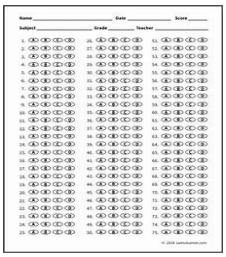


The Electrical License Examination

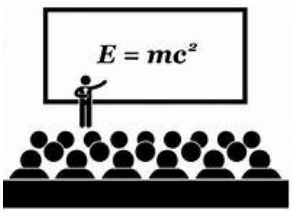
Understanding the test from 'both sides of the fence' will make the testing session run more smoothly as the administrator will understand test-takers perspective.

Many test takers' livelihoods, professional advancement and professional development depend on the results of the exams they take.

Add to that, the time and money investment that test takers make to prepare themselves for the test experience. Between study materials, coursework, the cost of the exam itself – and the fact that their careers may depend on how they perform, we realize that taking a test can be stressful and anxiety-producing.

We understand that the more you know about what to expect, the more confident and comfortable you'll be on exam day; and the better you'll score!

Many young people entering the field today do not realize it's a skilled trade, it is listed as a profession. Do you know why you are required to be a professional? Because electricity can kill you or someone else working with it. Education and continuing education is required throughout your career. Obtaining your license is just the start of your journey through electrical education. Licensing is a formal and legal way of defining a profession and a means of including in practice those who meet predetermined standards deemed to be necessary for protection of the public. There is a difference when hiring an experienced, qualified and knowledgeable electrician compared to a licensed electrical installer, in court referred to as an electrical worker. **The major purpose of a license is to protect public health and safety by preventing unqualified people from practicing a given profession or occupation**. A license must be treated with respect.



Years ago, a certain state offered to allow a person who did not pass the exam the opportunity to go to a class where an instructor would go over every question not only giving the answer but showing how it was reached. This is education at its finest.

Now I ask what is wrong with this type of education? Well the answer is, they don't want to make the exam too easy or, writing exam questions very difficult and tiring process and we certainly don't want anyone **copying questions** and passing them on to others in which they could possibly locate the question (**but, how would the applicant know it's the correct answer?**) before they take their exam giving them an unfair advantage over the applicant that is limited in time to find the question and then select from multiple choice what they feel is the correct answer?

Are receptacles connected in series or parallel?

How would you answer **JOURNEYMAN GENERAL KNOWLEDGE EXAM #2 Question #3?**

3. Receptacles in residential wiring are regularly connected in ____.

(a) parallel (b) perpendicular (c) series (d) diagonal

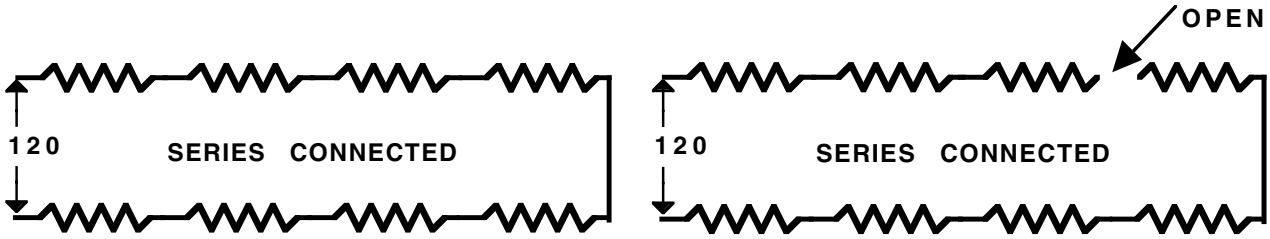
Your score is instantaneous but you will **never know what questions were wrong** or where their weaknesses are.

How would the applicant ever find out what the **correct answer** is? They are not permitted to ever knowing the **correct answer**. How are you to be educated if you **never** know the correct answer?

Question #3 is a good example, what is the **correct answer**? I assume their choice is (a) parallel, but is that the **correct answer**?

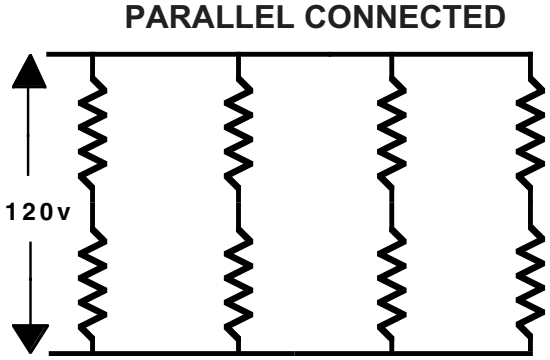
In your time in the electrical trade you have been taught the series circuit and the parallel circuit. The best way for me to show you the **correct answer** is to put it in a drawing.

