

Seattle City Light

Cable Splicer and Electrician Constructor Apprentice Written Exam Preparation Guide

The written exam contains multiple-choice test items from which you must choose the correct answer from four choices. Various sections of the test are designed to measure different attributes required of people who work in the Cable Splicer and Electrician Constructor Apprentice positions. Test sections included are: (1) Math and Measurement, (2) Reading and Maps, (3) Applied Mechanical Principles, (4) Problem Solving, and (5) Applied Electrical Theory.

The following samples indicate some of the abilities that are needed of Cable Splicer and Electrician Constructor Apprentice employees and examples of how those abilities are measured during testing:

(1) Math and Measurement (Samples):

Ability to solve algebraic equations (equations with one or more unknown variables), systems of algebraic equations (more than one equation with more than one unknown variable), and word problems that can be represented as algebraic equations.

Ability to use basic trigonometry to address/solve issues/problems.

Ability to use simple measuring devices and/or gauges; including, but not limited to, measuring, recording, and using distances using a tape measure and/or other mechanical devices; to understand and accurately apply information obtained from those devices (e.g., rulers, gauges, and meters).

- A piece of wood is three-and-a-half feet long. How many total inches long is it?
- What number is 50% less than 200?
- What is the average of the following four numbers? 22, 47, 56, 25
- According to the ruler shown here, how long is the black line just below the ruler?



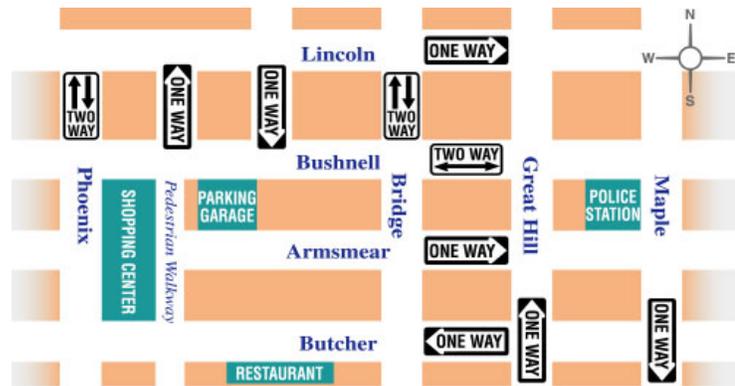
(2) Reading and Maps (Samples):

Ability to read, understand, and use basic written English (e.g., apprenticeship training materials, MSDS Sheets, instruction guides, etc.).

Ability to read, understand, and use diagrams, schematics, engineering drawings, plans, survey data, and other forms of visual communications.

Ability to read, understand, and use maps and/or directions to find specific locations and navigate to those locations with minimal loss of travel time. Also includes the ability to determine alternative routes (such as when there is traffic or obstructions) and to choose the most appropriate route based on a variety of factors (e.g., distance, time, and travel limitations) and to direct others to that same location.

- The two-way radio shall be used by Company personnel only for short, essential messages. Comments added as an expression of courtesy, such as thank you, you're welcome, and please shall not be used. Personal radio messages are prohibited. According to this passage, which of the following four options is true? (As previously mentioned, you would choose one of four options during testing).
- A truck is located at the north entrance of the restaurant on Butcher and must reach the entrance to the police station on Maple. According to the map below, what is the most direct route the truck can take while obeying all traffic signs?

