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# INTRODUCTION

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## HOW TO PREPARE FOR THE EXAM

Congratulations on purchasing this book! You have taken the first step towards successfully passing your Master Electrician's Licensing Exam. You have in your hands the best self-study guide available for journeyman electrician's exam preparation. This book will not make you a competent electrician, nor teach you the electrical trade, but it will give you an idea of the type of questions asked on most electrician's licensing exams and how to answer them correctly. This book covers practically all the subjects you will likely be tested on, including: branch circuits and feeders, motors and motor controls, transformers, hazardous locations, special occupancies, conductors, box and raceway fill, services, and the ever present electrical calculations, plus much more.

Most electrician's licensing exams consists of multiple-choice questions therefore, these are the types of questions shown in this exam preparation guide. The exam questions you may encounter may be, fill in the blank, complete a sentence, select a correct choice, or complete a math calculation. In this self-study guide you will find simulated exams, with questions much like the actual test questions. These questions are an example of the many questions the author and his students come upon when taking numerous licensing exams in recent years.

### **Begin your exam preparation with two important points in mind.**

- \* Opportunities in life will arise - be prepared for them.
- \* The more you LEARN - the more you EARN.

Attempting to take an exam without preparation is a complete waste of time. Don't make that mistake. Attend classes at your local community college. Attend seminars, electrical code updates, and company sponsored programs. Many major electrical suppliers and local unions sponsor classes of this type at no cost. Take advantage of them.

Become familiar with the National Electrical Code®; the Code has a LANGUAGE all its own. Understanding this language will help you to better interpret the NEC®. Do not become intimidated by its length. Become thoroughly familiar with the definitions in Chapter One; if you don't, the remainder of the NEC® will be difficult to comprehend. Remember, on the job we use different "lingo" and phrases compared to the way the NEC® is written and to the way many test questions are expressed.

## **HOW TO STUDY**

Before beginning to study, get into the right frame of mind, and relax. Study in a quiet place that is conducive to learning. If such a place is not available, go to your local library. It is important that you have the right atmosphere in which to study.

It is much better to study many short lengths of time than attempt to study fewer, longer lengths of time. Try to study a little while, say about an hour, every evening. You will need the support and understanding of your family to set aside this much needed time.

As you study this exam preparation book, the NEC® and other references, always highlight the important points. This makes it easier to locate Code references when taking the exam.

Use a straight edge, such as a six-inch ruler when using the NEC® tables and charts. A very common mistake is to get on the wrong line when using these tables; when that happens, the result is an incorrect answer.

Use tabs on the major sections of your NEC®, so they are faster and easier to locate when taking the exam. The national average allowed per question is less than three minutes, you cannot waste time.

## **WHAT TO STUDY**

A common reason for one to be unsuccessful when attempting to pass electrical exams is not knowing what to study. Approximately forty percent of most exams are known as "core" questions. These type of questions are reflected in this exam preparation book.

**The subject matter covered in most electrical license examinations is:**

- \* Grounding and bonding
- \* Overcurrent protection
- \* Wiring methods and installation
- \* Boxes and fittings
- \* Services and equipment
- \* Motors
- \* Special occupancies
- \* Load calculations
- \* Lighting
- \* Appliances
- \* Box and raceway fill
- \* Hazardous locations

Become very familiar with questions on the above. Knowing what to study is a major step toward passing your exam.

## HELPFUL HINTS ON TAKING THE EXAM

- \* **Complete the easy questions first.** On most tests, all questions are valued the same. If you become too frustrated on any one question, it may reflect upon your entire test.
- \* **Keep track of time.** Do not spend too much time on one question. If a question is difficult for you, mark the answer sheet the answer you think is correct and place a check ( ✓ ) by that question in the examination booklet. Then go on to the next question; if you have time after finishing the rest of the exam, you can go back to the questions you have checked. If you simply do not know the answer to a question, take a guess. Choose the answer that is most familiar to you. In most cases, the answer is B or C.
- \* **Only change answers if you know you are right.** - Usually, your first answer is your best answer.
- \* **Relax** - Do not get uptight and stressed out when testing.
- \* **Tab your Code Book.** - References are easier and faster to find.
- \* **Use a straightedge.** - Prevent getting on the wrong line when referring to the tables in the NEC®.
- \* **Get a good nights rest before the exam.** - Do not attempt to drive several hours to an exam site; be rested and alert.
- \* **Understand the question.** - One key word in a question can make a difference in what the question is asking. Underlining key words will help you to understand the meaning of the question.
- \* **Use a dependable calculator.** - Use a solar-powered calculator that has a battery back-up. Since many test sites are not well lighted, this type of calculator will prepare you for such a situation. If possible, bring along a spare calculator.
- \* **Show up at least 30 minutes prior to your exam time.** – Be sure to allow yourself time for traffic, etc. when planning your route to the exam location.

## TYPICAL REGULATIONS AT THE PLACE OF EXAMINATION

Most licensing agencies outsource their examinations to a testing agency that is a separate entity from the licensing agency. After you get approval from the licensing agency to take the exam, contact the testing agency for their regulations. To ensure that all examinees are examined under equally favorable conditions, the following regulations and procedures are observed at most examination sites:

- \* Each examinee must present proper photo identification, preferably your driver's license before you will be permitted to take the examination.
- \* No cameras, notes, tape recorders, pagers, or cellular phones are allowed in the examination room.

- \* No one will be permitted to work beyond the established time limits.
- \* Examinees are not permitted any reference material EXCEPT the National Electrical Code®.
- \* Examinees will be permitted to use noiseless calculators during the examination. Calculators which provide programmable ability or pre-programmed calculators are prohibited.
- \* Permission of an examination proctor must be obtained before leaving the room while the examination is in progress.
- \* Each examinee is assigned to a seat specifically designated by name and/or number when admitted to the examination room.

## TYPICAL EXAMINATION QUESTIONS

### **EXAMPLE 1**

As a general rule, an insulated equipment grounding conductor of a branch circuit shall be identified by which of the following colors?

- A. gray
- B. white
- C. black
- D. green

Here you are asked to select from the listed colors the one that is to be used to identify the equipment grounding conductor of a branch circuit. Since Section 250.119 of the NEC® requires that green or green with yellow stripes be the color of insulation used on a grounding conductor (when it is not bare), therefore, the answer is **D** when exceptions are not applicable.

### **EXAMPLE 2**

An emergency electrical disconnect provided for a gasoline motor fuel dispensing pump must be located NOT more than \_\_\_\_\_ from the fuel dispensing device it serves.

- A. 20 feet
- B. 50 feet
- C. 75 feet
- D. 100 feet

Here the "question" is in the form of a fill-in-the-blank statement. Your task is to select the choice that best completes the statement. In this case, you should have selected **D** since Section 514.11(A) of the NEC® specifies that emergency disconnects shall be within not less than 20 ft. and NOT more than 100 ft. from the fuel dispensing devices they serve.