PRACTICE EXAM 18: ASE T8 PMI SIMULATION

1. Technician A says that a properly torqued wheel lug nut requires re-torque verification after the first 50-100 miles of operation. Technician B says that wheel lug nuts maintain torque indefinitely once initially set to specification. Who is correct?

A. Technician B only

B. Technician A only

C. Both A and B

D. Neither A nor B

2. A driver reports that the engine produces a metallic clicking sound that increases with engine speed. The most likely cause is:

A. Normal engine operation across RPM range

B. Driver perception error during operation

C. Valve train wear or rotational component issue

D. Engine mount wear during operation

3. The correct procedure for inspecting a commercial vehicle's brake hose for chafing is to:

A. Visual inspection of hose routing for contact with adjacent components

B. Apply pressure testing at maximum specification

C. Remove hose for bench inspection

D. Replace hose at scheduled intervals

4. A Class 8 tractor's driver reports that the brake pedal feels firm initially but slowly sinks during sustained pressure. The most likely cause is:

A. Normal pedal behavior during sustained application

B. Driver technique during brake application

C. Brake pad wear within service limits

D. Master cylinder internal seal leak bypassing fluid

5. The correct interpretation of a commercial vehicle's air dryer with visible oil discharge during purge is:

A. Normal air dryer operation during purge cycle

B. External oil contamination from nearby components

C. Air compressor wear allowing oil into the system

D. Atmospheric contamination during operation

6. A technician inspecting a tractor's fifth wheel finds the locking mechanism produces excessive resistance during operation. The correct action is:

A. Apply additional grease and continue service

B. Investigate cause and service or replace as needed

C. Continue service if locking is achieved

D. Adjust mechanism position to reduce resistance

7. The correct procedure for verifying a commercial vehicle's spring brake function is to:

A. Apply maximum air pressure to chamber

B. Disassemble chamber for spring inspection

C. Replace spring brake at scheduled intervals

D. Verify proper application during low-pressure condition

8. A driver reports that the engine exhibits hesitation during light acceleration. Heavy acceleration is normal. The most likely cause is:

A. Idle control or low-load fuel delivery problem

B. Normal engine response during light load

C. Driver technique during acceleration

D. Engine control module requiring update

9. The correct interpretation of a commercial vehicle's coolant reservoir with visible green discoloration when specified coolant is pink is:

A. Normal coolant appearance during service

B. SCA contamination producing color change

C. Wrong coolant type in system requires flush and refill

D. Temperature affecting coolant color

10. A Class 8 tractor's driver reports that the engine experiences extended cranking during cold-weather starts. White smoke appears at startup. The most likely cause is:

A. Normal diesel cold-weather starting

B. Cold-start component issue: heater, fuel, or glow plugs

C. Driver technique during cold startup

D. Engine control module requiring update

11. The correct procedure for testing a commercial vehicle's battery for capacity is to:

A. Visual inspection of battery case only

B. Voltage measurement at rest only

C. Replace at scheduled intervals

D. Load test at half CCA for 15 seconds

12. A technician performing PMI finds that a tractor's serpentine belt has visible cracks across multiple ribs. The correct action is:

A. Replace belt before return to service

B. Apply belt dressing to restore flexibility

C. Continue service until belt fails

D. Adjust tension to compensate for cracks

13. The correct interpretation of a commercial vehicle's brake chamber with visible damage to the housing is:

A. Continue service if chamber operates

B. Apply housing repair compound

C. Replace brake chamber assembly

D. Monitor damage at next service interval

14. A driver reports that the engine produces black smoke during sustained heavy load. The most likely cause is:

A. Normal diesel exhaust during heavy load

B. Air intake restriction or turbocharger problem

C. Driver technique during loaded operation

D. Engine management system requiring update

15. The correct procedure for inspecting a commercial vehicle's wheel rim is to:

A. Remove rim for dye-penetrant testing

B. Measure rim dimensions with precision tools

C. Replace rim at scheduled intervals

D. Visual inspection for cracks, bends, and corrosion

16. A Class 8 tractor's driver reports that the steering wheel exhibits 3 inches of free play on a 22-inch wheel. The correct interpretation is:

