PRACTICE EXAM 5: T6 SIMULATION (50 QUESTIONS)

1. TMC Recommended Practice for heavy-duty truck circuit voltage drop testing specifies that the test must be performed:

A. With the circuit de-energized

B. With ambient temperature above 40°F

C. With the circuit energized under load

D. With the battery disconnected from the circuit

2. Per TMC RP, the maximum acceptable voltage drop across a high-current battery cable is:

A. 0.2 volts

B. 0.5 volts

C. 1.0 volts

D. 2.0 volts

3. Tech A says SAE J1939 specifies a 250 kbps data rate for heavy-duty truck data networks. Tech B says SAE J1587 was a predecessor protocol used at lower data rates. Who is correct?

A. Tech A only

B. Tech B only

C. Neither Tech A nor Tech B

D. Both Tech A and Tech B

4. Per TMC RP, the maximum acceptable voltage drop across a single connection or splice in a heavy-duty truck circuit is:

A. 0.05 volts

B. 0.1 volts

C. 0.5 volts

D. 1.0 volts

5. Tech A says voltage drop testing must be performed at full load current to expose resistance faults. Tech B says light load conditions can mask voltage drop issues that appear under operating load. Who is correct?

A. Both Tech A and Tech B

B. Tech A only

C. Tech B only

D. Neither Tech A nor Tech B

6. Per OEM service procedures, the proper diagnostic sequence for a heavy-duty truck electrical fault is:

A. Replace components in order of cost ascending

B. Replace components in order of accessibility

C. Verify supply, then circuit, then load before component replacement

D. Test components in random order until the fault is found

7. The SAE J1962 diagnostic connector standard applies to:

A. Heavy-duty truck J1939 networks only

B. Heavy-duty truck J1587 networks only

C. Heavy-duty truck data networks above 500 kbps

D. Light-duty vehicles using OBD-II protocols

8. Per TMC RP for heavy-duty wiring repair, splices in a wiring harness should be:

A. Made with electrical tape and twisted wire connections

B. Made with crimped, soldered, and heat-shrink sealed connections

C. Made with screw-type wire nut connections

D. Avoided entirely with full harness replacement required

9. Tech A says fault codes should be retrieved before any electrical component replacement. Tech B says fault codes should be cleared after repair to verify the issue is resolved. Who is correct?

A. Both Tech A and Tech B

B. Tech A only

C. Tech B only

D. Neither Tech A nor Tech B

10. Per OEM service procedures, the parasitic draw maximum specification for a modern heavy-duty truck in sleep mode is typically:

A. 5 to 10 milliamps

B. 10 to 25 milliamps

C. 25 to 50 milliamps

D. 100 to 200 milliamps

11. The SAE standard for heavy-duty truck circuit identification (color coding) is:

A. SAE J1939 for color identification

B. SAE J560 for color identification

C. SAE J1587 for color identification

D. SAE J1292 for color identification

12. Per TMC RP, the recommended PM inspection for heavy-duty truck electrical systems includes:

A. Visual inspection only at every PM service

B. Visual inspection plus voltage drop testing at scheduled intervals

C. Component replacement at fixed intervals regardless of condition

D. Battery testing only with no other electrical inspection required

13. Tech A says heavy-duty truck wiring repairs should use only OEM-specification wire gauge and insulation type. Tech B says lower-gauge wire (heavier than original) can be substituted to improve circuit reliability. Who is correct?

A. Tech A only

B. Both Tech A and Tech B

C. Tech B only

D. Neither Tech A nor Tech B

14. Per OEM service procedures, the proper procedure for retrieving fault codes on a heavy-duty truck is:

A. Disconnect the battery to display flash codes

B. Cycle the ignition multiple times to display codes

C. Connect a scan tool to the diagnostic connector

D. Read codes from the instrument cluster display only

15. Per TMC RP, the recommended battery testing sequence is:

A. Load test, then specific gravity, then open-circuit voltage

B. Specific gravity, then load test, then open-circuit voltage

C. Open-circuit voltage, then load test, then state-of-charge verification

D. Open-circuit voltage, then state-of-charge, then load test

16. The SAE standard for heavy-duty truck battery cold cranking amp (CCA) rating specifies the test condition as:

A. 0°F for 30 seconds with minimum voltage of 7.2 volts

B. 32°F for 30 seconds with minimum voltage of 9.6 volts

C. -20°F for 15 seconds with minimum voltage of 8.4 volts

D. 70°F for 15 seconds with minimum voltage of 10.5 volts

17. Tech A says AGM batteries can be tested with the same load tester as flooded batteries. Tech B says AGM batteries require a different charging profile than flooded batteries. Who is correct?

