



CUSTOMIZED TEACHER ASSESSMENT BLUEPRINT

ELECTRIC POWER AND DISTRIBUTION

Test Code: 5919

Version: 01

Specific Competencies and Skills Tested in this Assessment:

Maintain a Safe Work Environment

Demonstrate safe work procedures and responsibilities, including complying with safety procedures and participating in safety meetings
Perform inspection and maintenance of equipment and vehicles
Demonstrate appropriate use of tools

Perform Job Site Planning Activities

Determine job site requirements
Perform job site protection activities for worker and public safety

Climbing Skills

Demonstrate proper use and inspection of climbing gear
Perform basic climbing skills of poles and towers, including pole-top rescue
Demonstrate proper use and maintenance of climbing tools and equipment

Pole Framing and Construction Specifications

Recognize, load, transport, and use pole hardware and materials
Demonstrate pole framing on the ground
Demonstrate installing pole and equipment grounds
Perform installation of guy assemblies, cross arms, and insulators
Demonstrate proper application of attaching a tying-in conductor

Equipment Operation

Safely perform traffic control and emergency procedures
Safely operate digger-derrick vehicle
Demonstrate safe working operation of an aerial platform

Electric Power and Distribution (continued)

Setting and Replacing Poles

Demonstrate worksite recognition and safe work practices
Perform proper vehicle placement and grounding methods
Perform proper rigging and setting of poles
Utilize temporary pole supports

Transformer Installation

Install and properly wire transformers
Maintain and troubleshoot transformers and transformer connections
Demonstrate proper transformer and sizing applications

Service Installation and Metering

Perform grounding and safe work procedures
Explain meter application and proper meter reading

Conductor Installation and Repair

Perform splicing, stringing conductors, dead-ending, and operate hoists
Safely tie in conductor, carry out hotline re-conductoring, and complete sag charts and tables
Safely perform grounding practices
Demonstrate safe work practices for conductor installation and repair

Rubber Gloving Methods

Demonstrate proper use and care of rubber gloves and sleeves
Demonstrate proper bucket truck operation while working on energized lines

Underground Distribution

Identify and demonstrate knowledge of underground distribution equipment and safe practices while trenching
Identify underground safety hazards
Demonstrate knowledge of UD systems and installation
Demonstrate installation of a padmount transformer, troubleshooting, and fault location

Substations and Voltage Regulation

Demonstrate knowledge of substation components and their functions (e.g., voltage regulators, capacitors)
Demonstrate knowledge of substation design for various applications
Follow safe practices when performing work in substations (including use of proper PPE)

Fusing and System Coordination

Demonstrate knowledge of system/fault surges, and over-current/over-voltage protection
Demonstrate knowledge of oil-circuit reclosers
Demonstrate knowledge of system application and fusing coordination

Electric Power and Distribution (continued)

Maintain Line Equipment and Tools

Inspect and maintain tools (including hand tools and hot tools)

Inspect and maintain equipment components (e.g., regulators, reclosers, capacitors, conductors)

Maintain Records and Documentation

Maintain daily vehicle inspection records

Maintain personal protective equipment (PPE) inspection records

Maintain special equipment and accident reports

Problem Solving and Troubleshooting

Analyze situations and information, consider alternate solutions

Apply rules and principles to a process to draw conclusions

Electric Power and Distribution (continued)

Written Assessment:

Administration Time: 3 hours
Number of Questions: 176

Areas Covered:

6%	Maintain a Safe Work Environment
3%	Perform Job Site Planning Activities
5%	Climbing Skills
11%	Pole Framing and Construction Specifications
7%	Equipment Operation
7%	Setting and Replacing Poles
6%	Transformer Installation
5%	Service Installation and Metering
8%	Conductor Installation and Repair
7%	Rubber Gloving Methods
6%	Underground Distribution
7%	Substations and Voltage Regulation
6%	Fusing and System Coordination
6%	Maintain Line Equipment and Tools
5%	Maintain Records and Documentation
5%	Problem Solving and Troubleshooting

Sample Questions:

After restoring power to a transformer, what should be done before closing the customer's disconnect?

- A. check the voltage
- B. call the dispatcher
- C. notify the customer
- D. check the load

Using Ohm's Law, what is the formula for calculating watts?

- A. $R \times I = \text{watts}$
- B. $I \times E = \text{watts}$
- C. $E \times P = \text{watts}$
- D. $R^2 \times I = \text{watts}$

A load-break elbow is identified by

- A. a red band
- B. a blue band
- C. a white band
- D. no band

Electric Power and Distribution (continued)

Live line tools carried on utility vehicles should be stored

- A. upright
- B. in a dry tube and/or tool bag
- C. laying flat
- D. attached to the boom

Use a _____ grip to pull a 3/8-inch guy strand.

- A. Kellom
- B. bulldog
- C. smooth
- D. hot

Electric Power and Distribution (continued)

Performance Assessment:

Administration Time: 1 hour and 32 minutes

Number of Jobs: 7

Areas Covered:

- | | |
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| 17% | <u>Hurtman Rescue Using a Handline</u>
<i>Demonstrate climbing skills, use of handline, knot tying skills, position of the victim, and time to complete Job 1.</i> |
| 14% | <u>Transformer Connections</u>
<i>Demonstrate transformer connections, neatness, identification of voltages, wild leg connection, and time to complete Job 2.</i> |
| 8% | <u>Material and Tool Identification</u>
<i>Demonstrate accuracy identifying materials, time to complete Section 1 of Job 3, accuracy identifying tools, and time to complete Section 2 of Job 3.</i> |
| 8% | <u>Tool Identification and Use</u>
<i>Demonstrate accuracy of matching four groups of tools, and time to complete Job 4.</i> |
| 5% | <u>Knot Tying</u>
<i>Demonstrate knot tying, and time to complete Job 5.</i> |
| 36% | <u>Truck Operation</u>
<i>Demonstrate truck grounding, use of controls, location of boom, and awareness of surroundings at three separate stations, and time to complete Job 6.</i> |
| 12% | <u>Meter Installation</u>
<i>Perform a voltage check; source side, customer's breakers, source-load side check, voltage check; load side, safety equipment safe performance, and time to complete Job 7.</i> |

Sample Job: Hurtman Rescue Using a Handline

Maximum Job Time: 5 minutes

Participant will put on his/her climbing gear, ascend the pole, safety off and, using the handline with three (3) half hitches, will safely and gently lower the victim to the ground.