SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead®

STUDY GUIDE
APPRENTICE CONSTRUCTION ELECTRICIAN – STEP 1 KNOWLEDGE TEST

TEST #2839

INTRODUCTION

The **2839 Apprentice Construction Electrician Step 1** is a job knowledge test designed to cover the major knowledge areas necessary to perform the job. This Guide contains strategies to use for taking tests and a study outline, which includes knowledge categories, major job activities, and study references.

TEST SESSION

It is important that you follow the directions of the Test Administrator exactly. If you have any questions about the testing session, be sure to ask the Test Administrator before the testing begins. During testing, you may NOT leave the room, talk, smoke, eat, or drink. Since some tests take several hours, you should consider these factors before the test begins.

All cellular/mobile phones, pagers or other electronic equipment will NOT be allowed in the testing area.

All questions on this test are multiple-choice format and have four possible answers. All knowledge tests will be taken on the computer. Consult the following link and click on Computer Based Testing for more information: www.edison.com/studyguides.

The test has a three hour time limit. A scientific calculator will be provided for you to use during the test. The calculator provided during the test session will be one of these models:

Casio fx-250HC, Texas Instruments TI-30XA, Texas Instruments TI-36X

You will NOT be able to bring or use your own calculator during testing.

You will receive a Test Comment form so that you can make comments about test questions. Write any comments you have and turn it in with your test when you are done.

INFORMATION GUIDE FEEDBACK

At the end of this Guide you have been provided with an Information Guide Feedback page. If a procedure or policy has changed, making any part of this Guide incorrect, your feedback would be appreciated so that corrections can be made.

TEST TAKING STRATEGIES

Your emotional and physical state during the test may determine whether you are prepared to do your best. The following list provides common sense techniques you can use before the test begins.

CONFIDENCE

If you feel confident about passing the test, you may lose some of your anxiety. Think of the test as a way of demonstrating how much you know, the skills you can apply, the problems you can solve, and your good judgment capabilities.

PUNCTUALITY

Arrive early enough to feel relaxed and comfortable before the test begins.

CONCENTRATION

Try to block out all distractions and concentrate only on the test. You will not only finish faster but you will reduce your chances of making careless mistakes. If possible, select a seat away from others who might be distracting. If lighting in the room is poor, sit under a light fixture. If the test room becomes noisy or there are other distractions or irregularities, mention them to the Test Administrator immediately.

BUDGET YOUR TIMES

Pace yourself carefully to ensure that you will have enough time to complete all items and review your answers.

READ CRITICALLY

Read all directions and questions carefully. Even though the first or second answer choice looks good, be sure to read all the choices before selecting your answer.

MAKE EDUCATED GUESSES

Make an educated guess if you do not know the answer or if you are unsure of it.

CHANGING ANSWERS

If you need to change an answer when testing on a computer, be sure that the new answer is selected instead of the old one.

RETURN TO DIFFICULT QUESTIONS

If particular questions seem difficult to understand, make a note of them, continue with the test and return to them later.

DOUBLE CHECK MATH CALCULATIONS

Use scratch paper to double check your mathematical calculations.

REVIEW

If time permits, review your answers. Do the questions you skipped previously. When testing on a computer, make sure each multiple choice question has a dot next to the correct answer.

Remember the techniques described in this section are only suggestions. You should follow the test taking methods that work best for you.

JOB KNOWLEDGE CATEGORIES AND STUDY REFERENCES

Below are the major job knowledge areas (topics) covered on the **2839 Apprentice Construction Electrician Step 1 Test**. Listed next to each knowledge category is the number of items on the exam that will measure that topic. You can use this information to guide your studying. Some exams also contain additional pretest items. Pretest items will appear just like all of the other items on your exam, but they will not affect your score. They are an essential part of ensuring the **2839 Apprentice Construction Electrician Step 1 Test** remains relevant to successful performance of the job.

There is a total of 76 items on the test and the passing score is 75%.

