

Q41: Solutions Page:

Below are the answers and explanations for the CLAD Sample Exam. To quickly check your answers, record them on the Answer Sheet, detach the Answer Sheet, and compare it, side-by-side, with the Solutions Page. This Solutions Page is not included in the actual CLAD exam; it is included here for practice purposes only.

1. Correct Answer: C

Topic: Event Structures

Justification: It is the only case with a filter event that applies to the Panel Close event. Since no Boolean is wired into the Filter Event terminal, LabVIEW opens a dialogue box to collect the value of the Boolean input.

2. Correct Answer: C

Topic: Event Structures

Justification: The requirements have no timeout action specified. Answer C is best practice, but is not required to accomplish the stated goal.

3. Correct Answer: C

Topic: Loops

Justification: An empty array is wired to the For Loop using an auto-indexing tunnel. This causes the For Loop to iterate once for every element in the array, which, in this case, is zero. However, the value 5 is written to the shift register before loop execution, and since the loop iterates zero times, the same value of 5 is present at the output shift register.

4. Correct Answer: B

Topic: Error Handling

Justification: The Merge Errors VI only passes on the first error encountered, counting from the top node down.

5. Correct Answer: D

Topic: General Programming Functions

Justification: A and B are wrong because they do not strip the current VI filename from the path. C would work on Windows, but not other platforms, due to the different path separator. D is the only answer that correctly generates the path *and* will work on multiple platforms, since path separators in the path data type are automatically converted on different platforms.

6. Correct Answer: C

Topic: Loops

Justification: The While Loop has a FALSE Boolean wired to its conditional terminal, which is set to Stop if TRUE. Thus, there is no condition that causes this While Loop to stop. So, the While Loop could run infinitely and the VI must be aborted.

7. Correct Answer: A

Topic: Loops

Justification: For Loops can run zero times, and using a shift register is the recommended way to preserve pass-through data in this scenario.

8. Correct Answer: B

Topic: Data communication and synchronization

Justification: The shift register value will be 5 on the second call. $5 + 5 = 10$.

9. Correct Answer: B

Topic: General Programming Functions

Justification: TDMS read/write is limited to a specific subset of LabVIEW data types. For example, it cannot read or write multidimensional arrays or arrays of timestamps. See the LabVIEW help for details.

10. Correct Answer: B
Topic: Design Patterns
Justification: Textbook use of queue in Producer Consumer.
11. Correct Answer: B
Topic: General Programming Functions
Justification: Answer B is the difference between charts and graphs.
12. Correct Answer: B
Topic: Loops
Justification: In three loops only zeros will pass from the register, but the iteration will count 0, then 1 & then 2. Therefore the output from the addition function will be $0+2=2$.
13. Correct Answer: B
Topic: Event Structures.
Justification: The events queue up, so if it were not for the TRUE wired to the loop condition, the answer would be 2. However, the loop ends before we can process the second event that is still in the queue.
14. Correct Answer: B
Topic: Error Handling
JUSTIFICATION: Merge Errors outputs the first error it finds in the errors clusters wired into it in a top-down fashion. Error 7 is wired into the top input, so it is the error outputted by Merge Errors.
15. Correct Answer: B
Topic: General Programming Functions
Justification: The Tick Count (ms) is the only timer that rolls over to 0.
16. Correct Answer: B
Topic: SubVI Creation
Justification: Input Numeric and Input Array are constants, so they are internal to the SubVI and do not have input terminals.
17. Correct Answer: C
Topic: General Programming Functions
Justification: The Array Subset function takes an input array and returns a section of that array as specified, starting at the given index and continuing for a number of elements equal to length. Here, the index value 3 specifies the fourth element of the array, or 10. Since the specified length is value 4, an array of length 4 is returned as follows: {10, 8, 5, 7}.
18. Correct Answer: B
Topic: General Programming Functions
Justification: LabVIEW will not allow creation of an array of arrays -- There is no need to make an array of arrays since you can simply add dimensions to an existing array.
19. Correct Answer: A
Topic: Data Synchronization and Communication
Justification: Queues, notifiers, and local variables are all designed to transfer data. Wires can not pass data between parallel loops.
20. Correct Answer: A
Topic: Data Communication and Synchronization
Justification: The time out input terminal of the Dequeue Element function is in milliseconds, so with an input of 1, the Dequeue Element function will wait 1 millisecond to receive data.
21. Correct Answer: D
Topic: Data communication and synchronization

Justification: One reference is removed from memory, and the remaining elements are returned. It can be used to destroy the queue, but this is not an option in the question.