A. Tech A only

B. Tech B only

C. Both Tech A and Tech B

D. Neither Tech A nor Tech B

18. Per OEM service procedures, the proper torque for heavy-duty truck battery terminal post connections is typically:

A. 30 to 50 inch-pounds

B. 70 to 100 inch-pounds

C. 150 to 200 inch-pounds

D. Hand-tight only

19. TMC RP for heavy-duty truck battery cable inspection specifies:

A. Visual inspection only at every PM

B. Voltage drop testing only when complaints reported

C. Replacement at fixed mileage intervals regardless of condition

D. Visual inspection plus voltage drop testing at scheduled intervals

20. The minimum acceptable voltage during a load test on a fully charged flooded lead-acid battery at 70°F is:

A. 9.6 volts at the end of the test

B. 10.5 volts at the end of the test

C. 11.5 volts at the end of the test

D. 12.0 volts at the end of the test

21. Tech A says heavy-duty truck batteries connected in parallel maintain the same voltage but add their CCA ratings. Tech B says batteries connected in series add their voltages but maintain the same CCA rating. Who is correct?

A. Both Tech A and Tech B

B. Tech A only

C. Tech B only

D. Neither Tech A nor Tech B

22. Per TMC RP, the maximum acceptable voltage drop across a heavy-duty truck starter cable circuit during cranking is:

A. 0.1 volts

B. 0.2 volts

C. 0.5 volts

D. 1.0 volts

23. Per OEM service procedures, the typical voltage regulation range for a 12-volt heavy-duty truck alternator is:

A. 12.6 to 13.4 volts

B. 13.8 to 14.5 volts

C. 14.5 to 15.5 volts

D. 15.5 to 16.5 volts

24. Tech A says heavy-duty alternator output is measured under full electrical load. Tech B says alternator output testing should be performed at multiple engine RPMs to verify regulation. Who is correct?

A. Tech A only

B. Tech B only

C. Neither Tech A nor Tech B

D. Both Tech A and Tech B

25. The maximum acceptable AC ripple from a properly functioning heavy-duty alternator is:

A. 0.5 volts AC

B. 1.0 volts AC

C. 2.0 volts AC

D. 3.0 volts AC

26. Per TMC RP, heavy-duty alternator drive belt tension should be:

A. Set by deflection method only

B. Set by hand pressure only

C. Set per OEM specification using a tension gauge

D. Set as tight as possible to prevent slippage

27. Tech A says brushless alternators eliminate brush wear as a service issue. Tech B says brushless alternators use a stationary field winding and rotating armature design. Who is correct?

A. Tech A only

B. Both Tech A and Tech B

C. Tech B only

D. Neither Tech A nor Tech B

28. Per DOT regulations (FMCSA), heavy-duty truck stop lamps must illuminate when:

A. The brake pedal is depressed only on level pavement

B. The brake pedal is depressed at speeds above 5 mph

C. The brake pedal is depressed only above 25 mph

D. The brake pedal is depressed under any operating condition

29. The SAE J560 standard specifies the wiring configuration for:

A. Heavy-duty truck seven-way trailer connectors

B. Heavy-duty truck headlight aiming systems

C. Heavy-duty truck data network connectors

D. Heavy-duty truck interior lighting systems

30. Per DOT regulations, heavy-duty truck headlights must:

A. Have separate high and low beam patterns only

B. Be aimed using factory-set positions only

C. Be aimed per OEM specification at scheduled intervals

D. Not require any aim verification after installation

31. Tech A says heavy-duty truck stop lamps and turn signals can share the same lamp position. Tech B says heavy-duty truck DOT-compliant trailer lighting requires separate stop and turn signal positions. Who is correct?

A. Tech A only

B. Tech B only

C. Both Tech A and Tech B

D. Neither Tech A nor Tech B

32. Per DOT regulations, a heavy-duty truck that loses one headlight while operating on a public roadway:

A. Must be repaired before continuing in service

B. Can continue in service if the other headlight is functional

C. Must be repaired only at the next scheduled service

D. Must be repaired only if operating at night

33. The SAE J578 standard specifies:

A. Heavy-duty truck data network protocols

B. Heavy-duty truck battery testing procedures

C. Heavy-duty truck alternator regulation specifications

D. Heavy-duty truck lighting color requirements

34. Tech A says LED retrofit lighting on heavy-duty trucks must meet DOT requirements for visibility and color. Tech B says LED retrofit installations may require load resistors to maintain proper flasher operation. Who is correct?