A. Excessive free play requiring service investigation

B. Within specification for heavy-duty trucks

C. Normal steering wheel play during operation

D. Driver measurement error

17. The correct interpretation of a commercial vehicle's transmission fluid with normal red color and clear appearance is:

A. Contamination requiring fluid analysis

B. Extended service interval producing degradation

C. Normal fluid condition at service interval

D. Fresh fluid recently installed

18. A technician inspecting a tractor's fuel filter water separator finds approximately 2 ounces of water in the bowl. The correct action is:

A. Replace fuel filter assembly

B. Drain water and monitor for recurring accumulation

C. Add fuel additive to dissolve water

D. Continue service without action

19. The correct procedure for verifying a commercial vehicle's headlamp function is to:

A. Disconnect lamps for bench testing

B. Replace lamps at annual inspection

C. Measure voltage at lamp terminals only

D. Activate lamps and verify both high and low beam operation

20. A driver reports that the vehicle pulls to the left during heavy braking but tracks straight during cruise. The most likely cause is:

A. Right brake imbalance producing reduced braking force

B. Normal vehicle behavior during heavy braking

C. Driver technique during brake application

D. Tire pressure variation affecting only braking

21. The correct interpretation of a commercial vehicle's exhaust system with audible exhaust leak is:

A. Normal exhaust system operation

B. Continue service if noise is acceptable

C. Investigate leak source and repair before return to service

D. Apply exhaust sealant to silence leak

22. A Class 8 tractor's engine oil pressure reads 25 psi at idle and 65 psi at cruise. Specification is 20-30 psi idle and 50-70 psi cruise. The correct interpretation is:

A. Below-specification pressure indicating wear

B. Within specification — system operating normally

C. Above-specification pressure indicating problem

D. Verify with mechanical gauge

23. The correct procedure for checking a commercial vehicle's clutch pedal free play is to:

A. Measure travel before encountering hydraulic resistance

B. Apply maximum pedal pressure

C. Compare to similar vehicle

D. Measure pedal return time

24. A technician performing PMI finds that a tractor's leaf spring has a broken main leaf. The correct action is:

A. Continue service if auxiliary leaves intact

B. Apply welded repair to broken leaf

C. Adjust suspension to compensate

D. Remove vehicle from service for spring repair

25. The correct interpretation of a commercial vehicle's brake drum showing heat discoloration is:

A. Normal drum appearance during service

B. Apply drum-surfacing compound

C. Investigate for brake drag or dragging shoes

D. Continue service as cosmetic condition

26. A driver reports that the A/C produces water dripping inside the cab during operation. The most likely cause is:

A. Normal A/C condensation during operation

B. Restricted evaporator drain tube

C. Refrigerant leak into ventilation

D. High-humidity conditions

27. The correct procedure for inspecting a commercial vehicle's rear axle for leaks is to:

A. Visual inspection of axle housing for oil seepage and pinion seal condition

B. Pressure test axle housing at specified pressure

C. Remove axle for bench inspection

D. Replace axle seals at scheduled intervals

28. A technician inspecting a tractor's fifth wheel grease finds the grease showing dark contamination with no metallic particles. The most likely cause is:

A. Component wear producing contamination

B. Normal grease aging at service interval

C. External contamination only

D. Normal aging plus road dirt — clean and apply fresh grease

29. The correct interpretation of a commercial vehicle's coolant temperature gauge reading above normal during sustained operation is:

A. Normal coolant temperature during operation

B. Cooling system problem requiring investigation

C. Driver monitoring error during operation

D. Sensor calibration error producing reading

30. A Class 8 tractor's engine produces a continuous whine that changes with engine RPM. The most likely cause is:

A. Engine mount wear during operation

B. Driver perception error during operation

C. Turbocharger bearing wear or component issue

D. Normal engine sound at varying RPM

31. The correct procedure for verifying a commercial vehicle's brake warning system is to:

A. Apply parking brake or low-pressure condition to trigger warning

B. Replace warning components at intervals

C. Measure voltage at warning lamps

D. Disconnect warning circuit for testing

32. A driver reports that the engine produces blue smoke at startup that clears within minutes. The most likely cause is:

