

RED SEAL STUDY GUIDE I&C TECHNICIAN YEAR 3

**25 EXAM PREP QUESTIONS
WITH ANSWERS**



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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. Ladder logic programming consists primarily of:

- A: Logic gate symbols with connecting lines
- B: Function blocks with connecting lines
- C: Text-based code
- D: Virtual relay contacts and coils

2. In a PLC, the scan time refers to the amount of time in which . . .

- A: The technician enters the program
- B: Timers and counters are indexed by
- C: One “rung” of ladder logic takes to complete
- D: The entire program takes to execute

3. Identify the problem in this motor control PLC program:

- A: Coil
- B: Start contact
- C: Stop contact
- D: Seal-in contact

4. What is the largest integer number that a PLC counter function can reach if it uses an 8-bit register?

- A: 128
- B: 255
- C: 256
- D: -127

5. Digital control systems are better than analog ones but always inferior at:

- A: Diagnostics
- B: Usability
- C: Flexibility
- D: Speed

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. What is the typical use of a triple modular redundant (TMR) digital control system?

- A: Safely control a process
- B: Use less energy than alternative control systems
- C: Increase quick process reaction speed
- D: To save money (over alternative control systems)

7. Which thermocouple statement is false?

- A: Avoid reference junctions
- B: Made of different metals
- C: produce low voltage
- D: Can be calibrated

8. High-viscosity fluid requires which pump?

- A: Radial piston pump
- B: Geo rotor
- C: Positive displacement pump
- D: Lobe pump

9. Derivative control is never employed in processes with significant which of the following?

- A: Cycling
- B: Gain
- C: Noise
- D: Variability

10. Processes always need some control to reach setpoints.

- A: Integrate, Derivative
- B: Integrating, feeding onward
- C: Self-regulating, proportional
- D: Self-regulating, integral

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. A 175% proportional band setting equals which gain setting?

- A: 275
- B: 0.576
- C: 0.571
- D: 1.42

12. What is a condition where integral control action saturates controller output?

- A: Noise
- B: Repeat
- C: Wind-up
- D: Self-bias

13. Except for which of the following, each answer can keep the temperature lamp off when the ignition switch is in the run position with the engine off?

- A: Blown fuse
- B: Open test circuit
- C: Sending unit fault
- D: Bad light

14. What is the word for liquid flows when dropping static pressure forms vapor bubbles that collapse back into the all-liquid state as fluid static pressure recovers?

- A: Pressure Piling
- B: Vortex Shedding
- C: Saturation
- D: Cavitation

15. How should the catalyst feed flow controller be tuned while running?

- A: Modified Ziegler-Nichols tuning
- B: General purpose, closed-loop tuning
- C: Lambda tuning
- D: Open-loop, shortcut tuning

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. Which analogue voltmeter reading is correct?

- A: 12.0 V
- B: 0.22 V
- C: 2.2 V
- D: 22.0 V

17. A 1500psi system requires a minimum rating for a test header.

- A: 2250psi
- B: 1500psi
- C: 2000psi
- D: 2500psi

**18. Can you convert a 0.93 controller gain value to a percent proportional band value?
Convert a 175% controller proportional band value to a unitless ratio gain value.**

- A: 107.5% 0.5714
- B: 101% 1.456
- C: 267.5% 0.462
- D: 105% 1.863

19. Which ratio matches 25:300 from the answers below?

- A: 14:4
- B: 1:12
- C: 2:10
- D: 15:5

20. The three transistor terminals are which?

- A: Drain, case, emitter
- B: Emitter, ground, collector
- C: Base, emitter, collector
- D: Base, ground, collector

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. If an atom of Lead (Pb) has an atomic number of 82 and a mass of 207, how many neutrons does its nucleus contain?

- A: 262
- B: 86
- C: 125
- D: 150

22. How does the flow meter measure gas flow?

- A: Gas weight
- B: Gas volume
- C: Cylinder pressure
- D: Gas pressure

23. The voltages and currents in an RC or LR time-constant circuit will settle to within 1% of their final value in how many time constants from which of the following answers?

- A: 7
- B: 6
- C: 12
- D: 5

24. If the slings must be angle of 30 degrees to lift 2500 lbs, what weight can each bear?

- A: 5000lbs
- B: 2500lbs
- C: 4500lbs
- D: 2000lbs

25. WHMIS means which?

- A: Workplace Health and materials information system
- B: Workplace Health and materials information system
- C: Workplace Hazardous Materials information system
- D: Workplace Hazards and infectious material information system



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)
- 5). (A) (B) (C) (D)
- 6). (A) (B) (C) (D)
- 7). (A) (B) (C) (D)
- 8). (A) (B) (C) (D)
- 9). (A) (B) (C) (D)
- 10). (A) (B) (C) (D)
- 11). (A) (B) (C) (D)
- 12). (A) (B) (C) (D)
- 13). (A) (B) (C) (D)
- 14). (A) (B) (C) (D)
- 15). (A) (B) (C) (D)
- 16). (A) (B) (C) (D)
- 17). (A) (B) (C) (D)
- 18). (A) (B) (C) (D)
- 19). (A) (B) (C) (D)
- 20). (A) (B) (C) (D)
- 21). (A) (B) (C) (D)
- 22). (A) (B) (C) (D)
- 23). (A) (B) (C) (D)
- 24). (A) (B) (C) (D)
- 25). (A) (B) (C) (D)





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