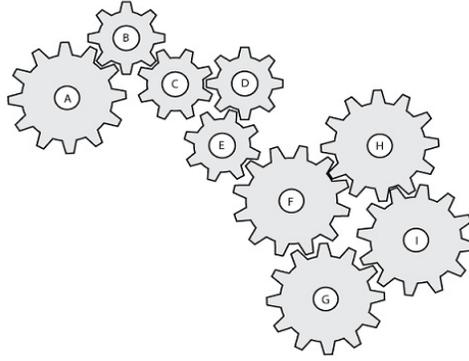


(3) Applied Mechanical Principles (Samples):

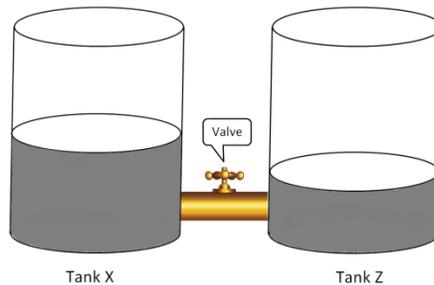
Ability to solve practical problems (troubleshoot) based upon knowledge of mechanical, physical principles, and electrical principles.

Ability to inspect, read/understand, and/or monitor amounts and situations, sometimes during fluid circumstances. Includes the ability to measure, monitor, compare, contrast, and/or recognize data/information (such as inventories or addresses), indicators (such as dials and gauges), mechanical equipment (such as fluid levels), and/or infrastructure, including that which may be faulty or indicative of error or potential danger, hazards, or damage.

- What will happen to Gear G in the figure below if Gear A is rotated to the left?



- Each of the two identical tanks in the diagram below contain water. There is a pipe that allows the water to flow freely when the valve between the tanks is opened. The valve is currently closed. What would occur if the valve was opened?



(4) Problem Solving (Samples):

Ability to solve practical problems (troubleshoot) based upon knowledge of mechanical, physical principles, and electrical principles.

- You are sitting in a house and both of the light bulbs in the living room suddenly go out. You also notice that none of the other lights in the house are on and the refrigerator in the kitchen is not running. What is the most appropriate next troubleshooting step in order to figure out how to turn your lights back on?
- You are directed to paint a floor in a room that is five feet wide and ten feet long. How many square feet of the flooring will you be painting?

(5) Applied Electrical Theory (Samples):

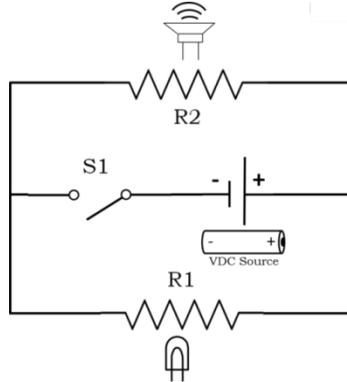
Knowledge needed to solve formulas and/or equations using basic algebra to address/solve issues/problems, such as those related to electrical circuits (e.g., Ohm's Law).

Knowledge of basic electrical theory, such as how electricity works, understanding circuitry, and understanding parallel and series circuits.

Knowledge of theories and practices, safety practices, and regulations for operating or working near mechanical/electrical equipment, high voltage systems, hazardous materials, as well as the

tools and equipment application that might be used in these situations (e.g., gas tech or a multi-meter).

- In the figure below, $R_1 = 10\Omega$, $R_2 = 10\Omega$, VDC Source is 5VDC, and the current is 1A. What is the total resistance in the circuit in the figure below if Switch S1 is closed?



- The current flowing in a part of a circuit is equal to ... (choose one of four options).
- Which of the following choices demonstrates Ohm's Law? (choose one of four options).

General Testing Hints

Get sufficient rest the night before you take the test. Studies show that lack of sleep can result in reduced test performance.

Carefully read and/or listen to the test instructions before you begin answering the test items.

Answer items that are easier to you first, and then go back to answer the more difficult items. That being said, please make certain the answer you indicate for each question is in the correct place on the answer sheet.

Read the entire question carefully and try to answer it before you read the answer choices. This way, you may be less confused than if you read the possible answer choices first.

Read all of the alternatives offered before you choose the correct alternative. If you are not sure of the correct answer, try eliminating those alternatives you believe are truly incorrect and then choose from the remaining alternatives.

At the end of the test go back to make sure you did not fail to answer any of the items on the test. If in doubt about which is the correct answer, it is better to guess than to leave the answer blank! You will not receive credit for any test item for which you fail to provide an answer.

Good Luck!