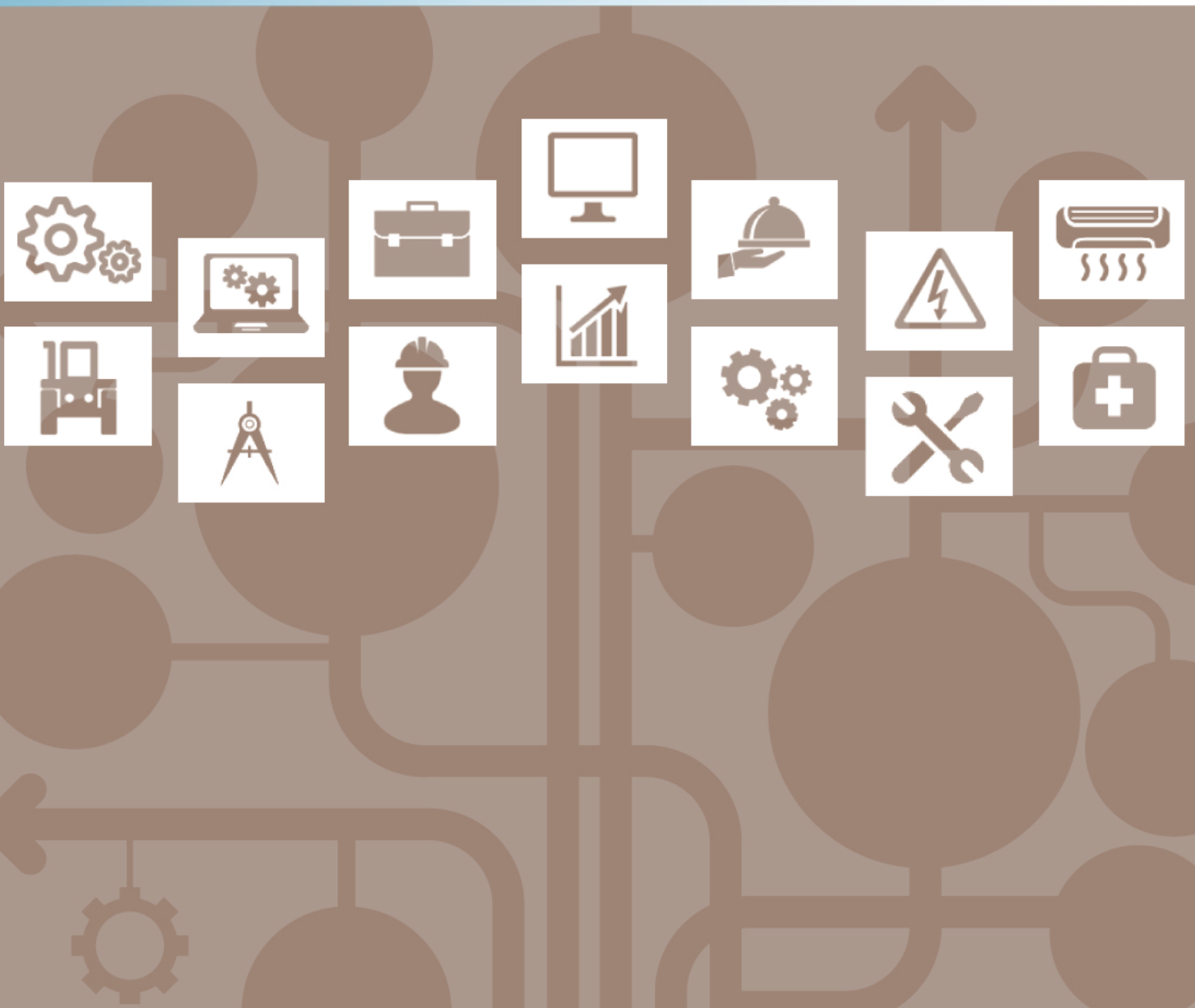


Entry Level Assessment Blueprint

Diesel Technology



Specific Competencies and Skills Tested in this Assessment:

Safety

- Demonstrate understanding of fire safety
- Demonstrate understanding of personal, environmental, and equipment safety

Shop Practices, Tools, and Equipment

- Perform precision measuring (e.g., micrometers)
- Identify and select lines and fittings
- Identify, select, and use hand tools
- Identify, select, and use basic shop equipment
- Identify and select proper fasteners
- Access technical information



Diesel Engines

- Display knowledge of diesel technology terminology
- Display understanding of exhaust and induction systems
- Identify components and functions of cooling systems
- Display understanding of engine electronics
- Identify components and functions of lubricating systems
- Identify components and functions of fuel systems
- Display knowledge of diesel engine component parts and diesel engine operation