The branch shown has four duplex or eight single receptacles.



With a series connection and open anywhere in the circuit would drop voltage to ALL the loads. So, series is NOT the answer.

Now, lets check to see if the receptacles are connected in parallel.



OPEN BOOK PRACTICE 7 QUESTIONS TIME LIMIT: 16 MINUTES

1. Conductors supplying two or more motors shall have an ampacity equal to the sum of the full-load current rating of all the motors plus ____ % of the highest rated motor in the group.

(a) 25 (b) 80 (c) 100 (d) 125

2. In a residence, no point along the floor line in any wall space may be more than ____ feet from an outlet.

(a) 6 (b) 6 1/2 (c) 12 (d) 10

3. Which of the following statements about a #2 THHN copper conductor is correct?

(a) Its maximum operating temperature is 90° C
(b) It has a nylon insulation
(c) Its area is .067 square inches
(d) It has a DC resistance of .319 ohms per m/ft from Table 8

4. The maximum permissible open circuit voltage of electric-discharge lighting equipment used in a dwelling occupancy is ____ volts.

(a) 1000 (b) 120 (c) 240 (d) 50

5. Voltage shall not exceed 600 volts between conductors on branch circuits supplying only ballasts for electric-discharge lamps in tunnels with a height of not less than ____ feet.

(a) 12 (b) 15 (c) 18 (d) 22

6. Noninsulated busbars will have a minimum space of ____ inches between the bottom of enclosure and busbar.

(a) 6 (b) 8 (c) 10 (d) 12

7. If made up with threadless couplings, a 1" rigid metal conduit shall be supported at least every ____ feet.

(a) 6 (b) 8 (c) 10 (d) 12

ANSWERS TO OPEN BOOK PRACTICE KEY TO USING NEC INDEX

1. **(a)** 430.24 Section 430.24 reads: Shall have of an ampacity not less than 125% of the full-load current rating of the highest rated motor plus the sum of the full-load current ratings of all other motors in the group. Question #1 reads: The sum of the full-load current rating of **ALL** the motors plus ____% of the highest rated motor. The highest rated motor was already included at 100% in the question in **ALL** motors, so you need to add 25% more to make it 125%.

2. **(a)** 210.52(A)(1). The key is to read the exact wording in the question. We space outlets 12' apart in a residence, but section 210.52(A)(1) states that **no point along the floor line** in any wall space is more than 6' from an outlet.

3. **(a)** Table 310.4(A). The key is THH**N**, the **N** is a nylon **covering**, not insulation. 0.067 square inches is from Table 8 which is for **bare** conductors. 0.319 ohms per m/ft from Table 8 is for **aluminum** not copper.

4. **(a)** 410.140(B). The key is to check the NEC index for "Electric discharge lighting", check each listing and 1,000 volts or less, 410-XIII will lead you to the answer in section 410.140(B).

5. **(c)** 210.6(D)(1)(b). "Ballasts" and "Electric-discharge lamps" are listed in the index but are no help. "Tunnel" is not even listed in the index. The key, "luminaires voltages" from the index will lead you to section 210.6 and the answer.

6. **(c)** Table 408.5. "Noninsulated" is not listed in the index. "Busbars" is listed, but of no help. The key, think of where you would find a busbar located, in an enclosure, a **panelboard**. Article 408 will lead you to the answer in Table 408.5.

7. **(c)** 344.30. The key word is **"threadless"** couplings. Section 344.30(B)(1) states a conduit shall be supported at least every 10'. 344.30(B)(1) states if made up with **threaded** couplings, you can use Table 344.30(B)(2) for supports.

When looking at the answer choices and then reading the Code book REMEMBER: 12" is 1 foot, 60 seconds is one minute, twelve is 12, 7 1/2' is 7' 6", 33% is one third, 96" is 8 feet, 18" is 1 1/2', 2 1/2' is 30", 54" is 4 1/2', 2' is 24", and 6' 6" is 6 1/2'.