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Question: 1089

A power generation facility is migrating legacy paper-based control system schematics to a hybrid EDMS with blockchain-enhanced version tracking to meet NERC CIP-013 requirements. Midway through, the technician discovers duplicate entries in the indexing database, risking non-compliance. What EDMS setting adjustment and command should the CCST Level II technician apply to deduplicate while preserving immutable version chains?

A. Navigate 'Database Tools' > Invoke 'Random Merge' > Perform 'Index Reset' > Skip 'Threshold Config'
B. Activate 'Legacy Import' > Choose 'Overwrite All' > Execute 'Quick Dedupe' > Disable 'Version Logging'
C. Select 'Migration Wizard' > Trigger 'Full Purge' > Apply 'Basic Filter' > Ignore 'Compliance Scan'
D. Enable 'Blockchain Integrity Check' > Run 'Deduplicate Index' > Confirm 'Chain Validation' > Set 'Auto-Merge Threshold' to 95%

Answer: D

Explanation: Enabling 'Blockchain Integrity Check' leverages distributed ledger technology to verify uniqueness without altering originals, crucial for NERC CIP-013's cyber asset documentation mandates. The 'Deduplicate Index' command scans and removes replicas based on hash comparisons, while 'Chain Validation' ensures version histories remain unbroken. Setting 'Auto-Merge Threshold' to 95% automates future safeguards, reflecting 2026 advancements in tamper-proof archiving for critical infrastructure.

Question: 1090

Trend data shows a steady rise in the overall vibration level of a reciprocating compressor over six months, but no single spectral peak dominates. What fault mode should be considered?

A. Electrical motor faults only
B. Unbalance due to rotor defects
C. Misalignment causing synchronous peak
D. Looseness or mechanical wear causing generalized vibration increase

Answer: D

Explanation: A generalized increase without distinct spectral peaks typically suggests mechanical

looseness or wear rather than specific imbalance or alignment issues.

Question: 1091

As-left documentation for a multigas analyzer (Servomex 4100, CO/NOx) post-zero/span shows drift <0.5 ppm; as-found 1.2 ppm. What CMMS (Fiix) report template automates EPA Method 7E compliance?

A. Spreadsheet template filled post-calibration, emailed separately.
B. Basic PDF export of current calibration, manual EPA formatting.
C. Template queries as-found/as-left drifts from Fiix DB, generating XML report with chain-of-custody and audit trail for quarterly submissions.
D. Verbal confirmation in shift log, reported annually.

Answer: C

Explanation: Automated template in Fiix queries drifts (1.2 ppm to <0.5 ppm), producing XML reports with traceability for EPA Method 7E, ensuring emissions compliance through integrated documentation.

Question: 1092

Brewery 2026: PFD (PF-2901-Rev A) vs. schematic (SC-2901-Rev B) for pump P-2902. PFD centrifugal, schematic positive displacement. AutoCAD: SUBSTITUTE. Discrepancy?

A. Pump type mismatch; sub symbol
B. Sub def miss; define
C. Symbol rotate; rotate
D. Type scale; scale

Answer: A

Explanation: Centrifugal vs. displacement per ISA-5.1-2024. Substitute, revise: "Changed to positive displacement."

Question: 1093

A liquid flow loop fails the SAT acceptance criteria due to a sluggish valve response. The actuator is pneumatic and the supply pressure is confirmed stable. What is the next troubleshooting step?

A. Check pneumatic tubing and actuator diaphragms for leaks or damage
B. Increase controller output limits regardless of hardware condition
C. Replace the flow transmitter without further checks
D. Bypass the valve and install a manual override until repair

Answer: A

Explanation: Pneumatic actuator problems such as tubing leaks or diaphragm damage cause sluggish valve response. Verifying these components precedes controller or sensor replacement. Increasing output limits or bypassing the valve may cause unsafe operation.

Question: 1094

A food processing plant's control technician is troubleshooting an integration where SCADA alarms for conveyor jams must trigger ERP work order creations via Modbus TCP. After mapping, the ERP receives garbled coil write commands, causing invalid order statuses. Wireshark traces show TCP retransmits due to unhandled Modbus exception code 0x06 (illegal address) from overlapping register assignments. What reconfiguration command in the Modbus TCP client resolves the address conflicts while preserving backward compatibility?

