

# ISA

## ISA-CCST-LEVEL-2

**Certified Control Systems Technician Specialist - Level 2  
(CCST)**

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# Latest Version: 6.0

## Question: 1

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: 2

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: 3

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: 4

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: 5

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: 6

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: 7

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: 8

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: 9

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: 10

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.

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