

*TECHNICIAN*  
*OCCUPATIONS*  
*SELECTION SYSTEM*

**Test Brochure**

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## **Technician Occupations Selection System (TECH)**

TECH is a battery of aptitude tests designed and validated to aid in the selection of candidates for electric power industry technical occupations for which an associate degree is normally required. The generic job titles covered by the validation study are:

- Chemistry/Laboratory/Environmental Technician
- Communication/Telecommunication Technician
- Design/Engineering Technician
- Distribution/Planning Technician/Estimator
- Drafter
- Health Physics/Radiation Control Technician
- Quality Assurance Technician
- Testing/Relay Technician

HR Strategies (formerly Personnel Designs, Incorporated) conducted the research study. This large-scale effort involved the cooperation of 23 investor-owned electric companies from all geographic regions of the United States and reflected a wide range of company sizes to ensure that the results of the study would apply to the broad range of technician positions and company environments.

The contractor conducted a detailed job analysis to gain information regarding the key activities and skill requirements of technician jobs and to identify selection procedures that would effectively measure the skills and abilities important to successful performance of these jobs.

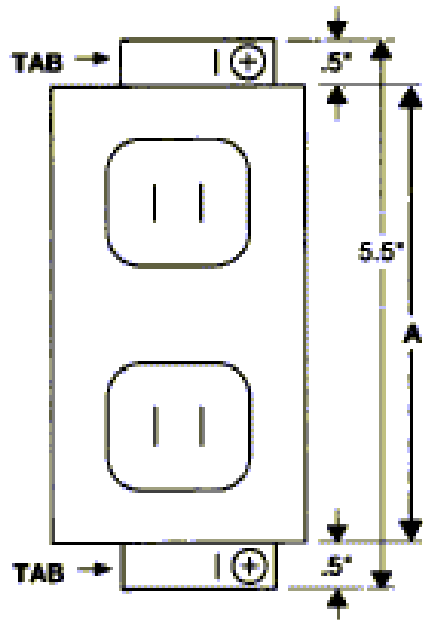
The study also included the development of job performance measures to obtain supervisor ratings of job incumbents and to use in developing the experimental battery. The experimental battery was administered to over 2,100 technician job incumbents, followed by execution of a validation study to identify a professionally sound and practically useful selection system.

The final product consisted of the TECH battery containing four test components, with an administration time of approximately two hours.

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

**Graphic Problem Solving.** This test measures the ability to use numerical information presented in illustrations to solve practical arithmetic problems. An example of **Graphic Problem Solving** is shown below:

Choose the option that correctly answers the problem and blacken in your answer in the "EXAMPLE" box on your answer sheet.



A. If the height of each box tab is  $.5''$ , what is the height (A) of the electrical outlet?

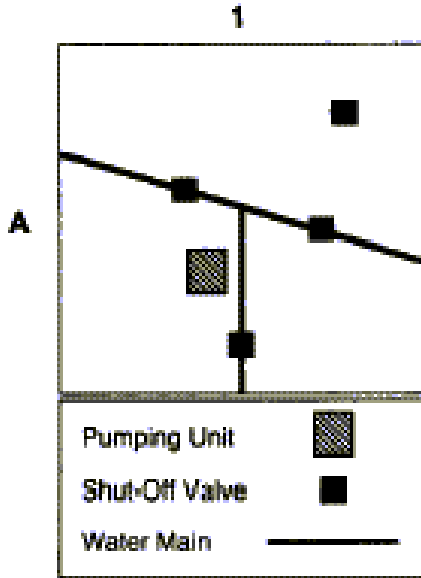
- A)  $3.5''$
- B)  $4.5''$
- C)  $5.0''$
- D)  $6.5''$

The correct answer is "B".

**Interpreting Diagrams.** This test measures the ability to use symbols and codes to locate objects on a map or diagram and to determine the object's status. An example of **Interpreting Diagrams** is shown below:

Choose the option that correctly answers each question and blacken in your answer in the "EXAMPLES" box on your answer sheet.

**Sector A1**



**A. How many pumping units are located in sector A1?**

- A) 1
- B) 3
- C) 4
- D) 5

**B. How many shut-off valves are located on water mains?**

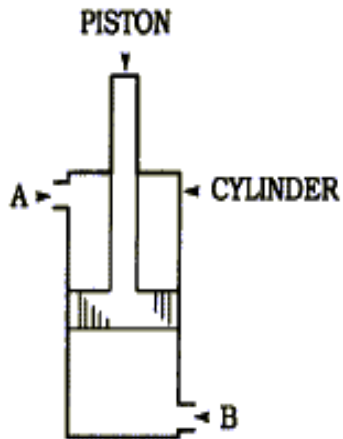
- A) 0
- B) 1
- C) 3
- D) 4

The correct answer to question A is 1, or A. The correct answer to question B is 3, or C.

**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.

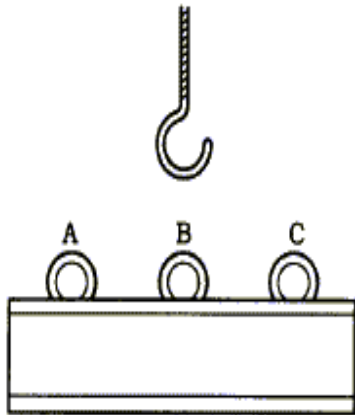
Examples of the **Mechanical Concepts Test** are:

- 1) In the figure below, at which point should pressurized air enter the cylinder to lower the piston?  
(If both, mark C.)



- A
- B
- C (Both A & B)

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



- A
- B
- C

**Reasoning From Rules.** This test measures the ability to read and apply rules to make decisions and to troubleshoot a logic network. An example follows:

Read the situation shown below:

You oversee four machines. They are scheduled according to the following rules.

1. If the product is Grade A and costs over \$5,000
  - schedule Machine 1 if the order is from Region W.
  - schedule Machine 2 if the order is from Region X.
  
2. If the product is Grade B
  - schedule Machine 3 if the order is to be coiled.
  - schedule Machine 4 if the order is to be stacked.

Now use the information provided above to answer the example question below. Choose the option that correctly answers the question.

**If the product is Grade B and is to be coiled, you should schedule:**

- a. Machine 1
- b. Machine 2
- c. Machine 3
- d. Machine 4

### **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 9. The index score provides a prediction of overall effectiveness in a wide variety of technical 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.