A. Coolant leak into combustion chambers

B. Normal startup behavior during cold weather

C. Driver technique during startup

D. Worn valve guide seals allowing oil into cylinders

33. The correct interpretation of a commercial vehicle's engine with visible oil leaking from multiple gasket locations is:

A. Normal oil seepage at service mileage

B. Multiple gasket failures requiring complete replacement

C. Elevated crankcase pressure from CCV failure

D. Extended service interval producing leaks

34. A technician performing PMI finds that a tractor's air dryer cartridge appears saturated. The correct action is:

A. Continue service until complete failure

B. Replace cartridge and investigate cause of saturation

C. Apply heat to evaporate moisture

D. Monitor at next service interval

35. The correct procedure for inspecting a commercial vehicle's tires for condition is to:

A. Inspect tread depth, sidewall, inflation, and overall condition

B. Visual inspection of sidewall only

C. Replace at scheduled intervals

D. Measure tire diameter against specification

36. A Class 8 tractor's driver reports that the steering produces noise during sharp turns at low speeds. The most likely cause is:

A. Normal steering operation during turning

B. Driver technique during turning

C. Tire scrubbing during tight maneuvers

D. Power steering pump or fluid problem under load

37. The correct interpretation of a commercial vehicle's brake fluid that appears dark brown is:

A. Normal brake fluid color at service

B. Fresh fluid recently installed

C. Moisture contamination requiring replacement

D. Specific fluid type for manufacturer

38. A driver reports that the engine stalls intermittently during operation with no diagnostic codes stored. The most likely cause is:

A. Engine control module requiring update

B. Fuel system, idle control, or air leak issue

C. Normal engine behavior during operation

D. Driver technique affecting operation

39. The correct procedure for verifying a commercial vehicle's mirror condition is to:

A. Confirm both mirrors intact, adjustable, and provide visibility

B. Replace mirrors at scheduled intervals

C. Visual inspection of glass surface only

D. Measure mirror dimensions against specification

40. A technician inspecting a tractor's brake chamber finds visible rust accumulating on the spring brake clamp band. The correct action is:

A. Apply spray lubricant to prevent corrosion

B. Continue service as cosmetic condition

C. Replace complete brake chamber preventively

D. Evaluate for structural integrity and replace if compromised

41. The correct interpretation of a commercial vehicle's engine oil that shows milky appearance is:

A. Normal oil appearance during service

B. Extended service interval producing change

C. Fuel dilution affecting oil

D. Coolant contamination from internal leak

42. A Class 8 tractor's driver reports that the trailer brakes apply but release with significant delay. The most likely cause is:

A. Restricted exhaust or relay valve issue at trailer

B. Normal trailer brake behavior during release

C. Driver technique during brake release

D. Tractor brake signal timing

43. The correct procedure for testing a commercial vehicle's horn during PMI is to:

A. Measure voltage at horn terminal

B. Activate control and verify audible output

C. Disconnect horn for bench testing

D. Replace horn at annual inspection

44. A technician performing PMI finds that a tractor's air compressor produces continuous operation. The most likely cause is:

A. Normal compressor operation during heavy use

B. Governor cycling during normal operation

C. Excessive system leakage or compressor issue

D. Driver technique affecting operation

45. The correct interpretation of a commercial vehicle's coolant reservoir at MIN fill line is:

A. Coolant loss requiring investigation

B. Normal level during operation

C. Overfilled at previous service

D. Normal consumption at interval

46. A driver reports that the cab heater produces cool air with engine at operating temperature. The most likely cause is:

A. Normal heater behavior during operation

B. Driver setting error

C. Coolant temperature below specification

D. Heater core restriction or control valve issue

47. The correct procedure for inspecting a commercial vehicle's exhaust system is to:

A. Remove components for bench testing

B. Run engine with exhaust disconnected

C. Visual inspection for damage, leaks, and secure mounting

D. Replace hangers at annual service

48. A technician inspecting a tractor finds a wheel stud with visible thread damage. The correct action is:

A. Apply thread repair compound

B. Replace damaged stud and adjacent lug nut

C. Use longer lug nut for engagement

D. Continue service if torque achieved

49. The correct interpretation of a commercial vehicle's brake pedal that requires excessive force to apply is:

A. Vacuum/hydraulic boost loss or system problem

B. Normal pedal feel during application

C. Driver technique during brake application

D. Brake fluid specification incorrect

50. A Class 8 tractor's driver reports that the vehicle has developed vibration at highway speeds. The vibration was not present at previous PMI. The most likely cause is:

A. Normal vibration at highway speeds

B. Driver perception error

C. Tire, wheel, bearing, or driveshaft issue developing

D. Engine mount wear during operation

PRACTICE EXAM 18: ANSWER KEY AND EXPLANATIONS

1. B — Technician A is correct. Wheel lug nuts require re-torque verification after the first 50-100 miles of operation to catch normal fastener settling that occurs after initial installation. Technician B is incorrect — fasteners settle and can lose torque over time, particularly during the initial service period after installation. Re-torque is standard fleet practice.

2. C — A metallic clicking sound that increases with engine speed typically indicates valve train wear or rotational component issue. The sound occurs at each valve event or rotational cycle, scaling with engine speed. Common causes include excessive valve lash, worn rocker arms, or other valve train components. Investigation identifies the specific source.

3. A — Brake hose chafing inspection is a visual procedure examining hose routing for contact with adjacent components. Chafing produces progressive damage that can lead to hose failure. Pressure testing, removal for bench inspection, and scheduled replacement do not identify chafing patterns developing in service.

4. D — A brake pedal that feels firm initially but slowly sinks during sustained pressure indicates master cylinder internal seal leak bypassing fluid. The fluid is bypassing the internal seals rather than generating pressure against the brake system. Master cylinder replacement is required.

5. C — Visible oil discharge during air dryer purge typically indicates air compressor wear allowing oil into the system. The oil enters the compressed air stream past worn compressor seals and accumulates in the dryer, then discharges during purge cycles. Investigation includes compressor service.

6. B — Excessive resistance in a fifth wheel locking mechanism requires investigation of the cause and service or replacement as needed. The mechanism should operate smoothly through its range; resistance indicates internal problems. Grease application, continued service, and position adjustment do not address the underlying mechanism issue.

7. D — Spring brake function verification confirms proper application during low-pressure conditions. The spring brake should automatically apply when air pressure falls below threshold; this is the safety mechanism it provides. Maximum air pressure, disassembly, and scheduled replacement are not standard verification procedures.

8. A — Engine hesitation during light acceleration only indicates an idle control or low-load fuel delivery problem. At light loads, the engine is most sensitive to these conditions; at heavy load, increased fuel rates mask the issues. Investigation targets idle and low-load systems.

9. C — Green coolant when pink coolant is specified indicates wrong coolant type in the system requiring flush and refill. Different coolant chemistries are incompatible and produce degraded protection when mixed. The correct service is complete flush and refill with specified coolant. Normal appearance, SCA contamination, and temperature changes do not produce this color mismatch.

10. B — Extended cranking with white smoke during cold-weather starts typically indicates a cold-start component issue: intake heater malfunction, fuel problems, or glow plug issues. These conditions prevent the combustion chamber from reaching the temperature needed for proper diesel combustion in cold conditions.

11. D — Battery capacity testing uses load testing at half the battery's cold cranking amp (CCA) rating for 15 seconds. At 70°F, the voltage must remain above 9.6 volts for the battery to pass. This test reveals capacity issues that visual inspection and simple voltage measurements cannot detect.

12. A — A serpentine belt with cracks across multiple ribs requires replacement before the vehicle returns to service. Multi-rib cracking indicates the belt has lost the geometry required for reliable pulley engagement. Belt dressing, continued service, and tension adjustment do not restore a belt in this condition.

13. C — A brake chamber with visible damage to the housing requires replacement. The chamber is a pressure vessel that must maintain structural integrity to function safely. Continued service, repair compounds, and monitoring do not address the structural compromise.

14. B — Black smoke during sustained heavy load typically indicates air intake restriction or turbocharger problem producing insufficient air for fuel-rich combustion. The engine cannot deliver adequate air to match fuel demand under sustained load. Normal exhaust, driver technique, and ECM updates produce different patterns.