A. Tech A only

B. Both Tech A and Tech B

C. Tech B only

D. Neither Tech A nor Tech B

35. Per SAE J1939 specification, the data bus uses:

A. Single-wire signaling with chassis ground return

B. Three-wire signaling with separate clock and data

C. Two-wire differential signaling between CAN-H and CAN-L

D. Optical fiber signaling between modules

36. The two terminating resistors on a J1939 bus, one at each end, each have a value of:

A. 120 ohms

B. 60 ohms

C. 240 ohms

D. 1,000 ohms

37. Tech A says J1939 messages use Parameter Group Numbers (PGNs) to identify message type. Tech B says J1939 uses Suspect Parameter Numbers (SPNs) to identify specific data parameters within messages. Who is correct?

A. Tech A only

B. Tech B only

C. Neither Tech A nor Tech B

D. Both Tech A and Tech B

38. Per SAE J1939 specification, the data rate is:

A. 100 kbps

B. 250 kbps

C. 500 kbps

D. 1 Mbps

39. The J1939 specification voltage levels for the dominant state are:

A. CAN-H at 3.5 volts and CAN-L at 1.5 volts

B. CAN-H at 5.0 volts and CAN-L at 0.0 volts

C. CAN-H at 2.5 volts and CAN-L at 2.5 volts

D. CAN-H at 1.5 volts and CAN-L at 3.5 volts

40. Tech A says heavy-duty truck instrument clusters typically receive sensor data over the J1939 data bus. Tech B says modern multiplexed clusters do not receive direct analog sensor inputs from each sensor. Who is correct?

A. Tech A only

B. Tech B only

C. Both Tech A and Tech B

D. Neither Tech A nor Tech B

41. Per OEM service procedures, the proper diagnostic procedure for a "no communication" fault on a heavy-duty truck includes:

A. Replace each module in sequence until communication restores

B. Reflash the engine ECU to restore communication

C. Disconnect the battery to reset the system

D. Verify scan tool, diagnostic connector, and bus voltage

42. The SAE J1708 standard specifies:

A. Heavy-duty truck data network at 250 kbps

B. Heavy-duty truck data network at 9.6 kbps

C. Heavy-duty truck lighting requirements

D. Heavy-duty truck battery cable specifications

43. Tech A says fault codes should be cleared after verified repair. Tech B says fault codes should not be cleared until the verified repair is confirmed effective during operation. Who is correct?

A. Both Tech A and Tech B

B. Tech A only

C. Tech B only

D. Neither Tech A nor Tech B

44. Per SAE J1939, the bus measurement between CAN-H and CAN-L with the system de-energized should be:

A. 120 ohms

B. 240 ohms

C. 60 ohms

D. 1,000 ohms

45. The SAE J1962 connector pin assignment for heavy-duty truck CAN-H is:

A. Pin 2

B. Pin 5

C. Pin 16

D. Pin 6

46. Per OEM service procedures, the recommended interval for heavy-duty truck instrument cluster diagnostic checks is:

A. At every PM interval as part of routine service

B. Only when a driver complaint is reported

C. Only at scheduled overhaul events

D. Only at fixed mileage intervals above 100,000 miles

47. Tech A says heavy-duty truck telematics modules transmit J1939 data to fleet management software remotely. Tech B says telematics modules typically connect to the J1939 bus through a gateway. Who is correct?

A. Tech A only

B. Tech B only

C. Both Tech A and Tech B

D. Neither Tech A nor Tech B

48. Per DOT regulations, heavy-duty truck warning lamps for ABS must:

A. Activate only when the system has lost all braking capability

B. Activate when the ABS system detects any fault condition

C. Activate only at speeds above 25 mph

D. Not activate during normal vehicle operation

49. The SAE J2284 specification covers:

A. Heavy-duty truck lighting requirements

B. Heavy-duty truck battery specifications

C. Heavy-duty truck alternator specifications

D. Heavy-duty truck high-speed CAN data networks

50. Per TMC RP, heavy-duty truck data network terminating resistors should be:

A. Verified at scheduled PM intervals

B. Replaced at fixed mileage intervals

C. Inspected only when communication faults reported

D. Not inspected as part of normal service

PRACTICE EXAM 5: ANSWER KEY AND EXPLANATIONS

1. C — With the circuit energized under load. TMC RP specifies voltage drop testing must be performed with the circuit energized and under load because resistance manifests as voltage drop only when current is flowing. De-energized circuits show no voltage drop regardless of internal resistance.

