PRACTICE EXAM 15: ASE T8 PMI SIMULATION

1. A Class 8 tractor's driver reports that the engine coolant level drops between service intervals. No visible external leaks are present. The most likely cause is:

A. Normal coolant evaporation during extended operation

B. Internal coolant loss into combustion or oil pathway

C. Driver operation producing apparent coolant loss

D. Ambient temperature affecting reservoir readings

2. The correct action when a technician finds corroded electrical connections at the battery terminals is:

A. Apply spray lubricant and tighten connections

B. Spray contact cleaner without disconnecting

C. Replace the battery assembly immediately

D. Clean terminals and apply dielectric protection

3. A driver reports that the trailer pulls to the left during normal highway operation. The most likely cause is:

A. Tire pressure variation or alignment issue at the trailer

B. Normal trailer behavior under load

C. Driver technique during highway operation

D. Fifth wheel coupling producing apparent pull

4. The correct procedure for inspecting a commercial vehicle's windshield wiper blades is to:

A. Replace blades at each annual inspection

B. Measure blade pressure with a gauge

C. Activate during water application to verify function

D. Visual inspection of blade appearance only

5. A technician performing PMI finds that a tractor's engine produces a whining sound at all operating speeds. The most likely cause is:

A. Normal engine sound during varying operation

B. Power steering fluid low or pump wear

C. Turbocharger operation across RPM range

D. Driver perception error during operation

6. The correct interpretation of a commercial vehicle's air brake chamber producing an audible leak from the breather is:

A. Normal chamber operation during release

B. Excessive system pressure affecting operation

C. Driver technique producing apparent leak

D. Failed chamber diaphragm requiring replacement

7. A Class 8 tractor's driver reports that the engine produces black smoke only during full acceleration. The most likely cause is:

A. Air restriction, turbocharger issue, or intake leak

B. Normal exhaust during acceleration

C. Fuel pump producing excessive delivery

D. Driver technique during acceleration

8. The correct procedure for verifying a commercial vehicle's parking brake holding capability is to:

A. Visual inspection of brake mechanism

B. Measure brake application pressure

C. Apply brake on moderate grade and verify hold

D. Replace brake components at interval

9. A technician inspecting a tractor's leaf spring bundle finds a broken main leaf. The correct action is:

A. Continue service if auxiliary leaves are intact

B. Remove vehicle from service for repair

C. Adjust suspension to compensate

D. Monitor at next service interval

10. The correct interpretation of a commercial vehicle's battery voltage reading 12.4 volts at rest with no loads is:

A. Partially discharged — needs charging

B. Fully charged battery condition

C. Overcharged battery indication

D. Severely discharged — replace battery

11. A driver reports that the A/C system produces inadequate cooling despite recent service. The most likely cause is:

A. Normal A/C behavior after recent service

B. Driver setting error during operation

C. Compressor, evaporator, or condenser issue

D. Cabin air filter restriction only

12. The correct procedure for testing a commercial vehicle's alternator output is to:

A. Measure voltage at battery with engine running

B. Visual inspection during engine operation

C. Replace alternator at scheduled interval

D. Measure voltage at battery with engine off

13. A Class 8 tractor's driver reports reduced braking effectiveness during heavy application. All pressures are within specification. The most likely cause is:

A. Normal brake fade during heavy application

B. Driver technique during brake application

C. Electronic stability system activation

D. Brake lining wear, glazing, or contamination

14. The correct interpretation of a commercial vehicle's steering wheel free play of 1 inch on a 20-inch wheel is:

A. Excessive free play requiring service

B. Within specification for proper operation

C. Above specification — investigate system

D. Driver measurement error

15. A technician inspecting a tractor's rear axle finds oil on the housing exterior near the pinion. The most likely cause is:

