

Information Guide
for
Machinist / Mechanic
(Job Code 8733)

Test Nos. 2783 and 4783

Human Resources
Performance Assessment Services
Southern California Edison
An Edison International Company

NEW 0309

Introduction

The Machinist Mechanic Tests are administered in two phases. The first phase is a job knowledge (# 2783) test designed to cover the major knowledge necessary to perform the job. The second phase is a three-part performance test (# 4783) designed to assess your ability to perform critical tasks relevant to the job. Only candidates who successfully pass the knowledge test will proceed to the performance test.

This *Guide* contains strategies to use for taking tests and a study outline, which includes knowledge categories, job activities, and study references.

Test Scheduling

Employees who apply for positions, bids, and transfers requiring testing before March 9, 2009, will be scheduled for testing by their Supervisor through Human Resources. For those who apply after March 9, 2009, both the employee and their Supervisor will be notified of a scheduled test date by Human Resources. Test times and dates for positions requiring testing will be specified in the bid/transfer/requisition/job posting. Employees should be prepared to test on the specified dates. Only employees who apply for positions requiring testing, and who meet basic qualifications, will be invited to test. Applicants will be scheduled through the recruiter. If you have any questions, please call 626-302-9830.

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 questions on this test are multiple-choice with four possible answers. Prior to March 9, 2009, your answers to the questions are indicated by filling in a circle on an answer sheet with a special mark-sense pencil. For your answers to be read accurately by the scanner, you must fill in the circles completely and erase completely any answer you wish to change. After March 9, 2009 you will take the exam on a computer. For more information on this, please see the next section of this study guide, Computer Based 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.

Test Aids

You are allowed to use a non-programmable scientific calculator for the Machinist / Mechanic Test knowledge test. **Calculators will be provided by the Test Administrator, and will be one of the following three models: Casio fx-250HC, Texas Instruments TI-30XA, TI 36-X.**

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.

Computer Based Testing

Effective **March 9, 2009**, all knowledge tests will be administered on the computer. This information will help prepare you for a knowledge test taken on or after **March 9, 2009**.

Taking an SCE knowledge test on the computer is simple. You do not need any computer experience or typing skills. You will only use the keyboard to enter your candidate ID and password. You'll answer all questions by pressing a single button on the mouse.

Log in Screen

You will be seated at a testing station. When you are seated, the computer will prompt you to enter the candidate ID and password you received in your invitation e-mail. You **MUST** have your candidate ID and password or you will be unable to take the test. Once you have confirmed your identity by entering this information, you will see a list of tests available to you.

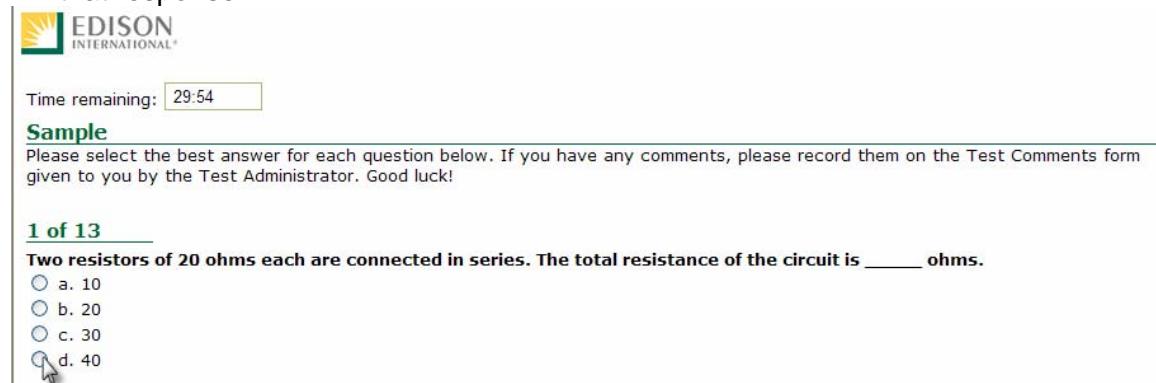
Sample/Tutorial

Before you start your actual test, a Sample/Tutorial Test is provided to help you become familiar with the computer and the mouse. From the list of exams that appear when you complete the log in, you will select Sample/Tutorial. You will have up to 10 minutes to take the Sample/Tutorial Test. The time you spend on this Sample Test DOES NOT count toward your examination time. Sample questions are included so that you may practice answering questions. In the Sample/Tutorial Test, you will get feedback on your answers. You will not receive feedback on your actual test.

Example

During the test, to answer each question, you should move the mouse pointer over the circle (radio button) next to the answer of your choice, and click the left mouse button. The amount of time you have remaining to take the test will always be shown in the top left corner of the screen. A sample is show below:

1. When you begin the test, you can see the total time allowed for completion displayed at the top of the screen. You can scroll up to see that information at any time during the test.
2. In order to answer each question, first read the question and determine the response that best answers the question. Put the mouse pointer directly over the circle corresponding to that response.