2. A — 0.2 volts. TMC RP specifies a maximum of 0.2 volts voltage drop across a high-current battery cable, with higher drops indicating excessive cable resistance that reduces voltage available to the load. This specification ensures adequate voltage at the starter and other high-current loads.

3. D — Both Tech A and Tech B. SAE J1939 specifies a 250 kbps data rate for heavy-duty truck data networks, providing the bandwidth needed for modern multiplexed module communication. SAE J1587 was the predecessor protocol used at the lower data rate of 9.6 kbps before the industry transitioned to J1939.

4. B — 0.1 volts. TMC RP specifies a maximum of 0.1 volts voltage drop across a single connection or splice, with this tight tolerance preventing cumulative voltage loss across multi-connection circuits. Drops above this threshold indicate corrosion or loose connections requiring service.

5. A — Both Tech A and Tech B. Voltage drop testing must be performed at full load current to expose resistance faults that produce significant voltage loss only under operating load. Light load testing produces small voltage drops that mask resistance issues that become significant under operating conditions.

6. C — Verify supply, then circuit, then load before component replacement. Systematic diagnostic sequence verifies the supply (battery, alternator) first, then the circuit (wiring, connectors, switches), and finally the load itself, with component replacement only after the fault has been isolated. Random testing wastes time and parts.

7. D — Light-duty vehicles using OBD-II protocols. SAE J1962 specifies the diagnostic connector standard for light-duty vehicles using OBD-II protocols, with heavy-duty trucks using a different connector standard (typically the 9-pin Deutsch connector for J1939).

8. B — Made with crimped, soldered, and heat-shrink sealed connections. TMC RP specifies splices made with crimped, soldered, and heat-shrink sealed connections, providing electrical reliability and environmental sealing. Tape, twist, and wire-nut connections are not acceptable for heavy-duty service.

9. A — Both Tech A and Tech B. Fault codes must be retrieved before any electrical component replacement to identify the specific system reporting the fault, and codes must be cleared after verified repair to confirm the issue is resolved. Both procedures are standard diagnostic practice.

10. C — 25 to 50 milliamps. Modern heavy-duty trucks with multiplexed modules typically draw 25 to 50 milliamps in sleep mode for module memory retention. Draw above this range indicates a circuit not entering sleep mode and requires isolation diagnosis.

11. D — SAE J1292 for color identification. SAE J1292 specifies the color coding for heavy-duty truck circuit identification, providing standardized wire colors across manufacturers. Other SAE standards (J1939, J1587, J560) cover different aspects of heavy-duty truck systems.

12. B — Visual inspection plus voltage drop testing at scheduled intervals. TMC RP specifies PM inspection of heavy-duty truck electrical systems as visual inspection plus voltage drop testing at scheduled intervals, identifying developing faults before they cause failures. Visual-only inspection misses internal corrosion that produces voltage drop.

13. A — Tech A only. Heavy-duty wiring repairs must use OEM-specification wire gauge and insulation type because circuit design depends on specific conductor and insulation properties. Substituting heavier-gauge wire can alter circuit characteristics and may not be compatible with connectors and routing constraints.

14. C — Connect a scan tool to the diagnostic connector. The proper procedure for retrieving fault codes on a heavy-duty truck is to connect a scan tool to the diagnostic connector, which reads stored codes from all networked modules. Battery disconnect and ignition cycling do not produce flash codes on multiplexed trucks.

DOMAIN B — BATTERY AND STARTING SYSTEMS

15. D — Open-circuit voltage, then state-of-charge, then load test. The proper test sequence starts with open-circuit voltage to establish baseline state of charge, proceeds to state-of-charge verification, and concludes with load testing. This order prevents misdiagnosis of discharged batteries as failed and avoids load testing batteries that need recharge first.

16. A — 0°F for 30 seconds with minimum voltage of 7.2 volts. SAE standard for heavy-duty truck battery CCA rating specifies the test at 0°F for 30 seconds with minimum voltage of 7.2 volts. This represents worst-case cold-weather cranking conditions and provides a standardized comparison metric.

17. C — Both Tech A and Tech B. AGM batteries can be tested with the same load tester as flooded batteries because internal chemistry produces similar load response characteristics. AGM batteries require a different charging profile (lower voltage limits, different absorption stage) to prevent damage from overcharging that flooded batteries can tolerate.