A. Normal residual from recent service

B. External contamination during operation

C. Failed pinion seal allowing leakage

D. Overfilled lubricant level

16. The correct procedure for inspecting a commercial vehicle's fifth wheel for wear is to:

A. Apply grease at each service interval

B. Measure components with precision tools

C. Remove for bench inspection

D. Visual inspection for wear, cracks, and proper operation

17. A driver reports that the vehicle's headlamps dim during engine starting. The most likely cause is:

A. Normal behavior during starter engagement

B. Driver technique during starting sequence

C. Weakened battery or corroded cables

D. Failed dimmer switch function

18. The correct interpretation of a commercial vehicle's brake drum with visible heat checking is:

A. Normal drum appearance during service

B. Light checking may be acceptable — evaluate severity

C. Apply surfacing compound to repair

D. Continue service as cosmetic condition

19. A Class 8 tractor's engine oil pressure gauge shows 10 psi at idle and 30 psi at cruise. Specification is 20-30 psi idle and 50-70 psi cruise. The correct action is:

A. Verify with independent mechanical gauge

B. Replace oil pressure sending unit

C. Add engine oil to increase pressure

D. Continue service with monitoring

20. The correct procedure for inspecting a commercial vehicle's wheel bearings is to:

A. Replace bearings at scheduled intervals

B. Apply grease through fittings only

C. Visual inspection of hub exterior

D. Check for play, roughness, and noise during rotation

21. A technician performing PMI finds a commercial vehicle's air filter restriction indicator showing the red zone. The correct action is:

A. Continue service — yellow zone not yet reached

B. Adjust indicator to reset display

C. Bypass filter temporarily

D. Replace filter element before return to service

22. The correct interpretation of a commercial vehicle's coolant with visible oil contamination is:

A. Normal coolant appearance during service

B. Internal engine leak requiring investigation

C. SCA producing oil-like appearance

D. Extended service interval condition

23. A driver reports that the engine stalls at idle but runs normally at higher RPM. The most likely cause is:

A. Idle control, fuel system, or air leak issue

B. Normal diesel idle characteristics

C. Driver technique during idle

D. Transmission torque converter problem

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

A. Measure voltage at horn terminal

B. Disconnect horn for bench testing

C. Activate control and verify audible output

D. Replace horn at annual service

25. A Class 8 tractor's driver reports that the vehicle requires extended cranking to start. Battery and starter are confirmed normal. The most likely cause is:

A. Normal diesel starting characteristics

B. Driver technique during starting

C. Engine control module requiring update

D. Fuel system issue affecting delivery

26. The correct interpretation of a commercial vehicle's brake pedal that feels spongy is:

A. Normal pedal feel during application

B. Air in hydraulic system or fluid problem

C. Driver technique during application

D. Normal brake component wear

27. A technician inspecting a tractor's serpentine belt finds the belt with chunks missing from ribs. The correct action is:

A. Replace belt before return to service

B. Apply belt dressing to restore surface

C. Continue service until failure

D. Adjust tension to compensate

28. The correct procedure for verifying a commercial vehicle's stop lamp function is to:

A. Measure voltage at lamp terminal

B. Disconnect for bench testing

C. Replace lamps at annual service

D. Depress brake pedal and verify illumination

29. A driver reports that the engine exhibits hesitation during acceleration. The most likely cause is:

A. Normal engine response during acceleration

B. Driver technique during throttle input

C. Fuel system, turbocharger, or air issue

D. Transmission shift timing problem

30. The correct interpretation of a commercial vehicle's trailer with inoperative lights is:

A. Normal trailer lighting during initial connection

B. Trailer electrical problem or 7-way plug issue

C. Driver switch error in the cab

D. Load affecting trailer light operation

31. A Class 8 tractor's driver reports that the steering feels heavy at parking speeds but normal at highway speeds. The most likely cause is:

A. Power steering fluid or pump issue

B. Normal steering during parking

C. Driver technique during parking

D. Tire pressure at steer axle

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

A. Remove hose for bench inspection

B. Apply maximum pressure for testing

C. Inspect for cracks, bulges, chafing, and leakage

D. Replace at scheduled intervals

33. A technician performing PMI finds that a tractor's DEF tank shows low level after recent filling. The most likely cause is:

