

RED SEAL STUDY GUIDE I&C TECHNICIAN YEAR 2

SAMPLE
25 EXAM PREP QUESTIONS
WITH ANSWERS



APPRENTICES | INSTRUCTORS | INSTITUTES

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UNITY CREST SOLUTIONS INC.

INTRODUCTION

Introducing the Red Seal Study Guide – I&C Technician.

Ready to dive into the world of I&C Technician? Meet your ultimate companion – the Red Seal Study Guide for I&C Technician. This practical booklet is your go-to practice tool to conquer your I&C Technician exam.

Presented in an easy Q&A format, this guide lets you preview the kinds of questions you'll tackle on the real exam day. Consider it a sneak peek into what's coming your way!

Inside its pages, you'll find a treasure trove of I&C Technician essentials. It's more than just answering questions – it's about truly grasping the basics of I&C Technician in a way that sticks. Whether you're starting fresh or aiming to refine your skills, this guide has got you covered.

So, get set to challenge yourself, learn in a breeze, and build up your I&C Technician expertise. With the Red Seal Study Guide, you're all set to take that significant stride toward becoming a certified I&C Technician.

Ready to get started? For more information, tips, and resources, head over to www.RedSealStudyGuide.ca
I&C Technician success starts here – dive in!



DISCLAIMER

Study Guide Disclaimer: Important Notice

The Red Seal Study Guide – I&C Technician is a reference tool meant to enhance your exam preparation. It offers insights into potential question formats. However, it's vital to know that this guide should complement, not replace, official government-issued study materials.

For comprehensive readiness, we recommend using both this guide and official resources provided by relevant authorities. Please note that this guide covers exams across Canadian provinces, but slight content variations might exist.

For your best chance at success, ensure a well-rounded preparation approach that includes official materials.

Good luck on your path to becoming a certified I&C Technician!

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Let's craft your future together!



1. The P&ID demonstrates a control strategy:

- A: Adaptive gain
- B: Ratio
- C: Model predictive
- D: Cascade

2. Process changes do not affect the valve after installing a smart valve positioner. Which cause is impossible?

- A: The positioner is manual
- B: Bad actuator bench
- C: Manual controller
- D: Airless

3. Which criteria ensure conveyor electronic weigh scale functionality when replacing a component?

- A: Belt maximum length
- B: Minimum belt width
- C: Average belt speed
- D: Sensor details

4. Which turbine flowmeter calibration parameters matter most?

- A: K-factor, frequency
- B: K-factor, Reynolds number
- C: A universal viscosity curve
- D: Reynolds and Strouhal numbers

5. What's the most likely cause of an induction-type speed sensor's output signal showing 60Hz after replacing the probe?

- A: Polarity reversed
- B: The terminals corrode
- C: Misaligned sensor
- D: Ungrounded shielding

See answers on the next page.



1. ☐ A ☐ B ☐ C ☒ D

Note: _____

2. ☐ A ☒ B ☐ C ☐ D

Note: _____

3. ☐ A ☐ B ☐ C ☒ D

Note: _____

4. ☒ A ☐ B ☐ C ☐ D

Note: _____

5. ☐ A ☐ B ☐ C ☒ D

Note: _____



6. How is the maximum range of a blade-type mechanical consistency transmitter calibrated?

- A: Fulcrum
- B: Weight test
- C: Force bar
- D: Feedback unit

7. 10% input = 15% speed, 50% equals 55% speed, and 90% equals 95% speed when calibrating a variable speed drive. What error kind is indicated?

- A: Zero
- B: Span
- C: Angularity
- D: Align

8. Calculate the mechanical horsepower output of a single-phase AC motor drawing 54.7 amps and fueled by a 240-volt source, assuming an ideal power factor (1.0) and 87% efficiency.

- A: 19.44 hp
- B: 18.56
- C: 12.96
- D: 15.32

9. Given an ideal silicon transistor, estimate the quiescent voltage between point A and ground in this transistor amplifier circuit.

- A: 9.31V
- B: 12.4V
- C: 2.81V
- D: 1.62V

10. When bundling and running wires in conduit and duct, which of the following conductors are usually protected and divided by signal type?

- A: Power wires
- B: Signal wires
- C: Ground wires
- D: Control wires

See answers on the next page.



