

**Study Guide
for
Power Plant Mechanic B**

Test No. 2753 X

**Performance Assessment Services
Southern California Edison
An Edison International Company**

NEW0309

Introduction

The Power Plant Mechanic B 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 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.

The test has a 3 hour (180 minute) time limit. A non-programmable scientific calculator is allowed when taking this 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.**

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.

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.

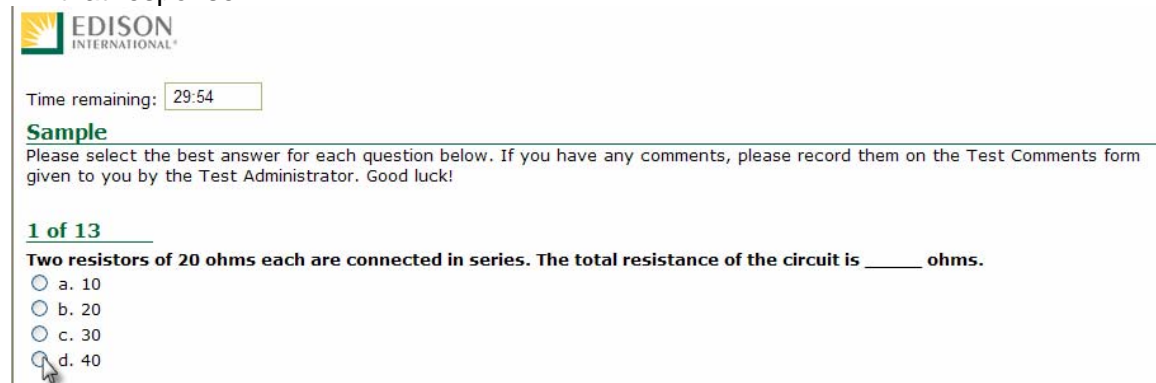
Sample/Tutorial

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

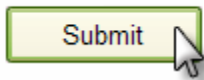
Please select the best answer for each question below. If you have any comments, please record them on the Test Comments form given to you by the Test Administrator. Good luck!

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 Power Plant Mechanic B 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

- 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.

Double check 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.

Study Guide Outline Job Knowledge Categories

Below are the major job knowledge's categories that are covered on the test.

A. Terminology / General Mechanical Knowledge / Standard Procedures

Includes basic knowledge of the terminology of various hand & power tools and equipment used at a generating station. Includes machine shop terminology (i.e., lubrication, threading), use of appropriate tools, blueprint reading.

B. Tools and Equipment

Includes knowledge of the care and use of hand & power tools and equipment (i.e., precision measuring devices). Includes the names of various tools used on the site and their functions, care and handling.

C. Safety

Includes knowledge of Edison and OSHA safety regulations, first aid, clearance, rigging, and grounding. Includes those procedures required to use tools and equipment safely and all safe work practices as they relate to the work environment.

D. Basic Math

Includes techniques of proper measurement, ratios, centering, and the use of basic arithmetic, decimals, fractions, estimating, shop mathematics.

Job Activity Groups

Below are the major job activity groups that are covered on the test. The study references are guides and may not include all the material covered on the test.

ACTIVITY GROUP 1 - AS DIRECTED, ASSISTS THE JOURNEYMAN POWERPLANT MECHANIC IN GENERAL WELDING AND BRAZING OPERATIONS.

The Power Plant Mechanic B assists when performing arc and oxyacetylene welding on pulverizers, centrifuges, and related parts, as well as arc welding on coal pipes. The employee assists with preparation of equipment and parts for welding involving the cutting, heating, and grinding of materials.

ACTIVITY GROUP 2- AS DIRECTED, ASSISTS THE JOURNEYMAN POWERPLANT MECHANIC WITH INSPECTION, OVERHAULING, REPAIRING, AND MAINTENANCE OF PULVERIZERS, CENTRIFUGES, AND OTHER TYPES OF POWER PLANT MECHANIC EQUIPMENT.

The Power Plant Mechanic B assists when using precision measuring instruments to check clearances and/or tolerances, to layout work, to establish reference points for inspection purposes, assembling, disassembling, repairing, and assembling of coal-handling equipment, and when aligning and adjusting parts, components, and equipment according to required specifications. The employee assists in overhauling, cleaning, and repairing of pulverizers and centrifuges at the generating station job site, including coal piping, ribbon conveyors, oil systems, blast gates, gear boxes (e.g., centrifuge gear boxes). The employee assists in the initial inspection of all of the coal-handling equipment and piping. The employee assists with the inspection and troubleshooting of the pulverizers, centrifuges, and associated auxiliary parts and components.

ACTIVITY GROUP 3- AS DIRECTED, ASSISTS THE JOURNEYMAN POWERPLANT MECHANIC IN GENERAL MAINTENANCE AND REPAIRS OF TOOLS, MACHINERY, AND EQUIPMENT.

The Power Plant Mechanic B assists the Power Plant Mechanic A with maintenance of centrifuges, pulverizers, and other types of Power Plant Mechanic equipment. The employee is also responsible for preventive maintenance on machinery and equipment.