A. Normal DEF consumption during operation

B. Driver fill error during service

C. DEF evaporation during parking

D. DEF system leak or tank damage

34. The correct interpretation of a commercial vehicle's transmission fluid with dark color and burnt odor is:

A. Normal fluid at extended service interval

B. Transmission overheating or internal wear

C. Fresh fluid recently installed

D. Fluid additive producing discoloration

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

A. Heater core restriction or control valve issue

B. Normal heater behavior during operation

C. Driver setting error

D. Coolant temperature below specification

36. The correct procedure for inspecting a commercial vehicle's suspension air bags is to:

A. Remove for bench testing

B. Measure dimensions against specification

C. Replace at scheduled intervals

D. Visual inspection for cracks, damage, and inflation

37. A Class 8 tractor's engine produces a knocking sound that does not change with RPM. The most likely cause is:

A. Normal combustion sound

B. Internal engine wear requiring investigation

C. Exhaust manifold leak

D. Turbocharger operation

38. The correct interpretation of a commercial vehicle's fifth wheel grease with metallic particles is:

A. Normal grease condition at service interval

B. Contamination from external sources

C. Component wear requiring investigation

D. Grease additive producing particles

39. A technician inspecting a tractor's brake chamber finds visible corrosion on the mounting hardware. The correct action is:

A. Evaluate structural integrity and replace if compromised

B. Apply rust converter to surface

C. Continue service as cosmetic only

D. Paint over corroded area

40. The correct procedure for verifying a commercial vehicle's turn signal operation is to:

A. Measure voltage at each bulb

B. Disconnect signals for bench testing

C. Visual inspection of bulbs only

D. Activate signals and verify flash rate

41. A driver reports that the vehicle has developed a vibration at highway speeds that was not present at previous PMI. The most likely cause is:

A. Normal vibration at highway speeds

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

C. Driver perception error

D. Engine mount wear during operation

42. The correct interpretation of a commercial vehicle's brake fluid with dark brown color is:

A. Normal fluid appearance at service

B. Fresh fluid recently installed

C. Specific fluid type for manufacturer

D. Moisture contamination requiring replacement

43. A technician performing PMI finds that a tractor's fuel filter water separator has visible sludge accumulation. The most likely cause is:

A. Microbial contamination in fuel system

B. Normal water separator operation

C. Fuel additive precipitation

D. Fuel tank corrosion

44. The correct procedure for inspecting a commercial vehicle's fuel tank straps is to:

A. Remove for internal inspection

B. Replace at scheduled intervals

C. Visual inspection for integrity and security

D. Weigh tank to verify support

45. A Class 8 tractor's driver reports that the engine stalls and runs for a few seconds, then stops. The most likely cause is:

A. Normal engine behavior during startup

B. Driver technique during operation

C. Fuel delivery problem or air in system

D. Engine control module requiring update

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

A. Coolant loss requiring investigation

B. Normal level during operation

C. Overfilled at previous service

D. Normal consumption at service interval

47. A technician inspecting a tractor's fifth wheel locking mechanism finds the primary jaw will not fully engage the kingpin. The correct action is:

