

**Study Guide
for
Automotive Mechanic**

Test No. 2006x

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

Rev 1/27/2009

Introduction

The Automotive Mechanic Test is a job knowledge test designed to cover the major knowledge necessary to perform the job. This *Guide* contains strategies to use for taking tests and a study outline, which includes knowledge categories and 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 150 minute time limit, and no study aids are allowed when taking this test.

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 Comment 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. The information below refers only to those tests administered **March 9, 2009** or later.

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.

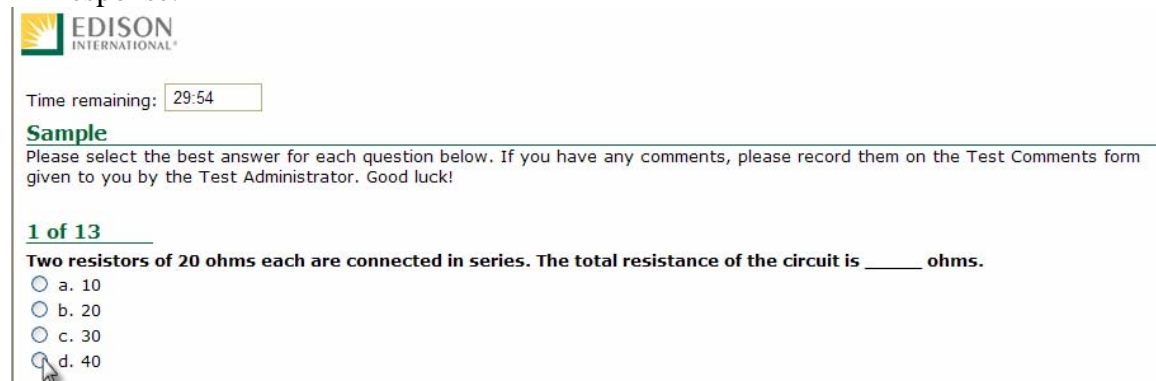
Sample/Tutorial

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 'Time remaining:' label is followed by a text box containing '29:54'. A green 'Sample' heading is followed by a horizontal line and the text: '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, '1 of 13' is displayed. The question text reads: 'Two resistors of 20 ohms each are connected in series. The total resistance of the circuit is _____ ohms.' There are four radio button options: 'a. 10', 'b. 20', 'c. 30', and 'd. 40'. A mouse cursor is pointing at the radio button for option 'd. 40'.

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.

4. 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

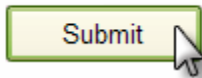
Please select the best answer for each question below. If you have any comments, please record them on the Test Comments form given to you by the Test Administrator. Good luck!

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

5. 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 Automotive Mechanic 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

- o If you feel confident about passing the test, you may lose some of your anxiety.
- o 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

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

Concentrate

- o 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.
- o If possible, select a seat away from others who might be distracting.
- o If lighting in the room is poor, sit under a light fixture.
- o If the test room becomes noisy or there are other distractions or irregularities, mention them to the Test Administrator *immediately*.

Budget your time

- o You are allowed 150 minutes to complete the test.
- o Pace yourself carefully to ensure that you will have enough time to complete all items and review your answers.

Read critically

o Read all directions and questions carefully.

o Even though the first or second answer choice looks good, be sure to read all the choices before selecting your answer.

Make educated guesses

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

Changing answers

o 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 answer.

Return to difficult questions

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

Doublecheck mathematical calculations

o Use scratch paper to double check your mathematical calculations.

Review

o If time permits, review your answers.

o Do the questions you skipped previously.

o When testing on paper, 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 and Study References

Below are the major job knowledge categories covered on the test with study references relating to each activity cluster. The study references are guides and may not include all the material covered on the test.

A. Shop Equipment and Procedures

Knowledge of hand, power, and precision measurement tools used when repairing vehicles and equipment. Knowledge of procedures for making precision measurements and for using test Instruments. Knowledge of materials, parts, and tools needed for repair.

B. Boom and Hydraulic Repair and Inspection

Knowledge of crane and boom inspection procedures. Knowledge of fundamental hydraulic theory as it applies to repair and maintenance of vehicles and equipment. Knowledge of function and nomenclature of hydraulic components (what it is, how it works). Knowledge of repair procedures related to hydraulic systems and components. Knowledge of fluid power symbols and their relationships in a hydraulic schematic.

C. Gasoline/Diesel Engine Repair and Troubleshooting Procedures

Knowledge of what a diesel fuel injection system is, how it works, and its components. Knowledge of principles of automotive carburetion and ignition systems. Knowledge of principles of gas/diesel engine operation and exhaust and cooling systems. Knowledge of general work procedures pertaining to the repair of engines and related systems.

D. Electrical/Electronic Theory and Troubleshooting Components

Knowledge of theory of electrical and electronic systems, including ignition and emission controls. Knowledge of how electrical and electronic systems work, and how to repair them. Knowledge of electrical symbols used in prints and diagrams. Knowledge of troubleshooting electrical components, and computerized engine controls.

E. Brakes, Chassis, Suspension, Drivetrain, and Accessory Repair Procedures

Knowledge of operation characteristics of brake systems and brake system components. Knowledge of fundamentals of steering geometry. Knowledge of function and nomenclature of chassis, suspension system and body components including automotive air conditioning systems.

Study References

Below is a combined listing of the study references for the major job activities. The listing includes the major references for material covered on the test.

ASE Test Preparation Study Guides Passenger Car Series & Medium Truck Series, including:

A1 (Engine Repair), A2 (Transmission), A3 (Manual Drive Train and Axles), A4 (Suspension and Steering), A5 (Brakes), A6 (Electrical/Electronics Systems), A8 (Engine Performance), A7 (Heating and Air Conditioning); T2 (Diesel Engines); T1 (Gasoline Engines); T4 (Truck Brakes), T3 (Drive Train).

Edison System Manual

39.47.10

Transportation Services Department Diesel Technicians Guide

Transportation Services Department Training

Automotive Body Repair News - Mechanical & Electrical Components B5 Study Guide

Federal Motor Vehicle Safety Standard (FMVSS) 121

California Code of Regulations Title 8

Study Guide Sample Questions

Knowledge Category A

1. How often should the air tanks be drained on a highway-driven truck?
 - A. At the end of each day.
 - B. At the start of each day.
 - C. At the end of each week.
 - D. At the end of every other day.

Knowledge Category B

2. Powershift P.T.O.'s are engaged by:
 - A. Electric over air.
 - B. Air over hydraulic.
 - C. Electric over hydraulic.
 - D. Cable.

Knowledge Category C

3. Camshaft lift is defined as:
 - A. The distance the valves are open.
 - B. The height of the lobes on the camshaft.
 - C. The time the valves stay closed.
 - D. The time the valves stay open.

Knowledge Category D

4. All of these are components of Ohm's Law **EXCEPT**:
 - A. amperes (I)
 - B. watts (W)
 - C. ohms (R)
 - D. voltage (E)

Knowledge Category E

5. Inadequate wheel bearing lubrication will cause:
 - A. Spalling.
 - B. Cracks.
 - C. Galling.
 - D. Flaking.

Study Guide Sample Question Answers

1. A
2. A
3. A
4. B
5. C

