

# RED SEAL STUDY GUIDE INDUSTRIAL ELECTRICIAN YEAR 4

**25 EXAM PREP QUESTIONS  
WITH ANSWERS**



APPRENTICES | INSTRUCTORS | INSTITUTES

[RedSealStudyGuide.ca](http://RedSealStudyGuide.ca)

UNITY CREST SOLUTIONS INC.

# INTRODUCTION

## **Introducing the Red Seal Study Guide – Industrial Electrician.**

Ready to dive into the world of Industrial Electrician? Meet your ultimate companion – the Red Seal Study Guide for Industrial Electrician. This practical booklet is your go-to practice tool to conquer your Industrial Electrician 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 Industrial Electrician essentials. It's more than just answering questions – it's about truly grasping the basics of Industrial Electrician 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 Industrial Electrician expertise. With the Red Seal Study Guide, you're all set to take that significant stride toward becoming a certified Industrial Electrician.

Ready to get started? For more information, tips, and resources, head over to [www.RedSealStudyGuide.ca](http://www.RedSealStudyGuide.ca)  
Industrial Electrician success starts here – dive in!



# DISCLAIMER



## **Study Guide Disclaimer: Important Notice**

The Red Seal Study Guide – Industrial Electrician 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 Industrial Electrician!

For more information, tips, and resources,  
head over to [www.RedSealStudyGuide.ca](http://www.RedSealStudyGuide.ca)  
Let's craft your future together!



**1. What is the neutral conductor current of a three-wire, 120/240 V circuit with 1200 W on phase A and 6000 W on phase B?**

- A: 25A
- B: 10A
- C: 30A
- D: 40A

**2. Central units are permanently installed heating units that use air, liquid, or vapour transmission through pipes or ducts to heat rooms or areas, including duct heaters.**

- A: True
- B: False

**3. What current flows in a 60 Hz 120-volt circuit with 10?**

- A: 0.555 amps
- B: 1.12 amps
- C: 0.786 amps
- D: 0.452 amps

**4. After replacing the motor starter linked to a PLC during maintenance, the motor frequently trips when started. What causes tripping?**

- A: The motor requires replacing
- B: PLC reprogramming needed
- C: Adjust overload setting
- D: Auto starter is poor

**5. Current transformers have 400-amp primary ratings. What is the load current if the C.T. ammeter reads a 4.1 Amps circuit?**

- A: Load current is 328 amps
- B: Load current is 1640 amps
- C: Load current is 320 amps
- D: Load current is 400 amps

See answers on the next page.



1. ☐ A ☐ B ☐ C ☒ D

Note: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. ☒ A ☐ B

Note: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. ☐ A ☐ B ☐ C ☒ D

Note: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

4. ☐ A ☐ B ☒ C ☐ D

Note: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

5. ☒ A ☐ B ☐ C ☐ D

Note: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**6. What is the power factor of a circuit having 400 watts of actual power, 300 vars reactive power, and 500 watts of apparent power?**

- A: 0.7
- B: 0.8
- C: 0.5
- D: 0.9

**7. What is the power loss in watts on a 2-wire circuit with 1.7 ohms resistance in each wire and 12 amps current?**

- A: 498.6
- B: 429.4
- C: 489.6
- D: 264.2

**8. A delta-delta bank of three 6 kVA 1200-120/240 V transformers supplies a 240 V three-phase system. The rated primary phase current?**

- A: 5 Amps
- B: 2.89 Amps
- C: 15 Amps
- D: 25 Amps

**9. What is the circuit voltage and total ampere-hour capacity of a standby battery with two parallel sets of six 100 Ah lead-calcium cells connected in series?**

- A: 12 V; 600 Ah
- B: 7.2 V; 600 Ah
- C: 12 V; 100 Ah
- D: 12 V; 200 Ah

**10. The average input impedance of a 741 operational amplifier is?**

- A: = 1 MH
- B: = 5 MH
- C: = 2 MH
- D: = 6 MH

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 50 kVA, three-phase, delta-to-wye linked 480/120-208 volt transformer supplying balanced lighting has what secondary line-current rating?**

- A: = 60.21 amps
- B: = 152.73 amps
- C: = 138.95 amps
- D: = 176.54 amps

**12. What is the minimum distance between a 347-volt insulated power circuit and a communication cable?**

- A: = 350 mm
- B: = 600 mm
- C: = 50 mm
- D: = 200 mm

**13. Which cable is suitable for most installations?**

- A: SJOOW
- B: NMD 90
- C: Teck-90
- D: MNWU 75

**14. How long can a 48v, 80A/H emergency battery system power a 200W load?**

- A: 20 hours
- B: 1200 minutes
- C: 19.2 hours
- D: 19.8 hours

**15. What wire is needed to connect solar PV modules?**

- A: STOO
- B: SJOO
- C: SEWF-2
- D: SJOW

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. Secondary current from a 5KVA, 400V/200V converter is 25 Amps. What is the primary side current?**

- A: 17.5 Amps
- B: 12.5 Amps
- C: 50 Amps
- D: 25 Amps

**17. A Dry-Core transformer with a rating of less than 750V on a concrete floor must be isolated from a block wall by how many mm?**

- A: 10mm
- B: 150mm
- C: 50mm
- D: 5m

**18. A delta-connected 94 kVA alternator with six windings and twelve leads delivers 240 volts. How many amps will this alternator's phase current rating be if its windings are linked in series?**

- A: 130.6 Amps
- B: 261.1 Amps
- C: 391.7 Amps
- D: 226.1 Amps

**19. An electromagnetic interference problem has been found in a variable frequency drive (VFD) remote potentiometer wiring. Which cable replaces wiring?**

- A: RG 6 coaxial cable
- B: 14 AWG 75 ohm
- C: 19 AWG copper twisted pair cable
- D: AWG 16 shielded triad cable

**20. How does increasing the capacitor material's dielectric constant affect capacitance?**

- A: The capacitance is zero
- B: Capacitance is unchanged
- C: The capacitance diminishes
- D: Capacitance rises

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. When the input to a 0–10 V, six-bit D/A converter changes from (binary) 100110 to 100111, how much does the output voltage change?**

- A: 0.0159 V
- B: 0.159 V
- C: 1.6 V
- D: 0.3 V

**22. If Y = 1, what are the 'NOR' gate's A and B inputs?**

- A: A = 1; B = 0
- B: A = 1; B = 1
- C: A = 0; B = 0
- D: A = 0; B = 1

**23. What is the voltage drop across a forward-biased germanium diode?**

- A: 5.0v
- B: 0.3v
- C: 0.5v
- D: 0.7v

**24. Max conductor temperature in Celsius for extra low voltage control (ELC) cable?**

- A: 100°C
- B: 75°C
- C: 60°C
- D: 90°C

**25. A 200-amp panelboard is connected directly to the low voltage side of a 50 kVA 480/240-volt dry-type single-phase transformer. The maximum main overcurrent protection allowed is:**

- A: 200 Amps
- B: 100 Amps
- C: 225 Amps
- D: 110 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)
- 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)





Kris & Bobby Publications.