A. Issue 'modbus_tcp map_coils=0001-0100 exception_handling=retry3 address_offset=0'
B. Configure 'tcp_modbus resolve_addr=auto remap=fc15 start=40001 end=40050'
C. Execute 'set_mapping coils_unique=fc05 write_single=0001-0050 ignore_exc=06'
D. Run 'client_config registers_nonoverlap=true start_addr=10001 count=50 func=05'

Answer: D

Explanation: Modbus TCP exception 0x06 arises from address overlaps in coil writes when SCADA and ERP share register spaces; configuring non-overlapping assignments with func=05 (write single coil) starting at 10001 isolates ERP-specific coils, enabling retry on exceptions without garbling. This preserves compatibility for legacy reads, reducing retransmits as per Modbus Application Protocol V1.1b3.

Question: 1095

In PLC FAT for emergency lighting in a warehouse, punch list items cover battery discharge curve anomalies. What command benchmarks against UL 924 using the PLC's analog input scanner?

A. Visual glow test
B. Initiate 'battery_discharge_profile' scan at 0.5C rate, plot voltage vs. time, and confirm 90-min runtime
C. Annual vendor service
D. Skip if LEDs bright

Answer: B

Explanation: Initiating 'battery_discharge_profile' scan at 0.5C rate, plotting voltage vs. time, and confirming 90-min runtime verifies UL 924 egress safety. This automated function ensures reliable evacuation systems handover.

Question: 1096

While reviewing thermographic images of an electrical panel, an anomalously high temperature spot is

identified on a breaker terminal. What should you do before scheduling replacement?

A. Ignore the reading if ambient temperature is high
B. Clean the panel to ensure accurate temperature readings
C. Replace the breaker immediately to prevent failure
D. Measure the current load and verify connections for looseness

Answer: D

Explanation: High temperature on a breaker terminal often indicates poor contact or overload; measuring current load and checking for loose connections helps determine if tightening or load adjustment resolves the issue before replacement.

Question: 1097

If a project is behind schedule, which of the following actions could a project manager take to bring it back on track?

A. Increase the project budget
B. Reduce the project scope
C. Reallocate resources to critical tasks
D. Extend the project deadline

Answer: C

Explanation: Reallocating resources to critical tasks can help bring a project back on track if it is behind schedule, ensuring that essential activities receive the necessary attention and resources.

Question: 1098

In a safety instrumented system, what is the significance of achieving the required SIL level?

A. It reduces the cost of the system
B. It simplifies the control system design
C. It ensures the system meets regulatory requirements for safety
D. It improves the aesthetic quality of the installation

Answer: C

Explanation: Achieving the required SIL level is significant because it ensures that the safety instrumented system meets regulatory requirements for safety, thereby protecting personnel and equipment.

Question: 1099

An oil analysis of hydraulic fluid shows a high viscosity increase and the presence of water

contamination. What operational problem is this most likely causing?

A. Increased pump electrical consumption only
B. Electrical short circuits in control valves
C. Reduced hydraulic efficiency and increased wear
D. Normal aging of fluid

Answer: C

Explanation: Increased viscosity and water contamination reduce fluid lubrication efficiency and accelerate component wear.

Question: 1100

A stakeholder requests specific data that requires additional analysis, delaying your progress report. What is the best course of action?

A. Communicate the delay and provide preliminary findings with an estimated timeline for the complete data.
B. Send an incomplete report and update later.
C. Delay the report until the data is available to ensure accuracy.
D. Ignore the request to meet the deadline.

Answer: A

Explanation: Communicating delays proactively with preliminary findings maintains transparency and stakeholder confidence while managing expectations.

Question: 1101

You have collected data for a key performance indicator (KPI) related to compressor uptime over the last six months. To identify the primary cause of downtime variations, which step should you take first in preparing a root-cause analysis report?

A. Interview maintenance personnel about incidents
B. Calculate monthly average compressive output
C. Analyze historical data trends using control charts
D. Summarize peak production capacity statistics

Answer: C

Explanation: The first step is to analyze historical data trends using control charts to visualize downtime variations over time. This helps identify patterns or shifts that guide further root cause investigation. Other options like interviewing personnel or summarizing statistics come after this initial data-driven analysis.

Question: 1102

Which practice below is most effective for establishing baseline vibration data for trending?

A. Run equipment at steady-state conditions and collect data over multiple operating cycles
B. Collect vibration data only during startups and shutdowns
C. Use vibration data from a similar machine of different make
D. Gather data randomly during operation

Answer: A

Explanation: Consistent, steady-state operating conditions and repeated data collection ensure reliable baseline for trending and fault detection.

