KILL EXAMS

CLAD MCQs
CLAD TestPrep
CLAD Study Guide
CLAD Practice Test
CLAD Exam Questions

PASS

killexams.com

NI

CLAD

Certified LabVIEW Associate Developer (CLAD)

ORDER FULL VERSION

Question: 575

A LabVIEW application streams vibration data to a TDMS file at 500 Hz, with error handling for disk full conditions. The data must be grouped by axis (X, Y, Z). Which of the following steps ensure correct implementation?

A. Use TDMS Open File VI with axis grouping, storing the reference in a shift register
B. Use TDMS Write VI in a Timed Loop at 500 Hz, with error handling to stop on disk full errors
C. Use Write to Text File VI to stream data to a TDMS file, grouped by axis
D. Use TDMS Close File VI after the loop, with error wiring to ensure proper closure

Answer: A,B,D

Explanation: Streaming vibration data to a TDMS file requires the Open/Act/Close model with axis grouping. Using TDMS Open File VI with axis grouping sets up the file structure, with the reference in a shift register. Using TDMS Write VI in a Timed Loop at 500 Hz writes data at the required rate, with error handling to stop on disk full errors. Closing the file with TDMS Close File VI after the loop ensures proper cleanup with error handling. Using Write to Text File VI is incorrect, as it does not support TDMS files or axis grouping.

Question: 576

You need to wire a 1D array of U8 integers through a sequence of operations on the block diagram that require individual elements as Boolean indicators. What data type conversion function should you use to extract each element correctly for the Boolean indicator?

A. Use "Array Subset" and wire it directly to the Boolean indicator
B. Use "Index Array" to extract U8 elements and then "Numeric to Boolean" conversion
C. Cast the array wire to Boolean array and then extract elements
D. Wire the U8 array directly to the Boolean indicator without conversion

Answer: B

Explanation: To convert elements from a U8 array to Boolean, you first use "Index Array" to extract elements of type U8. You then apply the "Numeric to Boolean" function to convert the numeric U8 values to Boolean values appropriately. Wiring a U8 wire directly to a Boolean indicator or casting an array to Boolean is invalid in LabVIEW.

Question: 577

A VI acquires data from a 5-channel DAQ device using DAQmx Read VI, outputting a 2D numeric array. You need to extract channel 3's data and display it on a waveform graph with a 500 Hz sampling rate, ensuring the graph shows only the most recent 1000 samples. Which steps are required?

A. Set the waveform graph's XScale.Multiplier to 0.002 to reflect the 500 Hz sampling rate
B. Use the Array Subset function to extract the last 1000 samples from channel 3's data
C. Use the Index Array function to extract the third row from the 2D array
D. Use a Property Node to set the waveform graph's History Length to 1000 samples

Answer: A,B,C

Explanation: To extract channel 3's data from a 2D numeric array and display the most recent 1000 samples on a waveform graph, specific steps are needed. The Index Array function extracts the third row (index 2) from the 2D array, providing a 1D array for channel 3. The Array Subset function extracts the last 1000 samples from this 1D array, ensuring only the most recent data is displayed. The waveform graph's XScale.Multiplier is set to $1/500 = 0.002$ seconds to reflect the 500 Hz sampling rate, ensuring accurate time scaling. Setting the graph's History Length via a Property Node is incorrect, as waveform graphs do not have a history buffer like waveform charts; the data must be explicitly subset.

Question: 578

A sensor produces an analog output with ±20 V range, but the NI DAQ can safely measure ±10 V. What LabVIEW front-end technique prevents saturating the DAQ device while preserving signal resolution?

A. Use software scaling to divide signal by 2 post acquisition
B. Use differential input mode to double range
C. Configure DAQ input range to ±20 V ignoring specs
D. Apply a hardware voltage divider circuit to scale the signal

Answer: D

Explanation: Hardware voltage dividers attenuate signals before digitization, preventing saturation and maintaining signal quality. Software scaling cannot prevent clipping during acquisition. DAQ input ranges have fixed limits; differential mode affects noise but does not double input range.