A. Use secondary safety catch as primary retention

B. Apply additional grease for engagement

C. Continue service with monitoring

D. Remove vehicle from service for repair

48. The correct procedure for checking a commercial vehicle's engine oil level is to:

A. Check at random intervals during operation

B. Engine off, vehicle on level ground

C. Measure during drain procedure

D. Check at operating temperature with engine running

49. A Class 8 tractor's driver reports that the truck pulls to one side only during rain. The most likely cause is:

A. Normal rain-related handling variation

B. Driver technique during adverse weather

C. Tire tread depth or pattern producing asymmetric traction

D. Alignment issue specific to wet surfaces

50. The correct interpretation of a commercial vehicle's tire with exposed cord or belt material is:

A. CVSA out-of-service condition — replace immediately

B. Continue service if not load-bearing

C. Apply tire sealant to cover

D. Reduce inflation to minimize stress

PRACTICE EXAM 15: ANSWER KEY AND EXPLANATIONS

1. B — Coolant level drops without visible external leaks indicate internal coolant loss into the combustion chamber or oil pathway. Common sources include head gasket failure, cracked cylinder head, or oil cooler gasket leakage. The condition requires diagnostic investigation beyond PMI scope to identify the specific internal leak source.

2. D — Corroded battery terminal connections require disconnecting the cables, thoroughly cleaning both terminal and cable ends, and applying dielectric protection. This restores reliable electrical contact while protecting against future corrosion. Spray lubricants, contact cleaner without disconnection, and battery replacement do not address the underlying corrosion.

3. A — Trailer pull during normal highway operation typically indicates tire pressure variation or alignment issue at the trailer. Tire pressure differences produce asymmetric forces; alignment problems cause the trailer to track off-center. Investigation identifies the specific cause to guide repair.

4. C — Windshield wiper inspection is best performed by activating wipers during water application to verify wet-condition operation. Dry glass testing can damage blade rubber and doesn't represent actual operating conditions. The water test confirms the wipers effectively clear the windshield when needed.

5. B — A whining sound at all operating speeds typically indicates low power steering fluid or pump wear producing the characteristic sound throughout the operating range. The pump cannot deliver adequate pressure silently when compromised. Investigation identifies the specific cause; normal operation produces minimal noise.

6. D — Audible air leak from the brake chamber breather during operation typically indicates a failed chamber diaphragm allowing air to escape through the non-pressurized side. The diaphragm is the dynamic seal separating pressurized from non-pressurized sections; its failure requires chamber replacement.

7. A — Black smoke only during full acceleration indicates insufficient air supply during maximum demand conditions: air restriction, turbocharger issues, or intake leaks. The smoke is fuel-rich combustion from inadequate air. Normal operation and fuel pump problems produce different patterns.

8. C — Parking brake holding capability is verified by applying the brake on a moderate grade and confirming the vehicle holds without rolling. This functional test confirms real-world holding

capability. Visual inspection, pressure measurement, and scheduled replacement do not verify actual holding function.

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

10. A — A battery voltage of 12.4 volts at rest indicates a partially discharged battery at approximately 75% of full charge. A fully charged battery reads 12.6-12.8 volts. The 12.4 V reading indicates the battery needs charging; it is not fully charged, overcharged, or severely discharged at this reading.

11. C — Inadequate A/C cooling despite recent service indicates problems with the compressor, evaporator, or condenser. These components affect cooling performance beyond refrigerant charge alone. Investigation of each component identifies the specific issue; normal behavior, settings, and filter alone don't fully explain inadequate cooling.

12. A — Alternator output testing is performed by measuring voltage at the battery with the engine running. A healthy charging system produces 13.8-14.4 volts. Engine-off measurement shows battery voltage only; visual inspection and scheduled replacement don't verify actual output.

13. D — Reduced braking with pressures within specification typically traces to brake lining wear, glazing, or contamination reducing friction coefficient. The foundation brakes cannot produce adequate force even with correct pressure. Investigation focuses on the brake components themselves.

14. B — Steering wheel free play of 1 inch on a 20-inch wheel represents 5% of diameter — well within the 10% maximum (2 inches) allowed by Appendix G. This indicates the steering system is within specification. Investigation is not required at this free play level.

15. C — Oil on the rear axle housing exterior near the pinion indicates a failed pinion seal allowing axle lubricant to escape along the pinion shaft. The seal failure requires replacement. Residual service oil, external contamination, and overfill produce different patterns.