15. D — Wheel rim inspection is a visual procedure examining for cracks, bends, and corrosion. These visual findings identify rim problems affecting tire retention and vehicle safety. Dye-penetrant testing, precision measurement, and scheduled replacement are not standard PMI procedures.

16. A — Steering wheel free play of 3 inches on a 22-inch wheel represents 13.6% of diameter — exceeding the 10% maximum allowed by Appendix G. This is excessive free play requiring steering system service investigation. Investigation identifies the specific wear source.

17. C — Transmission fluid with normal red color and clear appearance indicates normal fluid condition at service interval. The fluid retains its proper color and clarity; no service action is required. Contamination interpretation, extended interval concerns, and fresh fluid identification do not apply.

18. B — Water in a fuel filter water separator is expected — the separator's purpose is to capture water before it reaches injectors. The correct action is to drain water and monitor for recurring accumulation. Filter replacement, additives, and inaction are not appropriate.

19. D — Headlamp function verification is performed by activating lamps and verifying both high and low beam operation. This direct functional test confirms complete circuit operation and proper beam patterns. Disconnection, scheduled replacement, and voltage-only measurement do not verify actual function.

20. A — Left pull during heavy braking with normal cruise tracking typically indicates right brake imbalance producing reduced braking force. During cruise, no brake torque is applied; during braking, the imbalance produces the pull toward the side with stronger braking. Investigation focuses on the right brake system.

21. C — An audible exhaust leak requires investigation of the source and repair before the vehicle returns to service. Exhaust leaks reduce engine performance, create safety hazards, and may indicate component damage. Continued service, sealants, and noise-tolerance do not address the underlying problem.

22. B — Engine oil pressure of 25 psi at idle and 65 psi at cruise falls within specification (20-30 psi idle, 50-70 psi cruise), indicating normal operation. Both readings are in the middle of the specified ranges. No further action is required.

23. A — Clutch pedal free play is measured by determining the distance the pedal travels before encountering hydraulic resistance. This is the range of pedal motion that produces no clutch action. Maximum pressure, vehicle comparison, and return time measurement are not the correct technique.

24. D — A broken main leaf in a leaf spring is a CVSA out-of-service condition requiring removal from service for spring repair. The main leaf provides both load support and axle location; failure compromises vehicle handling and safety. Continued service, welding, and compensation are not acceptable responses.

25. C — Heat discoloration on a brake drum indicates excessive brake heat during operation requiring investigation for brake drag or dragging shoes. The drum temperature has exceeded normal operating ranges, producing thermal color change. Investigation identifies the specific cause.

26. B — A/C condensation dripping inside the cab typically indicates a restricted evaporator drain tube. The drain should route condensate outside the vehicle; restriction allows accumulation and entry into the cab. Normal operation, refrigerant leaks, and humidity produce different patterns.

27. A — Rear axle leak inspection is a visual procedure examining the axle housing for oil seepage and pinion seal condition. These visual findings identify leak sources requiring service. Pressure testing, removal for bench inspection, and scheduled replacement are not standard PMI procedures.

28. D — Dark fifth wheel grease without metallic particles typically indicates normal aging plus road dirt accumulation. The condition is addressed by cleaning the existing grease and applying fresh grease. Component wear would produce metallic particles; pure normal aging or external-only contamination produce different appearances.

29. B — A coolant temperature gauge reading above normal during sustained operation indicates a cooling system problem requiring investigation. Possible causes include failed thermostat, low coolant, fan issues, or restrictions. Normal temperature, monitoring errors, and sensor calibration produce different patterns.

30. C — A continuous whine that changes with engine RPM typically indicates turbocharger bearing wear or rotating component issue. The whine pitch follows rotational speed of the failing component. Engine mounts, perception, and normal sounds produce different patterns.

31. A — Brake warning system verification is performed by applying the parking brake or creating a low-pressure condition to trigger the warning, then observing illumination. This functional test confirms the complete warning circuit. Scheduled replacement, voltage measurement, and disconnection don't verify actual warning function.

32. D — Blue smoke at startup that clears within minutes typically indicates worn valve guide seals allowing oil into cylinders during engine-off periods. The accumulated oil burns off during warmup, producing the blue smoke that clears quickly. Coolant leaks, normal startup, and driver technique produce different patterns.