22. Correct Answer: B

Topic: Debugging tools

Justification: Clicking the Step Into button causes LabVIEW to open up the node or subVI. The Step Out button is used to return from a subVI to a main VI while single-stepping. There is no Step Through button. Step Over provides the functionality stated by the question, therefore this is the correct answer.

23. Correct Answer: B

Topic: Debugging tools

Justification: Stepping back, around, or above are not single step actions, stepping Over is the only correct choice.

24. Correct Answer: A

Topic: Case Structures

Justification: Arrays are not accepted by the case selector terminal because the case selector terminal requires a scalar value.

25. Correct Answer: D

Topic: Sequence Structures

Justification: Sequence Structures have no error terminals.

26. Correct Answer: A

Topic: LabVIEW Programming Principles

Justification: Because LabVIEW is a Dataflow language, we can trace the flow of data in the block diagram to see which operations execute first, second, and so forth.

27. Correct Answer: D

Topic: LabVIEW Environment

Justification: You must either look at an output error cluster or an error dialog to find the error code.

28. Correct Answer: A

Topic: LabView Environment

Justification: The documentation window in VI Properties is the only place to edit the information about the VI that appears in Context Help.

29. Correct Answer: A

Topic: Data Types

Justification: The "element" input terminal contains the value each element of the initialized array will contain, and the "dimension size" input terminal dictates the size of each dimension of the initialized array. Since there is only one dimension size input terminal, the array will be only 1 dimensional. The array elements will be initialized to the value of the element.

30. Correct Answer: D

Topic: Data Types

Justification: LabVIEW represents arrays as a list of bytes containing a header and array data. The header contains a 4-byte integer for each dimension that specifies the length of that dimension. Following the header is the actual array data. In the question, the array has two dimensions. There are 4 bytes in the header for each dimension for a total of 8 bytes in the header. Since the array is composed of six 8-bit, or 1-byte integers, there is a total of 6 bytes of actual array data. This makes a total of 14 bytes being written to file.

31. Correct Answer: B

Topic: Data Types

Justification: The integers shown are unsigned 8-bit integers. The range for 8-bit integers is 0-255. The product of 2 times 128 is 256. As 256 is a number larger than the allowable 255, thus 256 wraps to 0.

32. Correct Answer: C

Topic: SubVI Creation

Justification: The subVI will have Error In/Out terminals as well as the three controls, for a total of 5 terminals.

33. Correct Answer: A

Topic: Data Types

Justification: Definition of Coercion Dot

34. Correct Answer: C

Topic: Data Types

Justification: Definition of Coercion Dots

35. Correct Answer: B

Topic: Data Types

Justification: Definition of Type Def

36. Correct Answer: A

Topic: Design Patterns

Justification: Definition of Shift Register

37. Correct Answer: A

Topic: Design Patterns

Justification: A is the only case that checks the data and leaves the timing state, and has persistent start time (stored in the shift register)

38. Correct Answer: B

Topic: VI Server

Justification: Definition of a property node.

39. Correct Answer: C

Topic: VI Server

Justification: The only answer option that can be passed from calling VI to subVI is the control reference. The reference can then be used with Property Nodes and Invoke Nodes to call properties and methods, respectively. The data type is a property of the control.

40. Correct Answer: B

Topic: VI Server

Justification: Strict property nodes require precise knowledge of the numeric representation. Since the question asks for the means to change the text color of any control, a strict Property Node does not suffice. An implicit Property Node (C), can only be used locally. Answer D shows a property that is not even relevant to the question. Thus, option B is the best answer.