

RED SEAL STUDY GUIDE INDUSTRIAL ELECTRICIAN YEAR 3

**25 EXAM PREP QUESTIONS
WITH ANSWERS**



APPRENTICES | INSTRUCTORS | INSTITUTES

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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
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!

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Let's craft your future together!



- 1. What percentage efficiency does a 2.5HP motor that draws 8.8 amps at 230 volts have?**

A: 90
B: 92
C: 98
D: 100

- 2. Install an IEC-rated starter in a motor control circuit that allows squirrel cage induction motor jogging in either direction. Which IEC rating would this starter need?**

A: AC-3
B: AC-1
C: AC-2
D: AC-4

- 3. A 30 hp, 208 V three-phase motor's full load current is?**

A: 80.0 Amps
B: 88.0 Amps
C: 68.2 Amps
D: 70.0 Amps

- 4. Which commutation class is most common?**

A: Class A commutation
B: Class B commutation
C: Class II commutation
D: Class F commutation

- 5. A 4200w heater supplied with 240v was erroneously attached to 120v. What is its power consumption at this voltage?**

A: 1273w
B: 4200w
C: 2100w
D: 1051w

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 wire is needed to connect solar PV modules?

A: SJOO

B: STOO

C: SEWF-2

D: SJOW

7. What are the secondary winding Volts per turn of a 10:1 step-down transformer with a 6-volt primary winding?

A: - 60.0 V

B: - 0.6 V

C: - 6.0 V

D: -1/6 Volt

8. What is typical transformer efficiency?

A: 60% to 80%

B: 98% to 100%

C: 40% to 50%

D: 95% to 98%

9. A 2-amp appliance has 100 ohms. How much power does the appliance use?

A: 350 watts

B: 450 watts

C: 300 watts

D: 400 watts

10. A pull box with #4 AWG wires has 41 and 63 conduits entering and leaving opposing sides. The minimum pull box length is what?

A: 104 mm

B: 504 mm

C: 604 mm

D: 328 mm

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 logic gate outputs high with all inputs low?

- A: OR
- B: NAND
- C: NOR
- D: AND

12. Thermal insulation uses which of the following?

- A: The temperature of the BX cable touching a wire must not exceed 32 C
- B: Thermal insulation should never touch wires
- C: Thermal Insulation and Knob and Tube wiring must be 25 mm apart
- D: Thermal insulation can be sprayed into outlet boxes without corroding wires

13. Which CSA enclosure is suitable for indoor use in normal locations?

- A: Type 4 CSA Enclosure
- B: Type 1 CSA Enclosure
- C: Type 3 CSA Enclosure
- D: Type 2 CSA Enclosure

14. What is the parallel circuit resistance with 30 and 50-ohm resistors?

- A: 10.55 ohms
- B: 22.50 ohms
- C: 18.75 ohms
- D: 6.85 ohms

15. A warehouse needs 60 kW of general lighting from 150-watt incandescent bulbs on 120 volts. What current does each lamp draw?

- A: 1-ampere
- B: 1.50 amps
- C: 1.25 amps
- D: 0.75 amps

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. Transformer copper losses at rated load are 22 watts. What copper losses would result from a 75% load reduction?

- A: 22 watts
- B: 9.9 watts
- C: 16.5 watts
- D: 12.4 watts

17. What is the feeder conductor load for a panel that provides 41, 15 Amp controlled car parking stalls?

- A: 18.9 kW
- B: 47 kW
- C: 25.55 KW
- D: 14.3 kW

18. What signal does an environmental regulator pressure transmitter output?

- A: 4-20mA DC
- B: 0 -5V AC
- C: 4- 20mA AC
- D: 0 -5 V DC

19. A 4-20 MA analogue signal controls a pressure range of 0-1200 psi The value at 7 MA?

- A: 105 psi
- B: 355 psi
- C: 325 psi
- D: 225 psi

20. Troubleshooting two 3-phase power wattmeter, one reads twice the other. What is the % power factor?

- A: 45%
- B: 69%
- C: 55%
- D: 87%

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. Which formula calculates alternator percent voltage regulation?

- A: $(FLV - NLV) / FLV * 100$
- B: $(NLV - FLV) / NLV * 100$
- C: $(FLV - NLV) / NLV * 100$
- D: $(NLV - FLV) / FLV * 100$

22. Installing a 600 A emergency switch requires what size copper bonding conductor?

- A: # 1 AWG
- B: # 2 AWG
- C: # 6 AWG
- D: # 4 AWG

23. A Variable Frequency Drive inserts which of the following into an AC induction motor's stator for electric frictionless braking?

- A: Resistance
- B: Direct current
- C: Inverted AC
- D: Capacitance

24. How can a single-phase AC capacitor start, induction-run motor reverse rotation?

- A: Connect supply in reverse
- B: Reverse the start winding connector
- C: Reverse the run winding connector
- D: Switch start and run windings

25. What is the type of MI Mineral-Insulated Cable's maximum voltage?

- A: 1000 V
- B: 300 V
- C: 600 V
- D: 750 V



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)
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- 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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