33. C — Oil leaks at multiple gasket locations simultaneously indicate elevated crankcase pressure from CCV failure. The pressure forces oil past seals throughout the engine. Replacing gaskets without addressing CCV produces repeat failures; investigation of the root cause is essential.

34. B — A saturated air dryer cartridge requires replacement combined with investigation of the saturation cause. Possible causes include excessive demand, increased leakage, or high humidity. Simply replacing without investigation leads to recurring problems.

35. A — Tire condition inspection covers tread depth, sidewall, inflation, and overall condition. This comprehensive inspection identifies all conditions affecting tire safety and performance. Single-parameter inspection, scheduled replacement, and diameter measurement do not provide complete assessment.

36. D — Steering noise during sharp turns at low speeds typically indicates a power steering pump or fluid problem under load. Low-speed steering requires maximum hydraulic assistance, revealing pump weaknesses. Normal operation, driver technique, and tire scrubbing produce different patterns.

37. C — Dark brown brake fluid indicates moisture contamination requiring fluid replacement. Brake fluid is hygroscopic and absorbs moisture, producing color change and reducing boiling point. The contaminated fluid has lost protective properties and must be replaced.

38. B — Intermittent engine stalling without diagnostic codes typically indicates a fuel system, idle control, or air leak issue. These conditions can produce intermittent problems that don't trigger code storage. ECM updates, normal behavior, and driver technique produce different patterns.

39. A — Mirror inspection confirms both mirrors are intact, adjustable, and provide adequate visibility. These functional aspects are critical for driver safety. Scheduled replacement, surface-only inspection, and dimension measurement do not verify the functional adequacy required.

40. D — Visible rust on a brake chamber clamp band requires evaluation of structural integrity and replacement if compromised. The clamp band contains spring energy and must maintain integrity. Spray lubricants, continued service, and preventive replacement without evaluation are not appropriate responses.

41. D — Milky engine oil indicates coolant contamination from an internal engine leak. The milky appearance is the oil-water emulsion. Common causes include head gasket failure, cracked cylinder head, or oil cooler gasket failure. Investigation identifies the specific source.

42. A — Trailer brakes that release with significant delay typically indicate a restricted exhaust path or relay valve issue at the trailer. The brake pressure cannot exhaust quickly enough for normal release. Investigation identifies the specific restriction or valve problem.

43. B — Horn testing is performed by activating the horn control from the steering wheel and confirming audible sound output. This direct functional test verifies the complete circuit and horn operation. Voltage measurement, bench testing, and scheduled replacement do not verify actual function.

44. C — An air compressor producing continuous operation without cycling typically indicates excessive system leakage or compressor capacity issue. The system cannot reach governor cut-out pressure. Normal operation produces regular cycling; governor and driver technique are not typically responsible.

45. A — A coolant reservoir at MIN fill line indicates coolant loss requiring investigation. The expected level is between MIN and MAX; reaching MIN indicates either leakage or internal consumption. Investigation identifies the specific source before adding coolant.

46. D — Cool heater output with engine at operating temperature typically indicates heater core restriction or control valve issue preventing heated coolant flow. The heated coolant cannot reach the heater core effectively. Normal operation, settings, and low coolant temperature produce different patterns.

47. C — Commercial vehicle exhaust system inspection is a visual procedure examining for damage, leaks, and secure mounting. This identifies the conditions affecting exhaust system integrity. Component removal, exhaust-disconnected operation, and scheduled hanger replacement are not standard PMI procedures.

48. B — A wheel stud with visible thread damage requires replacement of both the damaged stud and adjacent lug nut. Thread repair compounds do not restore structural integrity; longer lug nuts and continued service do not address the underlying damage affecting retention reliability.

49. A — A brake pedal requiring excessive force to apply typically indicates vacuum/hydraulic boost loss or system problem. The booster cannot provide normal assistance, requiring the driver to apply more force directly. Normal operation, driver technique, and fluid specification produce different patterns.

50. C — New vibration at highway speeds that was not present at previous PMI typically indicates tire, wheel, bearing, or driveshaft issue developing over time. The change-over-time pattern points to a new condition requiring investigation. Engine mounts, perception, and normal vibration produce different patterns.