AP Computer Science A Practice Quiz

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

1. The Counter class has a private int field named count and a public instance method int readCount() that returns count. From a separate top-level class, which expression reads the value for an existing Counter named counter?

A. counter.readCount()
B. counter.count
C. counter.readCount(1)
D. counter.readCount

2. A method use(int amount) requires amount to be between 0 and remaining, inclusive. A valid call subtracts amount from remaining. If remaining starts at 6, which call follows the contract and leaves exactly 2?

A. use(7)
B. use(2)
C. use(4)
D. use(-2)

3. A Jar starts with start + 1 items when constructed as new Jar(start). Its add(n) method adds n items, and count() returns the current count. Given Jar a = new Jar(2); Jar b = new Jar(4); a.add(b.count() - 1); what are the counts for a and b, in that order?

A. 7 and 9
B. 7 and 5
C. 6 and 5
D. 3 and 5

4. The Token class has a static int created that starts at 0 and an instance field points. Its constructor sets the new token's points and increments created. A program creates a token a with 4 points, then creates a second token with 7 points. It calls a.use(), which subtracts 1 from a's points. What are created and a's points now?

A. 2 and 6
B. 1 and 3
C. 2 and 4
D. 2 and 3

5. A meter starts at 6. Each call to meter.next() returns its current value and then advances the stored value by 2 before the call ends. What value does 2 * meter.next() + meter.next() produce?

A. 22
B. 20
C. 18
D. 24

6. Given int[] weights = {2, 4, 7}; the program runs for (int weight : weights) { weight += 1; }. What is the sum of the three elements stored in weights afterward?

A. 13
B. 16
C. 14
D. 10

7. Given int[] values = {1, 2, 3, 4}; the program runs int end = values[3]; for (int i = 3; i > 0; i--) { values[i] = values[i - 1]; }. It then assigns values[0] = end. What does values contain afterward?

A. [1, 1, 2, 3]
B. [2, 3, 4, 1]
C. [4, 1, 1, 1]
D. [4, 1, 2, 3]

8. An ArrayList<String> named labels contains [sun, rain, fog]. The program calls labels.add(1, "wind") and then labels.set(2, "snow"). What is the final list?

A. [sun, wind, snow, rain, fog]
B. [sun, wind, snow]
C. [sun, wind, snow, fog]
D. [sun, snow, rain, fog]

9. An ArrayList<Integer> named values starts as [3, 5, 2, 9]. The program runs int total = 0; while (values.size() > 2) { total += values.remove(1); }. What are total and values afterward?

A. 7 and [3, 9]
B. 14 and [3, 2]
C. 2 and [3, 9]
D. 8 and [2, 9]

10. Given int[][] table = {{3, 1, 4}, {1, 5, 9}}; the program runs int total = 0; for (int row = 0; row < table.length; row++) { total += table[row][1]; }. What is total afterward?

A. 23
B. 4
C. 13
D. 6

11. Given int[][] tags = {{2, 4, 6}, {1, 3, 5}}; an outer loop visits columns from left to right. For each column, an inner loop visits both rows from top to bottom. Starting with int code = 0, each visit runs code = 10 * code + tags[row][col]. What is the final value?

A. 123456
B. 246135
C. 214365
D. 246

12. An ascending selection sort makes each pass by swapping the smallest element of the unsorted suffix into that suffix's first slot. Starting with [7, 5, 2, 9, 3], what does the array contain immediately after two passes?

A. [2, 3, 5, 7, 9]
B. [2, 3, 7, 9, 5]
C. [2, 3, 5, 9, 7]
D. [2, 5, 7, 9, 3]

13. What does total(6) return for this Java method? int total(int n) { if (n <= 1) { return n; } return n + total(n - 2); }

A. 13
B. 21
C. 10
D. 12

14. A Shelf starts with private int[] counts = {1, 3}. Its move(int amount) method returns false immediately if amount <= 0 || counts[0] < amount. Otherwise it subtracts amount from counts[0], adds it to counts[1], and returns true. After calls to move(2) and then move(1), what were the two returns and what does counts contain?

A. false, true, with [0, 4]
B. false, false, with [1, 3]
C. true, false, with [-1, 5]
D. false, true, with [0, 3]

15. A rectangular int[][] grid starts as [[1, 0, 0, 1], [0, 1, 0, 0]]. For each row r, the inner loop runs for (int c = grid[r].length - 1; c >= 1; c--) { if (grid[r][c - 1] == 1) { grid[r][c] = 1; } }. What does grid contain afterward?

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