

## **Requirements for the Exam**

A Master or Journeyman Electrical Exam is a state or county certified exam to test whether or not the potential electrician has the ability and knowledge to practice in the electrical field. This is a test of general knowledge, code, theory, safety, electrical design and in some states business. The exact format of each exam varies from state to state. Some states have additional requirements pertaining to its local Code in addition to the minimum NEC requirement.

Journeyman or Master Electrical Exams may require the candidate to earn hours from an accredited school or through an electrical program. A number of hours or years of experience in the field may also be required to ensure that the individual has experience in either residential, commercial, or industrial installation.

The following are ways in which the candidate can verify his or her work experience or be eligible to sit for the exam:

- By obtaining paystubs or W2s from an electrical contractor employer
- By acquiring a letter on company letterhead from a past or recent employer
- By possessing a valid Journeyman or Master Electrician's license from a another state

A passing score of at least 70% or above is required for all exams.

## **What to bring to the exam**

Check with the county or state administering the exam well in advance and inquire if the exam is written or computerized. Find out what items are allowed in the exam room and purchase all of them. Learn how to use them early while studying. Here is a short list of what some states may permit:

- 📖 The 2011 NEC Code Book
- 📖 NEC Handbook
- 📖 The Electrician's Handbook
- 📖 Local, State or Federal Tax Books
- 📖 Ugly's Book
- 📖 Keyword Index
- 📖 A calculator

## Question Formatting on the Exam

1. Examination questions are formatted in a manner that requires the applicant to demonstrate electrical theory, code and general knowledge.
2. Questions that require calculations resulting in an absolute answer may not always include multiple-choice answers.
3. Formulas in a question ensure that you must refer NEC code book to arrive at the correct answer.
4. Questions requiring more than one multiple-choice answer selection are clearly identified.
5. Questions with a negative-response format such as “which of the following **does not** apply,” are only used in limited instances.
6. Individual examinations are modified not less than three times each National Electrical Code or National Electrical Safety Code cycle.
7. Some questions relate to Code violations, repeatedly made by installers of electrical wiring.

## Topics Covered on the Exam

- 📍 Conductor Ampacities
- 📍 Motor Calculations
- 📍 Conduit and Box Fill
- 📍 Household and Commercial Cooking Equipment Demand Factors
- 📍 Single Family Dwelling Service Calculations
- 📍 Multifamily Dwelling Service Calculations
- 📍 Single Phase Transformer & Three Phase Transformer Calculations
- 📍 Resistance Values
- 📍 Apparent Powers, and Power Factor, Voltage, Current, and Resistance
- 📍 Types and Functions of Motors
- 📍 Measuring Power and Energy
- 📍 Lighting and Outlet Symbols
- 📍 Schematic Diagrams
- 📍 Fuses and Circuit Breakers
- 📍 Types of Electrical Cable and Conduit
- 📍 Raceways and Wireways
- 📍 Overcurrent Protection Devices
- 📍 NEC Particulars
- 📍 Requirements for Conductors

### Rule of Thumb

80% of the questions will come from Chapter 1-4 of the NEC code book.  
**Allocate your time wisely.**

## **Exam Preparation Tips**

Many Electrical exam takers become perplexed when dealing with the 4 to 8 hour long exams. The best way to reduce this stress is to be prepared to the best of your ability. Research and find out exactly what you will be faced with when you walk into the exam room. Find out the amount of questions, how they are formatted, time limits, topics and topic percentages that will be on the exam.

Keep these basics in mind:

1. Make sure you are ready in advance. Review any notes you may have taken during your study time.
2. NEC tabs and highlighters are a good way to identify chapters and code sections.
3. Feel free to create or join a study group, which can enhance your knowledge and give you clarifications about any hang-ups you may have.
4. Get enough rest to be prepared for this 4 to 8 hour exam. You will need this to be mentally focused.
5. Eat a nutritious breakfast but nothing too heavy
6. Allow yourself plenty of time to reach the examination location before the exam is scheduled to begin

## **Fundamentals**

A wide variety of the questions will be based on general knowledge, code, theory and calculations. This is the initial items you will need to master to feel at ease in preparing for the exam. Again, refer to the study guides along with the NEC code book. Stay focused!

**Good Luck!**

To keep track of your scores and progress, put the following information at the top of a separate sheet of paper along with your exam answers. It is recommended that you take each exam 3 times to increase your knowledge and speed.

**Date** \_\_\_\_\_ **Test Time** \_\_\_\_\_ **Score** \_\_\_\_\_

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**Date** \_\_\_\_\_ **Test Time** \_\_\_\_\_ **Score** \_\_\_\_\_

## **PRACTICE EXAM 1**

**Use your NEC codebook to help locate the answers for the following questions in Exam 1. There is a 3 ½ hour time limit for this exam to prepare you for the time limit on your Electrical Exam.**

- 1) Which of the following devices is used for assembly as an integral part of a motor or motor-compressor that protects the motor against dangerous overheating due to overload and failure to start?
  - A. Thermal protector
  - B. Surge-protective device
  - C. Surge arrester
  - D. All of the above
  
- 2) What is the allowed ampacity of ten # 10, RHW, 75°C Al conductors installed in the same conduit?
  - A. 11.5
  - B. 18.5
  - C. 16.5
  - D. 17.5

- 3) MC cables \_\_\_\_\_, containing four or fewer conductors shall be secured within 12 inches of every box, cabinet, fitting, or other cable termination.
- A. not larger than 30 AWG
  - B. not larger than 10 AWG
  - C. not larger than 70 AWG
  - D. not larger than 50 AWG
- 4) Type CMX communications cable less than \_\_\_\_\_ in diameter shall be permitted to be installed in non concealed spaces in multifamily dwellings.
- A. 0.20 inch
  - B. 0.45 inch
  - C. 0.15 inch
  - D. 0.25 inch
- 5) Where the loads to be supplied are variable, overcurrent protection shall be set at not more than \_\_\_\_\_ of the phase converter nameplate.
- A. 89 percent
  - B. 115 percent
  - C. 125 percent
  - D. 230 percent
- 6) What amount of torque value is required for the control circuit devices with screw-type pressure terminals used with 14 AWG or smaller copper conductors?
- A. Minimum of 8 lb-inches
  - B. Minimum of 6 lb-inches
  - C. Minimum of 7 lb-inches
  - D. Minimum of 5 lb-inches
- 7) Overcurrent protection shall not exceed \_\_\_\_\_ amperes for 18 AWG conductors and \_\_\_\_\_ amperes for 16 AWG conductors.
- A. 6 and 11
  - B. 5 and 10
  - C. 6 and 15
  - D. 7 and 10