Question: 579

You are working on a LabVIEW Project with a .lvlib file containing utility VIs. A developer accidentally adds a duplicate VI to the project, causing cross-linking. Which actions resolve the issue?

A. Delete the duplicate VI from the project and use the "Resolve Conflicts" tool to update references.

B. Merge the duplicate VI into the original .lvlib file using the "Combine VIs" feature.
C. Rename the duplicate VI to distinguish it from the original and update all references manually.
D. Use the "Show Dependencies" window to identify and correct references to the duplicate VI.

Answer: A,D

Explanation: Deleting the duplicate VI from the project and using the "Resolve Conflicts" tool updates references to point to the correct VI in the .lvlib file, resolving cross-linking. The "Show Dependencies" window identifies references to the duplicate VI, allowing you to correct them to point to the original VI. LabVIEW does not have a "Combine VIs" feature for merging VIs; this is not a valid approach. Renaming the duplicate VI and manually updating references is error-prone and does not address the root cause of cross-linking, as the duplicate VI remains in the project.

Question: 580

You are configuring a While Loop with a Wait function and Tick Count timing for precise interval control. What programming pattern ensures fixed-period execution despite varying processing times?

A. Take Tick Count at start of iteration, calculate elapsed, subtract from desired period, then wait that difference
B. Use a fixed Wait ms delay equal to desired period every iteration
C. Use Wait Until Next ms Multiple with fixed integer delays only
D. Use Tick Count only to measure total execution time after loop ends

Answer: A

Explanation: Measuring elapsed Tick Count during each iteration and adjusting the Wait time by subtracting processing time ensures fixed-period execution even if processing time varies. Fixed waits do not compensate for processing overhead causing drift.

Question: 581

In a LabVIEW application, a For Loop generates a 1000-point signal with a specific frequency modulation in each iteration. The loop must execute at 2 kHz. Which methods achieve this?

A. Use a Timed Loop with a 0.5 ms period instead of a For Loop
B. Use a Wait Until Next ms Multiple with a 0.5 ms input inside the For Loop
C. Use a DAQmx Timing VI to synchronize the loop with a 2 kHz hardware clock
D. Use a Tick Count (ms) function to adjust iteration timing dynamically

Answer: A

Explanation: A Timed Loop with a 0.5 ms period (1/2 kHz) ensures deterministic execution at 2 kHz,

ideal for generating a signal with precise timing. A Wait Until Next ms Multiple relies on software timing, which introduces jitter and is less reliable for 2 kHz precision. A DAQmx Timing VI is designed for data acquisition, not for synchronizing computational tasks like signal generation. Using a Tick Count (ms) function for dynamic timing adjustment is complex and less efficient than a Timed Loop, as it requires manual calculations prone to software delays.

Question: 582

A VI logs pressure data every 3 seconds to a CSV file, with a header "Time,Pressure (psi)". The VI must prevent data loss if the file is locked. Which components are needed?

A. A Case Structure to retry file writing after a delay if an error occurs
B. Check File or Folder Exists VI to write the header only for a new file
C. Format Into String function with format string "%s,%.2f\n"
D. Write to Spreadsheet File VI with Append to File? set to FALSE

Answer: A,B,C

Explanation: A Case Structure retries file writing after a delay if an error (e.g., file locked) occurs, preventing data loss. The Check File or Folder Exists VI ensures the header is written only for a new file. The Format Into String function with "%s,%.2f\n" formats each row with a timestamp and pressure to two decimal places. The Write to Spreadsheet File VI with Append to File? set to FALSE would overwrite the file, which is incorrect for logging applications that require appending data.

Question: 583

To avoid data loss in a VI logging continuous data and displaying it simultaneously, what buffer strategy should be implemented?

A. Use multithreaded producer-consumer architecture with FIFO memory buffers or queues
B. Perform data acquisition and file writes in the same loop sequentially
C. Use for loops to write data after acquisition completes
D. Omit data buffering and write to file immediately after read

Answer: A

Explanation: Separating acquisition and data handling ensures continuous timely acquisition, preventing buffer overflow and loss.