ACTIVITY GROUP 4- AS DIRECTED, ASSISTS THE JOURNEYMAN POWERPLANT MECHANIC IN LIFTING, TRANSPORTING, RIGGING, AND MOVING MATERIAL AND EQUIPMENT.

The Power Plant Mechanic B assists using various types of lifting equipment and/or rigging to assemble/disassemble parts, components, or pieces of equipment. The employee also assists using non-motorized moving aids, forklift trucks, and other vehicles to transport and load/unload equipment and materials.

ACTIVITY GROUP 5- AS DIRECTED, ASSISTS THE JOURNEYMAN POWERPLANT MECHANIC IN READING AND INTERPRETING WORK PROCEDURES AND TECHNICAL INFORMATION.

The Power Plant Mechanic B assists with the reading and interpretation of reference materials, blueprints, and other technical written materials in order to make and repair parts and equipment. The employee also uses sketches and diagrams to machine or assemble parts.

Study References

Below is a combined listing of the study references for material covered on the test. The materials listed in this Guide are available from general company references (e.g. ESM, Accident/Fire Prevention Manual, etc.), public/university libraries, general bookstores, university or technical bookstores. Department reference material (e.g., operating letters, on-line computer systems, etc.) again will depend on project.

KNOWLEDGE CATEGORY A - TERMINOLOGY/GENERAL MECHANICAL KNOWLEDGE/STANDARD PROCEDURES

Piping Systems, TPC Training Systems

Pipe Fitters Manual

Machinist Handbook

Shop Theory, by Anderson/Tatro

Rigging Standards Manual

Engineering Handbook

Turbine Generation Manual, Operating Procedure

Modern Welding

Blueprints, TPC Training Systems

Schematics and Symbols, TPC Training Systems

KNOWLEDGE CATEGORY B - TOOLS AND EQUIPMENT

Using Portable Power Tools, TPC Training Systems

Hand Tools, TPC Training Systems

Making Measurements, TPC Training Systems

Shop Theory, by Anderson/Tatro, Chapters 2, 4, 7, 8,14, and 15

Machinist Handbook

KNOWLEDGE CATEGORY C - SAFETY

OSHA Safety Guidelines Manual

Rigging Standards Manual

Accident Prevention Manual

General Rules

Introduction and Policy

Safe Working/General

KNOWLEDGE CATEGORY D - BASIC MATH

Making Measurements, TPC Training Systems

Shop Mathematics, TPC Training Systems

Machinist Handbook

Basic math book (introductory text)

Sample Questions

The following are samples of the type of questions, arranged by knowledge area, that you will encounter in this test. They include a reference for each question to show you the appropriate section to study. An answer page follows the questions.

KNOWLEDGE CATEGORY A - TERMINOLOGY/GENERAL MECHANICAL KNOWLEDGE/STANDARD PROCEDURES

- 1. The purpose of the battery in the power pack of a hydraulic magnetic base drill is to:**
 - a. supply back up power to the drill.
 - b. prevent the magnetic base from coming loose if AC power should fail.
 - c. run the hydraulic pump.
 - d. power the DC control switches in the power supply.

- 2. Which of the following taps is used for finish threading the bottom of a blind hole?**
 - a. Plug
 - b. Taper
 - c. Bottoming
 - d. All of the above

KNOWLEDGE CATEGORY B - TOOLS AND EQUIPMENT

- 3. What tool would be used in conjunction with a "Zerk Fitting"?**
 - a. Air Chuck
 - b. Impact Wrench
 - c. Hydraulic Pump
 - d. Grease Gun

- 4. What tool is used to refurbish a worn Chisel?**
 - a. Mill File
 - b. Emery Cloth
 - c. Pedestal Grinder
 - d. Air Drill

KNOWLEDGE CATEGORY C - SAFETY

5. Employees on scaffold must be protected from falling when the distance between the platform and the lower level is more than:

- a. 6 feet, 6 inches
- b. 12 feet
- c. 6 feet
- d. 10 feet

6. When empty, aerosol cans should be:

- a. disposed of in a trash container.
- b. punctured at the aerosol puncture station and disposed of in the appropriate container.
- c. remove the nozzle and discard in the metal scrap bin.
- d. turned into the tool room for disposal.

KNOWLEDGE CATEGORY D - BASIC MATH

7. What measuring scale should you use to measure the bearing surfaces on the mill shaft?

- a. fractions
- b. decimal
- c. liner degradation
- d. binary

8. Belzona, a wear protection coating, is a two part mix that is weighted out on a gram scale. The mix ratio is 8:1 Component (A) to Component (B). If you have 240 grams of component (A), what should the final scale reading be when you add Component (B)?

- a. 320 grams
- b. 270 grams
- c. 30 grams
- d. 25 grams

Answers to Sample Questions

The following are answers to the sample questions on the previous pages.

1. **b**
2. **c**
3. **d**
4. **c**
5. **d**
6. **b**
7. **b**
8. **b**

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

Test: **Power Plant Mechanic B**
X

Test No: **2753**

Page

Comments

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____