SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

STUDY GUIDE

FOR

CONTROL OPERATOR

TEST NUMBER: 2467

INTRODUCTION

The **2467 Control Operator 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, 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.

The test has a three-hour time limit.

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.

TEST MATERIALS

You will be provided with all of the materials necessary to complete the knowledge test. A scientific calculator will be provided for you to use during the test.

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

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

The test contains multiple-choice 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.

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 TIME

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. Make sure each multiple-choice question has your correct answer selected.

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 2647 Control Operator 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 the other items on your exam, but they will not affect your score. They are an essential part of ensuring the 2647 Control Operator Test remains relevant to successful performance of the job.

There are a total of 96 items on the 2647 Control Operator knowledge test and the passing score is 70%.

Electrical, Mechanical, Steam Operation (31 items)
Includes AC/DC theory, single line and elementary diagrams, piping and instrumentation drawings (P&IDs), electrical symbols, terminology, basic math (e.g., multiplication, division), general principles of physics and water chemistry including thermal dynamics and fluid flow. Electrical transmission and the generating system operations including alternate and parallel routes, system power demand, generator output, and the total effect of changes in system operation on KVA output.

References

Herman, S. L. (2009). Delmar's Standard Textbook of Electricity. (4th Edition). Delmar Publishing.

Kemp, A. W. (2008). Industrial Mechanics. (2nd Edition). ATP publications.

Lehrman, R. L. (1998). Physics The Easy Way. (3rd Edition). Barron's Educational Series Inc.

Prindle, K, & Prindle, A. (2003). Math the Easy Way. (4thEdition). Barron's Publications.

Steingress, F. M., Frost, H. J., & Walker, D. R. (2009). High Pressure Boilers. (4th Edition). American Technical Publisher's Inc.

Walker, J. R. (2004). Machining Fundamentals. (8th Edition). Goodheart-Willcox Co.

Woodruff, E., Lammers, H., & Lammers, T. (2004). Steam Plant Operation. (8th Edition). McGraw-Hill Publishing.

Inspection Criteria and Equipment Function and Terminology (26 items)
Standards of physical equipment integrity, instrumentation for operational checks and regulations and restrictions that apply to steam plant and combustion turbine operation specifically in the areas of steam turbine, combustion turbine and heat recovery steam generator (HRSG) start up, shut down and loading procedures. Knowledge related to purpose and function of steam plant equipment and electrical generation.

References

Beaty, W. H. (2000). Handbook of Electric Power Calculations. McGraw-Hill.

Gonzalez, A. J. (1995). Monitoring and Diagnosis of Turbine-Driven Generators. Prentice Hall.

Kehlhofer, R., Hannemann, F., et al. (2009). Combined-Cycles Gas and Steam Turbine Power Plants. PennWell.

Kemp, A. W. (2008). Industrial Mechanics. (2nd Edition). ATP publications.

McDonald, J. D. (2007). Electric Power Substations Engineering. (2nd Edition). CRC Press, New York.

Oberg, E., & Jones, F. D. et al. (2008). Machinery's Handbook. (28th Edition). Industrial Press Inc. Reference 3.

Slade, P. G. (2008). The Vacuum Interrupter: Theory, Design, and Application. CRC Press.

Thomas, C. E. (2010). Process, Technology, Equipment, and Systems. Delmar Publishing.

Walker, J. R. (2004). Machining Fundamentals. (8th Edition). Goodheart-Willcox Co.

Woodruff, E., Lammers, H., & Lammers, T. (2004). Steam Plant Operation. (8th Edition). McGraw-Hill Publishing.

Emergency and Standard Operating Procedures (23 items)
Procedures established for normal routine operation and emergency situations following industry standards set forth for monitoring and diagnosing HRSG, turbine, and generator operation and the control and safe operation of high-pressure power plant boilers. Includes knowledge of steam plant and electrical transmission operating procedures.

References

Cal OSHA- CCR: Title 8, Section 3314

Kehlhofer, R., Hannemann, F., et al. (2009). Combined-Cycles Gas and Steam Turbine Power Plants. PennWell.

Walker, J. R. (2004). Machining Fundamentals. (8th Edition). Goodheart-Willcox Co.

Woodruff, E., Lammers, H., & Lammers, T. (2004). Steam Plant Operation. (8th Edition). McGraw-Hill Publishing.

Kemp, A. W. (2008). Industrial Mechanics. (2nd Edition). ATP publications.

Safety and Clearance Procedures (16 items)
First aid, and methods of switching and clearing equipment and operating components. Knowledge of environmental rules and regulations and their application to power plant operation. Lockout/Tagout-Work Authorizations Cal/OSHA CCR Title 8 Section 3314 and Fed/OSHA Regulations Standard 29 CFR Section 1910.147. Accident Prevention Cal/OSHA General Industry Sections (3200-6184).

References

Accident Prevention
Review related links on this website.
(Cal OSHA- Title 8, Section 3314, Section 5002, Section 5194, Section 6150, Section 6980; Federal OSHA: 1910:146, 147, 1200)

Additional Internal Reference Materials

General Electric Steam Turbines for Combined Cycle, Conventional Fossil and Nuclear Electric Power Production
From Google type: G.E. Steam Turbines
Click on the link: “G.E. Power Systems Steam Turbines”

Combustion Turbines and How They Work
From Google type: Combustion Turbines and How They Work
Click on the link: “How Gas Turbine Engines Work”
Click on and review additional links on this website

STUDY GUIDE FEEDBACK

Please email Southern California Edison's Corporate Testing to notify us of any changes in policies, procedures, or materials affecting this guide.

EdisonTesting@sce.com

TEST NAME: 2467 Control Operator Test

COMMENTS