Question: 584

In a VI using a conditional terminal to output data only when a trigger is true, which change prevents the loop from outputting unwanted zero values when false?

A. Remove the output terminal so the VI outputs nothing when false
B. Wire the data output terminal directly without conditional logic
C. Use the Select function with the data as true input and "null" wired as false input
D. Add a Case structure inside the loop that outputs data only when triggered, else outputs 'no value'

Answer: D

Explanation: Case structures can control output explicitly, outputting data under the condition and outputting nothing or a specific invalid value when false. Wiring outputs directly or removing terminals isn't a valid practice. "Null" is not a standard LabVIEW data type; careful handling is required.

Question: 585

You want to bundle individual Boolean variables into a cluster and then export the cluster as an array of Booleans. Which sequence of LabVIEW functions is best to perform this?

A. Directly wire cluster to Boolean array indicator without conversion
B. Use "Unbundle by Name" followed by "Array to Cluster"
C. Use "Bundle by Name" to create cluster, then use "Cluster to Array" to convert it
D. Use "Boolean Array to Number" followed by "Number to Array" conversions

Answer: C

Explanation: First, use "Bundle by Name" to create a cluster from Boolean controls; then "Cluster to Array" converts the cluster elements into a Boolean array. This method preserves data types and matches the required conversions.

Question: 586

You have a VI that acquires voltage data from a DAQmx task, analyzes the signal by calculating its RMS value, and then displays the output on a waveform chart. The chart does not update, and the VI runs indefinitely without error. What is the most likely cause?

A. The DAQmx Read function is set to Continuous Samples, but the waveform chart is set to Display Last N Values
B. The DAQmx Read function is set to Finite Samples, but the number of samples requested is too high
C. The While Loop lacks a timing function like Wait (ms) causing CPU overuse
D. The RMS calculation is incorrectly wired to the wrong input terminal

Answer: C

Explanation: If a While Loop lacks a timing function such as Wait (ms), the loop runs as fast as possible, consuming 100% CPU and potentially preventing the UI from updating, leaving the chart inactive. The DAQmx Read and RMS calculation wiring issues typically cause errors or incorrect data, but not indefinite runs or UI freezes. A timing function allows the UI to process updates properly.

Question: 587

Given a multimode optical sensor connected to NI hardware that outputs a voltage proportional to light intensity, which VI or property node provides the most direct acquisition of this analog voltage with minimum signal delay?

A. DAQmx Read (Analog 1D Wfm NChan NSamp) configured for multiple samples
B. DAQmx Read (Analog Single Sample) configured for single-point acquisition
C. VISA Read block configured for serial traffic
D. DAQmx Read (Analog 1D DBL NChan NSamp) with finite sample mode

Answer: B

Explanation: Single sample analog read returns the most immediate voltage measurement with minimal delay, appropriate for real-time sensor outputs needing current voltage value. The multi-sample modes buffer data and introduce latency. VISA is unrelated to analog voltage acquisition.

Question: 588

You are designing a LabVIEW VI with a For Loop that generates a 2000-point waveform with a specific amplitude envelope in each iteration. The loop must execute at 1 kHz. Which methods achieve this?

A. Use a Timed Loop with a 1 ms period instead of a For Loop
B. Use a Wait Until Next ms Multiple with a 1 ms input inside the For Loop
C. Use a DAQmx Timing VI to synchronize the loop with a 1 kHz hardware clock
D. Use a Tick Count (ms) function to adjust iteration timing dynamically

Answer: A

Explanation: A Timed Loop with a 1 ms period ensures deterministic execution at 1 kHz, ideal for generating a waveform with precise timing. A Wait Until Next ms Multiple relies on software timing, which introduces jitter and is less reliable for 1 kHz precision. A DAQmx Timing VI is designed for data acquisition, not for synchronizing computational tasks like waveform generation. Using a Tick Count (ms) function for dynamic timing adjustment is complex and less efficient than a Timed Loop, as it requires manual calculations prone to software delays.

Question: 589

How does Sort 1D Array VI behave if the input array contains NaN (Not a Number) values in a floating-point array?

