?

A. 7 and 7
B. 4 and 7
C. 4 and 4
D. 7 and 4

13. Given struct Grid { int rows; int columns; }, the program declares struct Grid grid = {.columns = 3, .rows = 4}. What are grid.rows and grid.columns, in that order?

A. 4 and 0
B. 3 and 4
C. 0 and 3
D. 4 and 3

14. A struct Point has int members row and col. The program creates struct Point first = {2, 6} and struct Point next = first, then sets next.col = 3. What are first.col and next.col afterward?

A. 6 and 3
B. 3 and 3
C. 6 and 6
D. 3 and 6

15. A struct Pair holds ints left and right. The function advance(struct Pair p, int step) adds step to p.left, adds the updated p.left to p.right, and returns p. A struct Pair value starts at (2, 1). A loop replaces it with advance's result first for step 1, then for step 2. What final pair does it hold?

A. (5, 8)
B. (3, 4)
C. (5, 9)
D. (2, 1)