FOREST PRODUCTS AND PROCESSING - PILOT

Test Code: 4037
Version: 01

Specific Competencies and Skills Tested in this Assessment:

**Safety**
- Apply knowledge of personal safety practices, including use of Personal Protective Equipment (PPE)
- Evaluate geographic and environmental factors related to safety
- Demonstrate safe use of forestry equipment and machinery including appropriate hand signals
- Select correct fire extinguisher for fire type
- Describe and demonstrate safe use of hand tools
- Explain how OSHA impacts the forestry industry

**Logging and Harvesting**
- Define harvesting terminology
- Inspect and study harvest area
- Identify and describe correct procedures for operating skidders and loaders, including proper choker setting techniques
- Demonstrate proper techniques for manually felling a tree
- Determine legal load weight for over-the-road vehicles, including calculating cord volume

**Tree Identification**
- Identify tree types using leaves, bark, buds, cones, and fruit
- Identify wood according to species
- Identify major species representative to geographic area

**Sawmill Operations**
- Explain sawmill history and safe sawmill procedures, processes, and terms
- Identify various types of saws and their uses
- Scale logs, identify log scale, and explain relationship of log volume to lumber volume
- Size and dimension rough-cut lumber and grade dimensional lumber

**Diesels and Hydraulics**
- Identify the parts and functions of a hydraulic system
- Inspect, service, and troubleshoot hydraulic systems, including procedures for checking hydraulic leaks
- Identify engine, hydraulic, and gear oils
- Explain basic diesel engine operation, including fuel types, and troubleshooting
Forest Products and Processing - PILOT (continued)

**Chain Saws**
- Identify parts of a chain saw
- Demonstrate safe transportation, use, and operation of chain saws
- Identify types of chains and explain uses
- Adjust, sharpen, and identify features of a chain saw
- Diagnose and troubleshoot chain saw problems

**Silviculture and Forest Management**
- Define silviculture and forest management terms
- Describe the various types of forests and their potential uses
- Identify methods of timber harvesting based on forest type
- Explain and calculate stand density, basal area, and stocking
- Identify strategies, practices, and issues involved in successful silviculture and forestry management
- Estimate cutting ratio to determine and achieve sustained yield

**Forest Ecology and Protection**
- Identify environmental factors important to a forest community including potential impact of invasive species
- Determine tree maturity (biological and economical)
- Identify tree and leaf diseases, forest pathogens, and causes
- Describe formation of forest soils
- Specify integrated pest management strategies
- Explain animal and human interaction and the impact on forest habitats
- Describe the effects of wildlife on a forest
- Identify firefighting tools and explain principles of forest fire management

**Surveying**
- Define surveying terminology
- Use maps, GPS, and GIS to locate boundaries and topographical information
- Identify methods of calculating elevation and slope
- Identify and use measuring devices
- Calculate acreage using common forest/surveying measuring techniques

**Timber Cruising**
- Select and use correct timber measuring tools
- Define common forest measurement units
- Determine board feet
- Apply techniques of timber cruising to determine stand volume
- Apply techniques of log scaling to determine log volume
Written Assessment:

Administration Time: 3 hours
Number of Questions: 182

Areas Covered:

10% Safety
12% Logging and Harvesting
5% Tree Identification
8% Sawmill Operation
8% Diesels and Hydraulics
9% Chain Saws
12% Silviculture and Forest Management
18% Forest Ecology and Protection
9% Surveying
9% Timber Cruising

Sample Questions:

A dead limb or tree that unexpectedly surprises the tree feller is called a
A. widow-maker
B. kickback
C. roost
D. hinge-wood

The end pieces of a wire rope choker are called
A. sliders
B. bells
C. ferrules
D. hooks

Which of the following tree species demonstrates opposite leaf arrangement?
A. Ash, Maple, Dogwood
B. Maple, Hemlock, Hickory
C. Hickory, Aspen, Maple
D. Dogwood, Aspen, Ash

After logs are processed into green lumber they should be
A. stickered
B. bundled
C. covered
D. waxed

When air gets into a hydraulic system, a typical result is
A. an electrical shock
B. rapidly moving cylinders
C. a loss of force
D. noisy cylinders
The depth gauge on a chain saw chain should be set _____ the cutting edge
   A. above
   B. equal to
   C. below
   D. at

Which of the following terms best describes stand density?
   A. basal area per acre
   B. site index
   C. mean annual increment
   D. growth intercept

Weather over a long period of time for a distinct area may be described as
   A. a trend
   B. the ice age
   C. getting lower
   D. climate

The benchmark is a point of known or assumed
   A. first station
   B. deviation
   C. last station
   D. elevation

To determine tree age without cutting down the tree, a forester uses a tool called a/an
   A. clinometer
   B. increment borer
   C. hand level
   D. biltmore stick
Performance Assessment:

Administration Time: 2 hours and 35 minutes
Number of Jobs: 6

Areas Covered:

14%  Felling Notch Cutting
      Participant will prepare the site, and follow felling and safety procedures.

12%  Identify Leaf, Bud, and Bark Specimens
      Participant will correctly identify leaf, bud, and bark specimens.

21%  Scale Logs
      Participant will correctly identify logs and calculate volume of logs.

12%  Sharpen and Adjust Chain Saw
      Participant will safely sharpen and adjust a chain saw.

18%  Calculate Acreage
      Participant will locate bearings, pace the perimeter, plot and compute acreage.

23%  Plot and Analyze 1/5 Acre
      Participants will calculate the number of sawlogs, convert into board feet, identify trees and correctly record volume by species.

Sample Job: Identify Leaf, Bud, and Bark Specimens

Maximum Job Time: 20 minutes

Participant Activity: The participant will identify the common names of 30 leaf, bud, and/or bark specimens. Write the name of the specimen next to the corresponding number on the worksheet provided.