A. NaN values are removed from the output array
B. NaN values cause the VI to error out
C. NaN values are sorted as the smallest elements
D. NaN values are placed at the end of the sorted array

Answer: D

Explanation: The Sort 1D Array VI places NaN values at the end of the sorted numeric array, treating them as larger than any number.

Question: 590

A LabVIEW VI processes a 1D array of acceleration data using a For Loop with indexing enabled. The VI must output the last value that exceeds a threshold. Which of the following ensures correct implementation?

A. Enable indexing on the input array to process each sample individually
B. Use a shift register to retain the last value that exceeds the threshold
C. Use a Case Structure to conditionally update the shift register if the sample exceeds the threshold
D. Use Build Array to collect all values exceeding the threshold and extract the last one

Answer: A,B,C

Explanation: Enabling indexing on the input array allows the For Loop to process each sample individually. A shift register can retain the last value that exceeds the threshold by updating it when a qualifying sample is found. A Case Structure can conditionally update the shift register based on whether the sample exceeds the threshold. Using Build Array to collect all values and extract the last one is less efficient, as the shift register directly retains the most recent qualifying value.

Question: 591

A VI uses an uninitialized shift register to store the output from a Force Output node inside a loop. What is the expected behavior of the output if the VI runs multiple times?

A. The shift register value will reset to zero at each start

B. Shift registers cannot be uninitialized in LabVIEW
C. The previous VI run's final value is retained automatically
D. The first iteration value will be undefined or random, affecting output stability

Answer: D

Explanation: Uninitialized shift registers start with undefined data at first execution, leading to unpredictable or random initial values. This can cause unstable output especially on first iteration. Values do not persist across runs unless saved externally. Shift registers can be initialized or uninitialized by wiring or leaving unwired.

Question: 592

In a LabVIEW application, a While Loop monitors a pressure sensor via a DAQ device at 100 Hz and stops if the pressure exceeds 10 bar or after 1 hour. Which configurations ensure accurate timing and stopping conditions?

A. Use a DAQmx Timing VI with a 100 Hz sample rate
B. Use a Wait (ms) function with a 10 ms input inside the While Loop
C. Use a Timed While Loop with a 10 ms period and a hardware clock source
D. Use a Tick Count (ms) function to track elapsed time and compare it to 3,600,000 ms

Answer: A,C

Explanation: A DAQmx Timing VI with a 100 Hz sample rate (10 ms intervals) ensures hardware-timed data acquisition for precise pressure monitoring. A Timed While Loop with a 10 ms period and a hardware clock source provides deterministic execution, critical for real-time systems. A Wait (ms) function relies on software timing, which is less precise due to system scheduling variability. While a Tick Count (ms) function can track elapsed time, comparing it to 3,600,000 ms (1 hour) is less reliable than a Timed Loop's built-in timing control, as it requires additional logic and is prone to software delays.

Question: 593

While deleting a VI from a Project Library, which step is critical to ensure there are no broken references in the project?

A. Rename the VI to an unusable name first, then delete after saving
B. Delete the VI directly; LabVIEW will automatically handle references
C. Only delete the VI from the disk after removing it from the project
D. Verify no other VIs within the library reference this VI before deleting

Answer: D

Explanation: Before deleting a VI from a library, it is essential to check for references inside the library or project to avoid broken dependencies. LabVIEW does not automatically handle broken references on deletion.

Question: 594

You are developing a LabVIEW application to append timestamped data to an existing text file every minute, using the Open/Act/Close model. The file must remain open during the application's runtime to avoid overhead. Which of the following steps ensure correct implementation?