The screenshot shows the Edison International test interface. At the top left is the Edison International logo. Below it, a timer displays "Time remaining: 29:54". A section titled "Sample" contains the instruction: "Please select the best answer for each question below. If you have any comments, please record them on the Test Comments form given to you by the Test Administrator. Good luck!". Below this, it says "1 of 13". The question is: "Two resistors of 20 ohms each are connected in series. The total resistance of the circuit is _____ ohms." The options are: a. 10, b. 20, c. 30, and d. 40. A mouse cursor is pointing at the radio button for option d.

3. While the pointer is over the circle corresponding to the best answer, click the left mouse button.



Click the left button when the pointer icon is over your answer choice.

- The answer you selected should now have a green dot in the circle. If you need to select an alternate answer, simply move the pointer over that circle, and click again.



Time remaining:

Sample

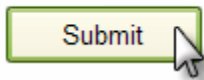
Please select the best answer for each question below. If you have any comments, please record them on the Test Comments form given to you by the Test Administrator. Good luck!

1 of 13

Two resistors of 20 ohms each are connected in series. The total resistance of the circuit is _____ ohms.

- a. 10
- b. 20
- c. 30
- d. 40

- You can change your answers at any time during the test until the time runs out, or you click the "Submit" button.



Test Taking Strategies

Introduction

The Machinist/Mechanic Knowledge 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.

Technique

Remarks

Be confident

- 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.

Be punctual

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

Concentrate

- 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

- You are allowed three hours to complete the knowledge test. The performance tests lasts for eight hours, and is divided into three sections.
- 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, be sure to erase your previous answer completely. On the 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.

Doublecheck mathematical 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 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 for Knowledge Test

Below are the major job knowledge categories that are covered on the Machinist / Mechanic Knowledge Test.

A. Tooling and Rigging

Knowledge of medium to heavy industrial tooling and hydraulically actuated tooling.
Knowledge of measurement tooling including micrometers, dial indicators and calipers.
Knowledge of fundamental rigging practices.

B. Welding (Arc and Gas)

Knowledge of arc and gas welding practices. Knowledge of mig & stick welding, and oxyacetylene cutting/welding.

C. Electrical Safety

Knowledge of industrial electricity safety practices utilized to verify equipment is de-energized and safe to work.

D. Mechanical Skill

Knowledge of machine components repair procedures; knowledge of pipefitting. Knowledge of machinery alignment theory and practice, and fundamental machine shop practice and theory.

E. Print Reading

Knowledge of and ability to read detailed mechanical drawings and P&ID diagrams.

F. Math and Measurement

Basic math required for shop operations including addition, subtraction, multiplication, division, decimals, and ratios. Basic geometry.

G. Mechanical Knowledge

Understanding of mechanical operating principles and basic practical metallurgy. Knowledge of fundamental engineering standards such as screw and pipe threads.

Job Activities for the Knowledge Test

Below are the major job activities covered on the Machinist / Mechanic Knowledge Test.

- 1) Perform alignments using measurement tooling such as micrometers, dial indicators and calipers.
- 2) Perform rigging and lifting of equipment such as motors and pumps.
- 3) Mechanically remove and reinstall motors from mounting base or platform.
- 4) Perform basic repair of machinery including print reading, evaluation of problem, disassembly, refurbishing and re-assembly of machine components.
- 5) Maintain pump and combustion turbines.
- 6) Perform arc and gas welding, including coupon bending.
- 7) Perform basic machining tasks (lathe and milling) including fabrication of fixtures, tool and machinery parts, as well as fabrication and alteration of machinery components.
- 8) Perform basic pipefitting including threading, tubing, fitting and conduit bending.

Performance Test (Test #4783)

Candidates who successfully pass the knowledge test will proceed to a performance test. The performance test will test your ability to perform three tasks relevant to the Machinist / Mechanic position. The three tasks are:

- Welding (3 hours)
- Pack a steam valve (2 hours)
- Equipment Alignment (3 hours)

Study References

The following books may be purchased by accessing the internet's various book sellers or at a local technical book dealer or used book store.

Millwrights and Mechanics Guide, by Carl A. Nelson. McMillan Publishing.

Marks' Standard Handbook for Mechanical Engineers, by Eugene A. Avallone. McGraw-Hill.

Solutions Manual for the Mechanical Engineering Reference Manual, by Michael R. Lindeburg. Professional Publications.

Mechanical Trades Pocket Manual, by Carl A. Nelson. McMillan Publishing.

101 Solved Mechanical Engineering Problems, by Michael R. Lindeburg. Professional Publications.

Welder's Handbook, by Richard Finch.

Soldering, Brazing, and Welding, by Derek Pritchard.

Welding, Fabrication, and Repair, by Frank Marlow.

Pressure Vessel Design Manual, by Dennis R. Moss.

Information 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
8631 Rush Street
Performance Assessment Services, GO4, Ground Floor
Rosemead, CA 91770

Test Name: **Machinist / Mechanic**

Test No: 2783 and 4783

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