Question: 1103

When performing an advanced calibration of interconnected systems, which source of error must be mitigated to maintain accuracy?

A. Variations in power supply frequency
B. Inconsistent data logging intervals
C. Electrical noise and interference affecting measurement signals
D. Operator inconsistent procedures

Answer: C

Explanation: Electrical noise and interference are common causes of measurement errors, especially in interconnected systems, and must be minimized to ensure calibration accuracy.

Question: 1104

Which of the following statements best describes the purpose of a resource histogram in project management?

A. It shows the relationship between tasks.
B. It displays the overall project timeline.
C. It illustrates resource allocation over time.
D. It compares planned and actual project costs.

Answer: C

Explanation: A resource histogram illustrates resource allocation over time, showing how resources are distributed across tasks and helping to identify potential over-allocations.

Question: 1105

Mentoring advanced resilient control in 2026 cyber-physical twins for rail signaling, you invoke communities of practice for a trainee's isolation. Which Wenger-inspired step builds shared repertoire during twin fault injection exercises?

A. Narratives absent
B. Solo injections
C. Joint narrative construction on fault responses, co-creating resilience protocols
D. Instructor-only repertoire

Answer: C

Explanation: Co-creating protocols via joint narratives fosters Wenger's 2026 communities, enhancing shared understanding of resilient twins in rail faults. This adult practice counters isolation, deepening collective expertise.

Question: 1106

In an RSLogix 5000 setup for a conveyor speed loop, configuration software detects noise in analog feedback post-verification. Which Studio 5000 tool verifies and filters the loop while integrating cybersecurity for remote diagnostics?

A. Use Analyze tool for FFT noise spectrum, apply digital filter in PIDE, secure diagnostics via FactoryTalk NeoSCADA.
B. Run loop tuning advisor, set low-pass filter at 5Hz, and encrypt diagnostic reports with CIP.
C. Perform end-to-end simulation, add Kalman filter block, and validate with authenticated HMI views.
D. Execute signal generator test, configure moving average in AOI, and monitor via secure OPC UA.

Answer: D

Explanation: Studio 5000's signal generator simulates inputs for verification; a moving average AOI filters noise, and OPC UA secures remote access, per Rockwell's 2026 loop verification in noisy conveyor applications.

Question: 1107

During a wet-run of an integrated HVAC control system in a data center, the pressure-independent VAV damper loop exhibits hunting due to integral windup in the ABB Freelance DCS PID block. To prioritize chilled water low-flow alarms (SIL 1), what function block parameter adjustment and command is needed for anti-windup compensation?

A. Enable derivative on PV with gain of 0.1 and run a bumpless transfer command on mode switch
B. Set the reset limit to 50% and execute PID.RESETWINDUP via the control builder script
C. Configure output limiting to 10-90% and issue a manual override to 60% position for testing
D. Adjust the velocity form algorithm and log the setpoint tracker to a trend array

Answer: B

Explanation: Setting the reset limit to 50% and executing PID.RESETWINDUP via the control builder script implements conditional anti-windup by clamping the integral term, stabilizing the loop during wet runs while maintaining low-flow alarm prioritization for SIL 1 safety in critical environments.

Question: 1108

A food processing plant adopts cloud-based CMMS (Maintenance Connection) for a vibrating fork level switch (VEGA VIB65, tuned to 0.98 SG). Customizing the calibration SOP reveals as-found switching delay of 1.2 seconds on rising level; adjusted to as-left 0.3 seconds. To incorporate frequency scheduling, what API function in the SOP pulls as-found data for risk assessment?

A. Configure RESTful API call to extract as-found delay trends from CMMS database, compute risk score per ISA RP105 (if >0.5, shorten interval to 4 months), and update schedule automatically.
B. Rely on manual entry of as-left only into CMMS forms, setting a static 12-month frequency without risk computation to streamline technician workflow.
C. Use barcode scan of the device tag to log calibration time, but omit delay values and schedule based on production uptime logs imported quarterly.
D. Integrate with plant PLC via Modbus to poll switch status post-calibration, but store data locally without CMMS API for security reasons.

Answer: A

Explanation: For customized SOPs in cloud CMMS environments, a RESTful API call retrieves as-found switching delay (1.2 seconds) trends from the database, applying ISA RP105 risk assessment (score >0.5 triggers 4-month interval shortening from standard). This automates frequency scheduling updates in Maintenance Connection based on historical data, ensuring risk-based adjustments for critical level control in food safety, while reducing over-calibration costs.

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