EQUIPMENT AND ITS INSTALLATION AND REPAIR (17 ITEMS)

Knowledge of the names and basic functionality of substation equipment (e.g., transformers, circuit breakers, disconnects, CTs, PTs, etc.). Knowledge of rigging tools, equipment, configurations and techniques (e.g., rigging ropes, cable, tackle, slings, hitches, hoists, and knots). Knowledge of bolted connections, torque specifications, and proper cleaning (e.g., greasing) and tinning of various metal types.

CONDUCTORS AND INSULATORS (8 ITEMS)

Knowledge of which materials conduct better than others and their respective properties.

SIGNALS (4 ITEMS)

Knowledge of basic hand signals to assist operators using power industrial equipment.

TOOLS AND THEIR USAGE (24 ITEMS)

Knowledge of types of hand and power tools and their purposes and proper use (e.g., hammers, pliers, rotary hammer, table saw). Skill in using construction tools (e.g., nails) and materials (e.g., lumber, conduit).

SAFETY (23 ITEMS)

Knowledge of general work safety, electrical safety, and first aid.

STUDY REFERENCES

Below is a list of references you can use to study as you prepare for the test.

EQUIPMENT AND ITS INSTALLATION AND REPAIR

Croft, T., Hartwell, F. P., & Summers, W. I. (2013). *American electricians' handbook* (16th ed.).

Henry, T. (2005). *Ohm's law, electrical math and voltage drop calculations*.

Occupational Safety & Health Administration. *Substation equipment*. https://www.osha.gov/SLTC/etools/electric_power/illustrated_glossary/substation.html#Equipment

CONDUCTORS AND INSULATORS

Croft, T., Hartwell, F. P., & Summers, W. I. (2013). American electricians' handbook (16th ed.).

Occupational Safety & Health Administration. Controlling electrical hazards. https://www.osha.gov/Publications/osha3075.pdf

United States Bureau of Naval Personnel. (1960). Basic electricity.

SIGNALS

National Commission for the Certification of Crane Operators. (2010). *Signalperson Reference Manual.* https://www.nccco.org/docs/default-source/reference-materials-2014/sgp_rm_081213a.pdf?sfvrsn=2

TOOLS AND THEIR USAGE

Croft, T., Hartwell, F. P., & Summers, W. I. (2013). *American electricians' handbook* (16th ed.).

McDonnell, L. P., & Kaumeheiwa, A. I. (1978). *The use of hand woodworking tools*.

McDonnell, L. P., & Kaumeheiwa, A. I. (1980). *The use of portable power tools*.

Missouri Department of Elementary and Secondary Education. *Common hand tools*. https://dese.mo.gov/sites/default/files/aged-AgMechI-Student-Ref..pdf

United States Bureau of Naval Personnel. (1960). *Basic electricity*.

SAFETY

American Red Cross. *First aid manual*. https://www.redcross.org/content/dam/redcross/atg/PHSS_UX_Content/FA-CPR-AED-Part-Manual.pdf

Croft, T., Hartwell, F. P., & Summers, W. I. (2013). *American electricians' handbook* (16th ed.).

Mayo Clinic. *First aid*. https://www.mayoclinic.org/first-aid

McDonnell, L. P., & Kaumeheiwa, A. I. (1980). *The use of portable power tools*.

Occupational Safety & Health Administration. *Eye and face protection*. https://www.osha.gov/SLTC/eyefaceprotection/standards.html

Occupational Safety & Health Administration. *Controlling electrical hazards*. https://www.osha.gov/Publications/osha3075.pdf

Occupational Safety & Health Administration. *Construction safety and health: Electrical safety*. https://www.osha.gov/sites/default/files/2018-12/fy07_sh_1658607_4_electrical_safety_participant_guide.pdf

STUDY GUIDE FEEDBACK

Please use this page to notify us of any changes in policies, procedures, or materials affecting this guide. Once completed, return to:

Southern California Edison
Human Resources – Testing Operations
6010 Irwindale Ave, Suite B
Irwindale, CA 91706

Test Name: 2839 Apprentice Construction Electrician Step 1 Test

COMMENTS