Suspension and Steering

- Identify, maintain, and inspect TPMS and wheels
- Identify and repair chassis components
- Identify, maintain, and repair power steering systems
- Identify, maintain, and repair steering axle components
- Identify, maintain, and repair suspension types (i.e., front, rear)
- Maintain proper vehicle alignment

Specific Competencies and Skills continued:

Brakes

- Identify, inspect, and repair hydraulic foundation brake system components and functions
- Identify and inspect ABS, ATC, and VSS
- Identify, inspect, and repair air foundation brake system components and functions
- Identify and inspect supply system components
- Identify, inspect, and repair air system components



Electrical and Electronic Systems

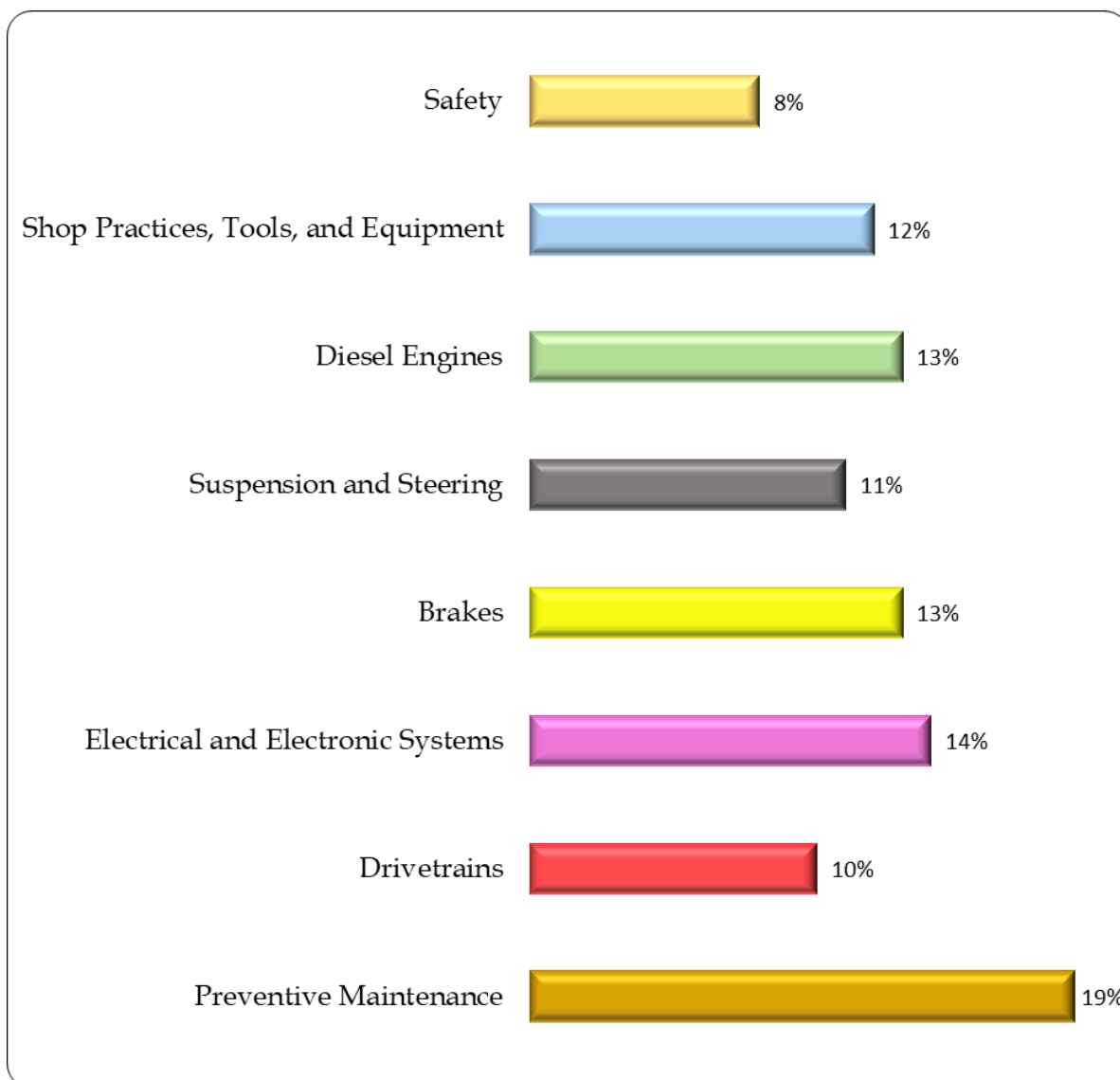
- Apply understanding of basic electrical principles
- Demonstrate knowledge of electrical schematics
- Service and inspect batteries
- Diagnose and repair starting systems
- Diagnose and repair lighting systems
- Diagnose and repair charging systems