16. D — Fifth wheel inspection is a visual procedure examining for wear, cracks, and proper operation of the locking mechanism, pivot points, and contact surfaces. This visual approach identifies conditions affecting coupling reliability. Blanket grease application, precision measurement, and removal for bench inspection are not standard PMI procedures.

17. C — Headlamp dimming during engine starting indicates a weakened battery or corroded cables unable to maintain voltage under the high-current starter load. Investigation of battery condition and cable voltage drop identifies the specific cause. Normal behavior, technique, and dimmer switches do not produce acceleration-related dimming.

18. B — Brake drum heat checking requires evaluation of severity — light checking may be acceptable for continued service, but severe checking indicates drum end-of-life requiring replacement. Heat checking develops from repeated thermal cycles. Surfacing compounds, continued service without evaluation, and cosmetic characterization don't address severity.

19. A — An oil pressure reading below specification (10 psi idle vs 20-30 spec) requires verification with an independent mechanical gauge before assuming the reading is accurate. The dash gauge may be inaccurate; mechanical verification distinguishes between gauge error and actual pressure problem. Sending unit replacement and oil addition are premature without verification.

20. D — Wheel bearing inspection checks for play (by rocking the wheel), roughness (by rotating the wheel and feeling), and noise during rotation. These methods reveal bearing condition. Scheduled replacement, grease application alone, and exterior inspection do not identify actual bearing wear.

21. D — An air filter restriction indicator in the red zone requires filter replacement before the vehicle returns to service. Red zone operation produces significantly reduced engine performance and potential engine damage. Continued service, indicator adjustment, and bypass are not acceptable responses.

22. B — Coolant with visible oil contamination indicates an internal engine leak requiring investigation. Common sources include failed oil cooler gasket, head gasket, or other internal leak paths. The condition requires identification and repair of the source before coolant replacement.

23. A — Engine stalling at idle but running normally at higher RPM typically indicates an idle control, fuel system, or air leak issue affecting idle operation specifically. At idle, the engine is most sensitive to these conditions. Investigation targets idle-specific systems.

24. C — 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. Voltage measurement, bench testing, and scheduled replacement do not verify actual horn function.

25. D — Extended cranking with confirmed normal battery and starter typically indicates a fuel system issue affecting delivery: air in lines, fuel pump problem, or restriction. The engine cannot start rapidly because fuel delivery is inadequate. Investigation targets the fuel delivery path.

26. B — A spongy brake pedal feel indicates air in the hydraulic brake system or contaminated brake fluid. Air is compressible while fluid is not; the characteristic feel results from air compression during pedal application. Bleeding and potentially fluid replacement restore normal pedal feel.

27. A — A serpentine belt with missing material from the ribs requires replacement before the vehicle returns to service. The belt cannot maintain reliable grip on pulleys, and continued use leads to progressive deterioration. Belt dressing, continued service, and tension adjustment do not address physical belt damage.

28. D — Stop lamp function verification consists of depressing the brake pedal and confirming that all installed stop lamps illuminate. This direct functional test confirms complete circuit operation. Voltage measurement, bench testing, and scheduled replacement do not verify actual function.

29. C — Engine hesitation during acceleration typically indicates fuel system issues, turbocharger problems, or air intake issues affecting the engine's response to throttle input. Investigation targets these systems to identify the specific cause. Normal response, driver technique, and shift timing produce different patterns.

30. B — Inoperative trailer lights typically indicate a trailer-side electrical problem or 7-way plug issue. The tractor is sending the correct signals, but the trailer cannot receive and act on them. Investigation at the trailer-side connections identifies the specific cause.

31. A — Heavy steering at parking speeds with normal highway operation typically indicates power steering fluid or pump issues affecting low-speed assistance. Low speeds require maximum hydraulic assistance; highway speeds need less. Investigation identifies the specific pump or fluid problem.

