

# ***CONSTRUCTION AND SKILLED TRADES SELECTION SYSTEM***

## **Test Brochure**

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## **Construction and Skilled Trades Selection System (CAST)**

CAST is a battery of aptitude tests designed and validated to aid in the selection of candidates across a wide variety of construction and skilled trades occupations. CAST is the culmination of a large-scale consortium project sponsored by the Edison Electric Institute (EEI). A total of 34 investor-owned electric companies participated in the project; research information was obtained and analyzed from thousands of employees and supervisors. This research resulted in a comprehensive battery of tests designed to predict candidates' probability of success in the following categories of construction and skilled trade jobs:

1. Transmission and Distribution
2. Facilities and Repair
3. Other Facilities (e.g., Equipment Operator)
4. Electrical Repair
5. Machining and Vehicle Repair
6. Meter Service and Repair

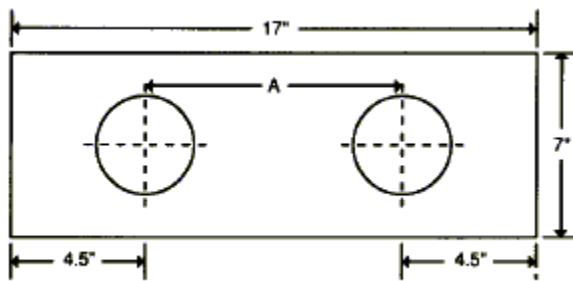
CAST can be administered in approximately two hours. The tests comprising the CAST battery include Graphic Arithmetic, Mechanical Concepts, Reading For Comprehension, and Mathematical Usage.

A description of the four aptitude tests comprising the CAST battery is provided below:

**Graphic Arithmetic.** This test measures a candidate's ability to solve arithmetic problems by using information from prints or drawings. The test contains two drawings, each followed by several questions. The test has 16 questions and a 30-minute time limit. The use of a calculator is permitted during this test.

Examples of the **Graphic Arithmetic** test are:

Use the drawing below to answer the two example questions. (Please note that the dimensions shown on the drawing are not necessarily drawn exactly to scale.)



1) What is the distance "A" between the centers of the two holes?

- a) 6.0"
- b) 7.0"
- c) 8.0"
- d) 12.5"
- e) None of the Above

2) What was the surface area of the side shown in the drawing before the holes were drilled?

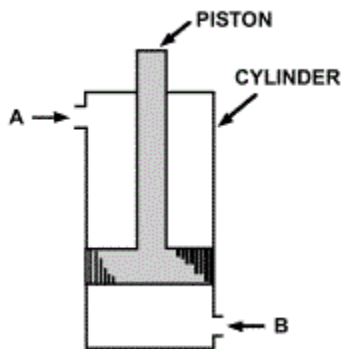
- a) 24.0 square inches
- b) 79.0 square inches
- c) 84.0 square inches
- d) 109.0 square inches
- e) None of the Above

For item 1, the correct answer is C. For item 2, the correct answer is E.

**Mechanical Concepts.** This test measures the ability to understand mechanical principles. There are 44 multiple-choice items. Each item contains a pictorial description of a mechanical situation, a question, and three possible answers. This test has a 20-minute time limit.

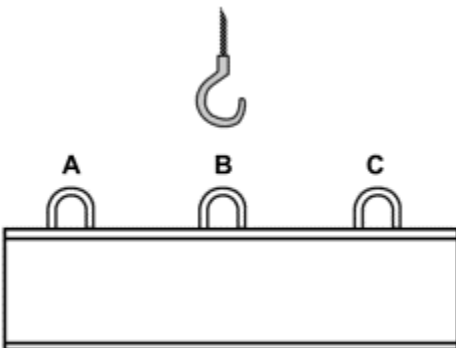
Examples of the **Mechanical Concepts** test are:

1) In the figure below, at which point should pressurized air enter the cylinder to lower the piston?



- a) Point A
- b) Point B
- c) Both points A and B

2) To keep the beam horizontal when lifted, at which point should you hook the cable?



- a) Point A
- b) Point B
- c) Point C

For item 1, the correct answer is A. For item 2, the correct answer is B.

**Reading For Comprehension.** This test measures a person's ability to read and understand the type of material found in training and safety manuals. The Reading For Comprehension test consists of four reading passages, each followed by several multiple-choice questions about the passage. There is a total of 32 questions on the test with a 30-minute time limit.

An example of the **Reading For Comprehension** test is:

An example passage and question are presented below. Read the example passage and then select the response option that best answers the example question.

### **Example Passage**

Do you remember the game we used to play as kids where we would rub a balloon against a wool sweater and then see how the balloon would stick to the wall? This is an example of "static electricity." Though static electricity is a common phenomenon, its cause is quite mysterious and often unknown.

According to the passage, "static electricity" is:

- a) a common phenomenon.
- b) quite rare.
- c) found only in winter.
- d) None of the above

The correct answer is A.

**Mathematical Usage.** This test measures a candidate's ability to solve basic mathematical problems using information provided at the beginning of the test. It consists of 18 multiple-choice items and has a 7-minute time limit. The use of a calculator is permitted during this test.

An example of the **Mathematical Usage** test is:

**2 quarts = ? gallons** [with the information already provided that 1 gallon = 4 quarts]

- a) .4
- b) 2
- c) .5
- d) 5
- e) None of the above

The correct answer is C.

### **Scoring**

The test components are scored based on the number of questions a person answers correctly. There is no penalty for guessing or wrong answers. The component scores are then combined into an index score ranging in value from 1 to 10. The index score provides a prediction of overall effectiveness in a wide variety of construction and skilled trades occupations and is used to determine the probability of success or failure in these occupations. As such, it can differentiate between potentially effective candidates and those individuals less likely to succeed.