18. B — 70 to 100 inch-pounds. OEM service procedures typically specify 70 to 100 inch-pounds for heavy-duty truck battery terminal post connections, providing adequate clamp force without cracking the post or stripping the lead casting. Torque-wrench application to specification is essential.

19. D — Visual inspection plus voltage drop testing at scheduled intervals. TMC RP specifies battery cable inspection as visual inspection plus voltage drop testing at scheduled intervals, identifying internal cable corrosion and high-resistance connections that visual inspection alone misses. Both inspection types are required for complete cable condition assessment.

20. A — 9.6 volts at the end of the test. The minimum acceptable voltage during a load test on a fully charged flooded lead-acid battery at 70°F is 9.6 volts at the end of the 15-second test. Lower readings indicate the battery has lost capacity and requires replacement.

21. A — Both Tech A and Tech B. Batteries connected in parallel maintain the same voltage but add their CCA ratings, providing higher cranking current at the same voltage. Batteries connected in series add their voltages while maintaining the same CCA rating, which is used for 24-volt cranking systems.

22. C — 0.5 volts. TMC RP specifies a maximum of 0.5 volts voltage drop across a heavy-duty truck starter cable circuit during cranking, ensuring adequate voltage at the starter motor for proper cranking torque. Higher drops indicate cable, terminal, or connection issues.

DOMAIN C — CHARGING SYSTEM

23. B — 13.8 to 14.5 volts. Typical 12-volt heavy-duty truck alternator regulation falls in the 13.8 to 14.5 volt range, providing adequate voltage to charge batteries while preventing overcharge. Values outside this range indicate regulator or alternator faults requiring service.

24. D — Both Tech A and Tech B. Heavy-duty alternator output is measured under full electrical load to verify the alternator can deliver rated current at regulated voltage. Output testing at multiple engine RPMs verifies regulation behavior across the operating range and identifies regulator vs. capacity issues.

25. A — 0.5 volts AC. The maximum acceptable AC ripple from a properly functioning heavy-duty alternator is 0.5 volts AC, with higher ripple indicating diode failure within the rectifier bridge. Excessive ripple damages electronics and disrupts data bus operation.

26. C — Set per OEM specification using a tension gauge. TMC RP specifies heavy-duty alternator drive belt tension be set per OEM specification using a calibrated tension gauge, providing accurate and repeatable tension settings. Deflection and hand-pressure methods are not adequate for heavy-duty applications.

27. B — Both Tech A and Tech B. Brushless alternators eliminate brush wear as a service issue, providing significant maintenance advantage in heavy-duty applications. Brushless designs use a stationary field winding and rotating armature, reversing the conventional alternator architecture and eliminating slip rings and brushes.

DOMAIN D — LIGHTING SYSTEMS

28. D — The brake pedal is depressed under any operating condition. DOT regulations (FMCSA) require heavy-duty truck stop lamps to illuminate whenever the brake pedal is depressed, regardless of operating condition or speed. This is a continuous safety function not limited by speed or operating mode.

29. A — Heavy-duty truck seven-way trailer connectors. SAE J560 specifies the wiring configuration for heavy-duty truck seven-way trailer connectors, defining pin assignments for power, ground, stop, turn, marker, auxiliary, and ABS circuits. This is the standard trailer connector for North American heavy-duty trucks.

30. C — Be aimed per OEM specification at scheduled intervals. DOT regulations require heavy-duty truck headlights be aimed per OEM specification at scheduled intervals, ensuring proper road illumination without blinding oncoming drivers. Factory positions drift over time and require periodic verification.

31. C — Both Tech A and Tech B. Heavy-duty truck stop lamps and turn signals can share the same lamp position when properly designed, with the system multiplexing the signals to a single bulb. DOT-compliant trailer lighting requires separate stop and turn signal positions for compliance with current regulations on most trailer configurations.

32. A — Must be repaired before continuing in service. DOT regulations require heavy-duty trucks operating on public roadways to have functional headlights, with single headlight failure requiring repair before continuing in service. The "two functional headlights" requirement applies regardless of time of day.

33. D — Heavy-duty truck lighting color requirements. SAE J578 specifies lighting color requirements for heavy-duty trucks, defining the chromaticity standards for red, amber, and white lighting positions. Other SAE standards cover different aspects of heavy-duty truck systems.

34. B — Both Tech A and Tech B. LED retrofit lighting on heavy-duty trucks must meet DOT requirements for visibility, color, and beam pattern, with non-compliant retrofits subject to enforcement action. LED retrofit installations may require load resistors because flashers depend on bulb current draw to time correctly, and reduced LED current causes hyper-flashing.

