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: LabVIEW help Filter events allow you to validate or change the event data before LabVIEW performs the default action associated with that event.

2.   Correct Answer: C
Topic: Event Structures
  Justification: The initialized register increments by one for each Trigger "value change" event when the Trigger new value is True and displays the new Count value after the event occurs.   A counts every value change, not just true.   B polls resulting in constant increments when the switch changes value to TRUE. D would count every value change if it had a shift register.

3.   Correct Answer: A
Topic: Loops
  Justification: The For Loop executes 4 times. Starting with the value of 1, the result of the previous iteration is multiplied by 2. Thus, the value in the indicator after 4 iterations is equivalent to 2x2x2x2, or 16.

4.   Correct Answer: A
Topic: Loops
  Justification: The iteration terminal is only a count of the iteration number and can not control how many loops occur.

5.   Correct Answer: A
Topic: Loops
  Justification: The iteration terminal in While Loops and For Loops always starts counting at zero. It returns 0 on the first iteration, 1 on the second iteration, etc. Since the While Loop is configured to stop when the output of the iteration terminal is greater than or equal to 50, we know that the iteration terminal must output a value of at least 50. The first time this happens is after 51 iterations.

6.   Correct Answer: D
Topic: Loops
  Justification: Uninitialized shift register retains value.

7.   Correct Answer: C
Topic: Loops
  Justification: Loop runs 1 time, use data flow to calculate the values.

8.   Correct Answer: B
Topic: Case Structures
  Justification: Dataflow and correct steps, track shift register and index to get answer.

9.   Correct Answer: A
Topic: Sequence Structures
  Justification: Dataflow and correct steps.

10.   Correct Answer: C
Topic: General Programming Functions
  Justification: The Wait (ms) function does nothing to release or allocate memory or specify processor core. All it does is cause the execution of a VI to pause for a short time to allow the processor time to complete other tasks.

11.   Correct Answer: C
Topic: General Programming Functions
  Justification: Since the mechanical action is set to Switch Until Released, two events are generated when a user clicks and releases. The first event is the FALSE to TRUE transition, and the second is the TRUE to FALSE transition. In addition, the conditional for the loop is set to Continue if True,   so the VI will complete execution after the Boolean is released and turns back to False.

12.   Correct Answer: C
Topic: General Programming Functions
  Justification: Polymorphic response, the addition only occurs if there are elements in each location, based on the index number.   The extra elements in on array are ignored.

13.   Correct Answer: B
Topic: General Programming Functions
  Justification: "access" input terminal on the Open/Create/Replace File function is set to "read-only", so file cannot be written to.

14.   Correct Answer: C
Topic: General Programming Functions
  Justification: Data Flow

15.   Correct Answer: C
Topic: General Programming Functions
  Justification: Use the index number of the outer loop to set the number of iterations of the inner loop, including zero.   For a zero number of iterations the inner shift register passes its value.

16.   Correct Answer: C
Topic: SubVI Creation
  Justification: By definition, control references are placed on the block diagram of the "calling" or existing VI.

17.   Correct Answer: A
Topic: Design Patterns
  Justification: A is an Enum and a Type Def, which are the requirements for the case selector inputs of a FGV.

18.   Correct Answer: C
Topic: Design Patterns
  Justification: An enum is not required to be the case selector of a state machine (but it is best practice).

19.   Correct Answer: B
Topic: Design Patterns
  Justification: This producer loop does not have an Events Structure, this producer consumer design pattern would be used for data handling.

20.   Correct Answer: C
Topic: Data communication and synchronization
  Justification: The front panel control is read by the property node, so changes to the control take effect in the For Loop.   The value to be displayed in the Numeric Indicator only depends on the final iteration, when the value of the numeric is read and incremented.

21.   Correct Answer: B
Topic: Data Communication and Synchronization
  Justification: Due to FIFO, and since i=4 is the fifth iteration of the loop, the fifth element in the queue will be read.   The queue is filled in order with element 1 and then element 2, then 3, repeatedly.

22.   Correct Answer: D
Topic: Data communication and synchronization
  Justification: The first loop never stops because False is wired to the conditional terminal.   Since the first loop never stops, the second loop can't start as it does not have all its inputs.

23.   Correct Answer: B
Topic: Data communication and synchronization
  Justification: The Send Notification function sends a message to all functions waiting on a notifier.   The notifiers are not buffered.

24.   Correct Answer: B
Topic: Debugging tools
  Justification: The single step debugging tools are used when execution is paused.

25.   Correct Answer: B
Topic: Debugging practices
  Justification: Step Out is not a single step command. Finish VI or Finish Block Diagram are both available in the SubVI depending on where the VI execution is paused.

26.   Correct Answer: D
Topic: Debugging tools
  Justification: Since the order of execution of the write to Output actions cannot be verified, it is not clear what value will result in Output.

27.   Correct Answer: A
Topic: LabVIEW Environment
  Justification: Definition of Latched in LabVIEW.   Can not be Latch when released, the question only describes the action of the button being pressed, not released.

28.   Correct Answer: B
Topic: LabVIEW Environment
  Justification: Since the display index value for columns is '2', that means there are two columns not show (4 elements), along with the 6 visible elements, this array has exactly 10 elements.

29.   Correct Answer: C
Topic: Data Types
  Justification: Data is coerced to the widest data type input to minimize loss of information.

30.   Correct Answer: D
Topic: Data Types
  Justification: Rounds towards positive value without changing the datatype.

31.   Correct Answer: D
Topic: Data Types
  Justification: String comparisons and searches in LabVIEW are case-sensitive and exact.

32.   Correct Answer: C
Topic: Data Types
  Justification: Graph 4 points , starting with index 1 (Drop the 0 index element). Values of points in order are: 3,6,9,12,15.

33.   Correct Answer: A
Topic: Data Types
  Justification: When constant is set to "\" codes display, "\s" is a space character, otherwise in normal display "\s" is literally \s.

34.   Correct Answer: C
Topic: Data Types
  Justification: The maximum positive number that a I8 can represent is 127.   When the sum of two I8 number is greater than 127, the answer wraps around to -128 .

35.   Correct Answer: D
Topic: Data types
  Justification: Because we are starting with an empty string, the output of the "Concatenate Strings" function is purely the concatenation of the iterations, displayed with two digit precision with no spaces and converted into text.   The loop runs 4 times (until i=3), so first time is 0.00, second time 1.00, etc.

36.   Correct Answer: D
Topic: Error Handling
  Justification: The Merge Errors VI does not display any dialog. The One Button Dialog function has no error input, and would therefore require additional coding.   The Generate Front Panel Activity function does not generate a dialog.   Therefore the Simple Error Handler is the best choice because it accepts an error cluster as an input and displays a dialog to the user in the event of an error.

37.   Correct Answer: c
Topic: Error Handling
  Justification: A has the logic in the wrong case. B will only clear errors, will not clear warnings. D will clear any error or warning with a code value of 2 or less (which includes negative codes). C is the only one that fulfills all the stated requirements.

38.   Correct Answer: D
Topic: VI server
  Justification: Race conditions exist because there is no coordination between the loops.

39.   Correct Answer: B
Topic: VI server
  Justification: An Application Reference allows the program to identify an application for an action, but by itself does not change anything.   Both the "user interface events" and "User events" require input from the user and additional code.   An invoke node has a native "renitialize all to default values" action, thus may be used to fulfill the requirements.

40.   Correct Answer: D
Topic: VI Server
  Justification: Drag a control into the front panel control refnum control to remove the original control and create a strictly typed control refnum. Strictly typed control refnums accept only control refnums of exactly the same data type.