6. ☐ A ☒ B ☐ C ☐ D

Note: _____

7. ☒ A ☐ B ☐ C ☐ D

Note: _____

8. ☐ A ☐ B ☒ C ☐ D

Note: _____

9. ☒ A ☐ B ☐ C ☐ D

Note: _____

10. ☐ A ☒ B ☐ C ☐ D

Note: _____



11. Which is not a major sensory element?

- A: pH electrode
- B: Torque tube
- C: Pitot tube
- C: Bourdon tube

12. Which device would you use to measure electric potential or electromotive force?

- A: Ammeter
- B: Voltmeter
- C: Tachometer
- D: Ohmmeter

13. For a 3/8" diameter rope, what is the SWL in a two-part bridal setup at 60 60-degree lifting angle?

- A: 4000
- B: 4500
- C: 3200
- D: 5400

14. Calculate the pH of this solution with a 0.0015 M hydrogen ion concentration aqueous solution?

- A: 1.654 pH
- B: 12.68 pH
- C: 3.260 pH
- D: 2.824 pH

15. A chromatograph separates and distinguishes which fluid stream molecules?

- A: Light spectra
- B: Atomic mass
- C: Electric charge
- D: Adsorption delay

See answers on the next page.



11. ☐ A ☒ B ☐ C ☐ D

Note: _____

12. ☐ A ☒ B ☐ C ☐ D

Note: _____

13. ☒ A ☐ B ☐ C ☐ D

Note: _____

14. ☐ A ☐ B ☐ C ☒ D

Note: _____

15. ☐ A ☐ B ☐ C ☒ D

Note: _____



16. Bulls-eye level gauges work on which concept in steam boiler service?

- A: Temperature detector resistance change
- B: Thermocouple voltage change
- C: The refractive indices of steam and water differ
- D: Water conductivity

17. How much weight is needed to balance the beam if the distance from point A to the fulcrum is 4 feet less than one-third of the distance from point B?

- A: 1500
- B: 1080
- C: 900
- D: 680

18. Identify the instrumentation (P&ID and loop diagram) line types from left to right.

- A: On/off, analog, pneumatic, digital network
- B: Pneumatic, electric, hydraulic, mechanical link
- C: Electric, pneumatic, digital network, filled system
- D: Electric, capillary, hydraulic

19. What causes a vacuum motor amp to drop?

- A: Blocked inlet
- B: Open filter
- C: Clean filter
- D: Blocked outlet

20. How should an acetylene bottle be lifted?

- A: Nylon basket sling
- B: Chain
- C: Choker
- D: Appropriate cradle

See answers on the next page.



16. ☐ A ☐ B ☒ C ☐ D

Note: _____

17. ☐ A ☐ B ☐ C ☐ D

Note: _____

18. ☐ A ☐ B ☐ C ☒ D

Note: _____

19. ☒ A ☐ B ☐ C ☐ D

Note: _____

20. ☐ A ☐ B ☐ C ☒ D

Note: _____



21. How does a Digital Ohmmeter represent component measurement? The meter reads 3.725K ohms.

- A: 0.3865 ohms
- B: 3.285 ohms
- C: 3,725 ohms
- D: 3,725,000

22. What is forward decoupling's major goal?

- A: Total two process variables' interactions and outputs
- B: Eliminate two process variables' output interactions
- C: Reduce the gain of one process variable and its output with feedback
- D: Eliminate all output gain with a decoupling algorithm

23. Which oscilloscope function prevents waveforms from scrolling horizontally?

- A: Beam finder
- B: Timebase
- C: Horizontal sync
- D: Trigger

24. How are machine and process duties and hazards analyzed?

- A: Risk assessment
- B: Machine evaluation
- C: Reduce risk
- D: Abate risk

25. Calculate the current consumed by each line of this 3-phase heater when a 15 kW, 480 volt, 3-phase industrial electric boiler heating element.

- A: 16.68 amps
- B: 30.28 amps
- C: 22.50 amps
- D: 18.04 amps



21. ☐ A ☐ B ☒ C ☐ D

Note: _____

22. ☐ A ☒ B ☐ C ☐ D

Note: _____

23. ☐ A ☐ B ☐ C ☒ D

Note: _____

24. ☒ A ☐ B ☐ C ☐ D

Note: _____

25. ☐ A ☐ B ☐ C ☒ D

Note: _____



- 1). (A) (B) (C) (D)
- 2). (A) (B) (C) (D)
- 3). (A) (B) (C) (D)
- 4). (A) (B) (C) (D)
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- 24). (A) (B) (C) (D)
- 25). (A) (B) (C) (D)





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