32. C — Brake hose inspection identifies cracks, bulges, chafing, and leakage through visual examination. These visual indicators identify hose problems affecting brake system integrity. Removal for bench inspection, maximum pressure testing, and scheduled replacement do not leverage the condition-based inspection that is standard.

33. D — Low DEF tank level despite recent filling indicates a DEF system leak or tank damage. The expected level should have been maintained through normal operation; rapid loss indicates a leak requiring investigation. Normal consumption, fill errors, and evaporation produce different patterns and rates.

34. B — Dark transmission fluid with burnt odor indicates transmission overheating or internal wear. The fluid has lost its functional properties and reflects transmission stress. Simple fluid replacement without investigation produces recurring problems; the transmission requires service including internal inspection.

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

36. D — Suspension air bag inspection is a visual procedure examining for cracks, damage, and proper inflation. These visual indicators identify air bag problems affecting suspension function. Removal, precision measurement, and scheduled replacement are not standard PMI procedures.

37. B — A knocking sound that does not change with RPM indicates internal engine wear requiring diagnostic investigation. Possible causes include bearing wear, rod or piston problems, or other

internal damage. RPM-independent knocking is not normal combustion; investigation identifies the specific source.

38. C — Metallic particles in fifth wheel grease indicate component wear requiring investigation. The particles come from wearing surfaces on the fifth wheel, trailer upper coupler, or locking components. Investigation identifies the source and determines needed service.

39. A — Brake chamber mounting hardware with visible corrosion requires evaluation of structural integrity and replacement if corrosion has compromised function. The mounting maintains chamber position and must remain structurally sound. Rust converters, continued service, and paint do not address structural concerns.

40. D — Turn signal verification is performed by activating signals and confirming proper flash rate (60-120 flashes per minute). Rates outside this range indicate component problems. Voltage measurement, bench testing, and visual-only inspection do not verify actual flash rate function.

41. B — New vibration at highway speeds that developed between inspections typically indicates tire, wheel, bearing, or driveshaft issues developing over time. The change-over-time pattern points to a new condition. Investigation identifies the specific rotating component requiring service.

42. D — Dark brown brake fluid indicates moisture contamination over extended service requiring fluid replacement. Brake fluid is hygroscopic and absorbs moisture, producing color change and reducing boiling point. The contaminated fluid must be replaced to restore proper brake system function.

43. A — Sludge accumulation in a fuel filter water separator typically indicates microbial contamination in the fuel system. Bacteria grow at the fuel-water interface, producing the characteristic sludge. Decontamination requires fuel system cleaning, biocide treatment, and filter replacement.

44. C — Fuel tank strap inspection is a visual procedure examining integrity and security of mounting. The straps secure the tank against road forces; compromised straps can allow tank movement and fuel release. Removal for internal inspection, scheduled replacement, and weighing are not standard PMI procedures.

45. C — An engine that stalls after running briefly typically has a fuel delivery problem or air in the fuel system. The engine starts on residual fuel and then stalls when fresh fuel cannot be delivered. Investigation targets the fuel delivery path for the specific cause.

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

47. D — A fifth wheel locking mechanism that cannot achieve full kingpin engagement requires removal from service until the mechanism is repaired. Safety requires reliable primary engagement; the secondary safety catch is not a substitute. Continued service with monitoring and grease application do not address the mechanism failure.

48. B — Engine oil level is checked with the engine off and the vehicle on level ground. This provides stable conditions for accurate dipstick reading. Engine-running, random intervals, and drain measurements don't produce accurate level readings.

49. C — A vehicle pulling to one side only during rain typically indicates tire tread depth or pattern producing asymmetric traction. Water cannot evacuate equally from both sides, causing one-sided hydroplaning or reduced traction. Normal handling, driver technique, and dry-condition alignment do not produce rain-specific pulling.

50. A — A tire with exposed cord or belt material is a CVSA out-of-service condition. The tire has lost its structural integrity and is at immediate risk of failure. The tire must be replaced before the vehicle returns to service regardless of location of damage or remaining tread.