Drivetrains

- Demonstrate understanding of the types of clutches
- Demonstrate understanding of transmissions (e.g., manual, automatic)
- Install and replace U-joints, and interpret drive line angles
- Diagnose and display understanding of differentials functionality, including interaxles

Preventive Maintenance

- Perform troubleshooting and preventive maintenance on engine systems
- Perform troubleshooting and preventive maintenance on transmissions (i.e., manual, automatic)
- Perform troubleshooting and preventive maintenance on cooling systems
- Perform troubleshooting and preventive maintenance on brake systems
- Perform troubleshooting and preventive maintenance on frame and chassis
- Perform troubleshooting and preventive maintenance on HVAC systems
- Perform troubleshooting and preventive maintenance through inspection of tire wear patterns
- Perform troubleshooting and preventive maintenance on clutches

Written Assessment:**Administration Time:** 3 hours**Number of Questions:** 179**Areas Covered:**

Sample Questions:

To avoid burns, use caution when opening the

- A. radiator cap
- B. gas cap
- C. brake fluid reservoir
- D. washer reservoir

A torque angle meter is used to properly tighten the bolts of a/an

- A. cylinder head
- B. motor mount
- C. valve cover
- D. oil pan

In oil coolers, the hot oil transfers its heat

- A. directly to the coolant
- B. to stabilize coolant temperature
- C. only in very hot climates
- D. under heavy load conditions

The downward bend of a frame is known as

- A. bow
- B. diamond
- C. sideways
- D. sag

The purpose of the ABS sensor is to

- A. measure air pressure
- B. measure brake temperature
- C. create AC pulses
- D. create DC pulses

A conventional battery might require adding distilled water because of evaporation or

- A. overcharging
- B. high RPM
- C. low amperage
- D. excessive idling

When replacing a heavy-duty clutch

- A. pre-lube the friction material before installation
- B. replace the clutch disc(s), pressure plate, and pilot bearing
- C. reuse the clutch brake
- D. grease the old bearings

Sample Questions (continued)

When the ignition switch on a given vehicle is turned to the start position a technician hears a clicking noise and the engine does not turn over. What is the most likely cause?

- A. The solenoid is faulty.
- B. There is a mechanical problem.
- C. The battery voltage is low.
- D. The starter is defective.

The oil level in a manual gear transmission is considered full when it is

- A. level with the breather hole
- B. showing full on the pressure gauge
- C. no longer running from the drain plug
- D. even with the bottom of the fill hole

The two C-shaped longitudinal components of a truck frame are called the

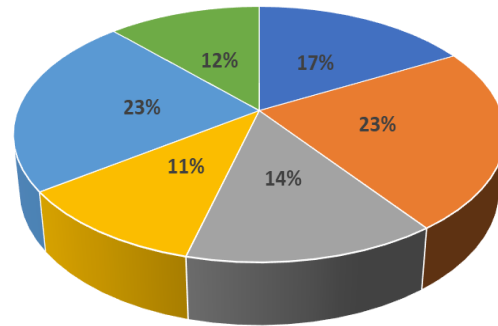
- A. crossmembers
- B. torque arms
- C. reinforcement plates
- D. rails



Performance Assessment:

Administration Time: 2 hours, 45 minutes

Number of Jobs: 6



Areas Covered:

17% **Cylinder Liner Installation**

Participant will follow procedures for measurements for the installation of a cylinder liner and record results.

23% **Perform a Wheel Bearing Adjustment and Brake Stroke Measurement**

Participant will adjust wheel bearings according to Technical and Maintenance Council guidelines and measure and record brake stroke.

14% **Check and Adjust Rocker Level Clearance**

Participant will check and adjust rocker lever clearance in the engine provided.

11% **Perform a Coolant System Inspection**

Participant will pressure test an engine cooling system, test a coolant sample, and record findings.

23% **Electrical Testing**

Participant will perform a battery discharge test, starter draw test, and alternator output test using the appropriate test meters.

12% **Diesel Engine Performance Trouble Codes**

Participant will identify trouble codes and give descriptions, use service information to identify and locate components related to the trouble codes, inform evaluator of findings, and leave codes when finished.

Performance Assessment (continued):

Sample Job: Perform a Coolant System Inspection

Maximum Time: 30 minutes

Participant Activity: The participant will pressure test the engine cooling system, record the test pressure, pressure test the pressure cap and serviceability, record maximum pressure, perform SCA test on coolant sample, and determine the freeze point of the sample.