DOMAIN E — GAUGES, WARNING DEVICES, DRIVER INFORMATION SYSTEMS

35. C — Two-wire differential signaling between CAN-H and CAN-L. SAE J1939 specifies two-wire differential signaling between CAN-H and CAN-L, providing noise immunity through differential signaling. The message data is the voltage difference between the two wires, not either wire's voltage to ground.

36. A — 120 ohms. SAE J1939 specifies two 120-ohm terminating resistors, one at each end of the bus, to prevent signal reflections that would corrupt data transmission. These resistors are critical to bus operation and their failure is a common cause of communication faults.

37. D — Both Tech A and Tech B. SAE J1939 specifies Parameter Group Numbers (PGNs) to identify message type, with each PGN representing a category of related parameters. Suspect Parameter Numbers (SPNs) identify specific data parameters within messages, enabling precise identification of fault sources during diagnostic procedures.

38. B — 250 kbps. SAE J1939 specifies a 250 kbps data rate, providing the bandwidth needed for engine, transmission, ABS, and body control communication across the network. Higher data rates were not adopted due to compatibility requirements with existing infrastructure.

39. A — CAN-H at 3.5 volts and CAN-L at 1.5 volts. SAE J1939 specifies the dominant state voltages as CAN-H at 3.5 volts and CAN-L at 1.5 volts, producing the 2-volt differential signal that carries data. The recessive state has both wires at approximately 2.5 volts.

40. C — Both Tech A and Tech B. Heavy-duty truck instrument clusters typically receive sensor data over the J1939 data bus from the modules that own each sensor. Modern multiplexed clusters do not receive direct analog sensor inputs from each sensor, eliminating the wiring complexity of traditional analog clusters.

41. D — Verify scan tool, diagnostic connector, and bus voltage. The proper diagnostic procedure for "no communication" faults verifies the scan tool, diagnostic connector, and bus voltage at the connector, ruling out tool or connector issues before pursuing network diagnosis. This step is fast, cheap, and frequently identifies the issue.

42. B — Heavy-duty truck data network at 9.6 kbps. SAE J1708 specifies the heavy-duty truck data network at 9.6 kbps, which was the predecessor to J1939. J1708 used twisted-pair wiring and was used for basic diagnostic communication on older heavy-duty trucks.

43. A — Both Tech A and Tech B. Fault codes should be cleared after verified repair to confirm the issue is resolved, but should not be cleared until the verified repair is confirmed effective during operation. Both perspectives describe parts of the standard diagnostic verification procedure.

44. C — 60 ohms. SAE J1939 specifies the bus measurement between CAN-H and CAN-L with the system de-energized at 60 ohms, because the two 120-ohm terminating resistors are connected in parallel (120 ÷ 2 = 60). This is the standard reading at the diagnostic connector.

45. D — Pin 6. SAE J1962 specifies the connector pin assignment for heavy-duty truck CAN-H as Pin 6, with CAN-L on Pin 14. These pins enable scan tool connection to the high-speed CAN bus on heavy-duty trucks supporting the J1962 connector.

46. A — At every PM interval as part of routine service. OEM service procedures specify heavy-duty truck instrument cluster diagnostic checks at every PM interval as part of routine service, identifying developing fault codes and verifying proper module operation. Complaint-driven diagnosis alone misses developing issues.

47. C — Both Tech A and Tech B. Heavy-duty truck telematics modules transmit J1939 data to fleet management software remotely via cellular or other wireless connections. Telematics modules typically connect to the J1939 bus through a gateway module that translates and filters bus messages.

48. B — Activate when the ABS system detects any fault condition. DOT regulations require heavy-duty truck ABS warning lamps to activate when the ABS system detects any fault condition, providing the driver immediate awareness of system status. The lamp must be visible from the driver's normal seated position.

49. D — Heavy-duty truck high-speed CAN data networks. SAE J2284 specifies high-speed CAN data networks for heavy-duty trucks at 500 kbps, used for specific subsystems requiring higher bandwidth than the 250 kbps J1939 main backbone. Other SAE standards cover lighting, batteries, and alternators separately.

50. A — Verified at scheduled PM intervals. TMC RP specifies heavy-duty truck data network terminating resistors be verified at scheduled PM intervals, identifying developing faults before they cause communication failures. Component replacement at fixed intervals or complaint-driven inspection alone misses developing terminating resistor faults.