



# Study Guide for Control Systems Technician

Test Number: 2993

Human Resources  
Southern California Edison Company



## Introduction

The test 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 cell phones and other electronic equipment will NOT be allowed in the testing area.**

All questions on this test are multiple-choice or hot spot questions. Multiple choice questions have four possible answers. Hot spot questions have a picture, and you must click the correct spot on the picture to answer the question. All knowledge tests will be taken on the computer. For more information on computer based testing, follow the link: [www.edison.com/studyguides](http://www.edison.com/studyguides) and click on Computer Based Testing Information.

This test is divided into two parts. When you reach the end of part one, you will have to submit your answers to reach part two. You will not be able to change any of your answers from part one after you submit your responses. Once you have submitted part one, you have the option to take a 30 minute break. If you chose not to take that break, you can proceed directly to part two. **The test has a total time limit of four hours.**

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.

### Study Guide Feedback

At the end of this Guide you have been provided with a Study 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

### Introduction

The test contains multiple-choice questions and may also contain hot spot questions. The purpose of this section is to help you to identify some special features of a multiple-choice test and to suggest techniques for you to use when taking one.

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.

Technique	Remarks
<i>Be confident</i>	<ul style="list-style-type: none"> <li>- If you feel confident about passing the test, you may lose some of your anxiety.</li> <li>- 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.</li> </ul>
<i>Be punctual</i>	<ul style="list-style-type: none"> <li>- Arrive early enough to feel relaxed and comfortable before the test begins.</li> </ul>
<i>Concentrate</i>	<ul style="list-style-type: none"> <li>- 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.</li> <li>- If possible, select a seat away from others who might be distracting.</li> <li>- If lighting in the room is poor, sit under a light fixture.</li> <li>- If the test room becomes noisy or there are other distractions or irregularities, mention them to the Test Administrator immediately.</li> </ul>
<i>Budget your times</i>	<ul style="list-style-type: none"> <li>- Pace yourself carefully to ensure that you will have enough time to complete all items and review your answers.</li> </ul>
<i>Read critically</i>	<ul style="list-style-type: none"> <li>- Read all directions and questions carefully.</li> <li>- Even though the first or second answer choice looks good, be sure to read all the choices before selecting your answer.</li> </ul>
<i>Make educated guesses</i>	<ul style="list-style-type: none"> <li>- Make an educated guess if you do not know the answer or if you are unsure of it.</li> </ul>
<i>Changing answers</i>	<ul style="list-style-type: none"> <li>- If you need to change an answer, be sure to erase your previous answer completely. On the computer, be sure that the new answer is selected instead of the old one.</li> </ul>



- 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.
  - Make sure each answer bubble is completely filled in. Erase any stray marks on your answer sheet. When testing on the computer, make sure each multiple choice question has a green 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 2993 Control Systems Technician Knowledge 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 2993 Control Systems Technician Knowledge Test remains relevant to successful performance of the job.

There are a total of 92 items on the test and the passing score is 70%.

### A. Computer Technology (37 items)

Refers to the languages, hardware, software, components, and mechanics of computer and data communication systems, and other associated data collection, processing, and display devices- together with their purpose, function, and inter-relationships. This includes, but is not limited to: binary expression, memory, modems, data transmission cables, and network topology.

#### References for Computer Technology:

- ✓ Aspinwall & Todd. *Troubleshooting your PC. 4<sup>th</sup> ed.* Foster City: MIS Press. 1999.
- ✓ Valkenburg, Nooger, & Neville. *Basis Solid-State Electronics. Revised ed. Prompt, 1992.*
- ✓ Comer, Douglas. *Internetworking with TCP/IP.* Pearson Education Inc., 2014.
- ✓ McQuerry, S. *Interconnecting Cisco Network Devices.* Cisco Press, 2000.
- ✓ Sippl, Charles J. *Data Communications Dictionary.* Van Nostrand Reinhold, 1976.
- ✓ Sybex. *Networking Complete.* Sybex, 2002.

### B. Electrical Theory and Application (37 items)

Refers to the knowledge of the AC and DC power theory, various scaling and numbering systems, the computational methods for obtaining electrical and mathematical equivalences, and the application of such theory, terms, and nomenclature to the servicing and maintenance of operating power systems.

#### References for Electrical Power Theory and Application:

- ✓ Croft, Terrell, et al. *American Electrician's Handbook.* McGraw-Hill, 2013.
- ✓ Gibilisco, Stan. *Teach Yourself Electricity and Electronics. 3<sup>rd</sup> ed.* New York: McGraw Hill. 2002.
- ✓ Hart, George. *Ugly's Electrical References.* Burleson Distributing Corporation, 2005.
- ✓ Henry, Tom. *Ohm's Law, Electrical Math and Voltage Drop Calculations. Revised ed. 1992*
- ✓ Mileaf, Harry, ed. *Electricity One-Seven. 2nd ed.* New Jersey: Prentice
- ✓ Valkenburg, Nooger, & Neville. *Basis Solid-State Electronics. Revised ed. Prompt, 1992.*



### **C. Tools and Equipment (14 items)**

Refers to the knowledge of tools, materials, parts, equipment, and instruments used to service and maintain computer and other electrical information systems including oscilloscope, multimeter, digital voltmeter, and spectrum analyzer — together with their purpose, function, nomenclature, and use.

#### References for Tools and Equipment:

- ✓ Croft, Terrell, et al. *American Electrician's Handbook*. McGraw-Hill, 2013.
- ✓ Gibilisco, Stan. *Teach Yourself Electricity and Electronics*. 3<sup>rd</sup> ed. New York: McGraw Hill. 2002.
- ✓ Mileaf, Harry, ed. *Electricity One-Seven*. 2nd ed. New Jersey: Prentice
- ✓ Valkenburg, Nooger, & Neville. *Basis Solid-State Electronics*. Revised ed. Prompt, 1992.

### **D. Safety (4 items)**

Refers to the knowledge of work safety, electrical safety, safety hazards.

#### References for Safety

- ✓ UNITED STATES DEPARTMENT OF LABOR. *Occupational Safety and Health Administration*, [www.osha.gov/](http://www.osha.gov/).



## 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  
G.O. 5, 1st Floor  
1515 Walnut Ave.  
Rosemead, CA 91770

**Test Name: 2993 Control Systems Technician Knowledge Test**

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