A. Use Open File VI with "append" mode, store the file reference in a shift register, and use Write to Text File VI for data
B. Use Format Into File VI inside a Timed Loop to write timestamped data, with the file reference passed via a shift register
C. Use Write to Text File VI alone to handle both file opening and appending, bypassing the need for a shift register
D. Use Close File VI after the Timed Loop, ensuring the error cluster is wired to handle potential file closure issues

Answer: B,D

Explanation: To append data to an existing text file, the Open/Act/Close model requires opening the file once, appending data, and closing it properly. Using Format Into File VI in a Timed Loop is appropriate for writing timestamped data at one-minute intervals, with the file reference stored in a shift register to maintain access across iterations. Closing the file with Close File VI after the loop, with proper error handling, ensures resources are released correctly. Using Open File VI with "append" mode is incorrect because Write to Text File VI manages the entire file operation internally, conflicting with the Open/Act/Close model. Using Write to Text File VI alone is also incorrect, as it does not allow explicit control over file opening and closing, potentially causing resource issues.

Question: 595

You want to log analog data from two channels sampled at different rates (1000 Hz and 500 Hz) simultaneously. Which is the best approach?

A. Use one task with multiple channels at 1000 Hz forcing slower channel upsampling
B. Use one DAQmx task with sample clock set to 500 Hz
C. Use separate DAQmx tasks for each channel with proper timing and combine data later
D. Use digital channels instead

Answer: C

Explanation: Since the DAQ device generally requires the same sample clock rate for all channels in one task, separate tasks allow different sample rates per channel.

Question: 596

You are acquiring a 2 kHz signal from a sensor and need to analyze its frequency components. Which steps ensure accurate spectral analysis?

A. Apply a Blackman-Harris window before performing an FFT
B. Configure the DAQmx Timing VI to sample at 5 kHz
C. Use the Spectral Measurements Express VI to compute the power spectrum
D. Set the DAQmx Timing VI to sample at 2 kHz

Answer: A,B,C

Explanation: A Blackman-Harris window minimizes spectral leakage in the FFT, improving frequency analysis accuracy. A sample rate of 5 kHz satisfies the Nyquist criterion for a 2 kHz signal, ensuring accurate spectral results. The Spectral Measurements Express VI computes the power spectrum, providing frequency component information. A sample rate of 2 kHz is insufficient, as it equals twice the signal frequency, risking aliasing.

Question: 597

You observe a block diagram wire with color brown connected between two nodes. What is the data type represented by brown wire, and what special considerations exist when wiring it?

A. Brown wire denotes LabVIEW FPGA-specific data type incompatible with standard controls
B. Brown wire indicates a cluster of Booleans, requiring native bundling
C. Brown wire shows a fixed-point numeric type, must be explicitly converted
D. Brown wire signifies a "Path" data type, handled differently than strings

Answer: D

Explanation: Brown wires are reserved for the "Path" data type in LabVIEW. Paths represent file or directory locations and cannot be directly converted to strings or other types without explicit use of conversion functions.

KILLEXAMS.COM

Killexams.com is a leading online platform specializing in high-quality certification exam preparation. Offering a robust suite of tools, including MCQs, practice tests, and advanced test engines, Killexams.com empowers candidates to excel in their certification exams. Discover the key features that make Killexams.com the go-to choice for exam success.

Find Exam
Search your required exam

Exam Questions:

Killexams.com provides exam questions that are experienced in test centers. These questions are updated regularly to ensure they are up-to-date and relevant to the latest exam syllabus. By studying these questions, candidates can familiarize themselves with the content and format of the real exam.

Exam MCQs:

Killexams.com offers exam MCQs in PDF format. These questions contain a comprehensive collection of questions and answers that cover the exam topics. By using these MCQs, candidate can enhance their knowledge and improve their chances of success in the certification exam.

Practice Test:

Killexams.com provides practice test through their desktop test engine and online test engine. These practice tests simulate the real exam environment and help candidates assess their readiness for the actual exam. The practice test cover a wide range of questions and enable candidates to identify their strengths and weaknesses.

Guaranteed Success:

Killexams.com offers a success guarantee with the exam MCQs. Killexams claim that by using this materials, candidates will pass their exams on the first attempt or they will get refund for the purchase price. This guarantee provides assurance and confidence to individuals preparing for certification exam.

Updated Contents:

Killexams.com regularly updates its question bank of MCQs to ensure that they are current and reflect the latest changes in the exam syllabus. This helps candidates stay up-to-date with the exam content and increases their chances of success.