PRACTICE EXAM 16: ASE T8 PMI SIMULATION

1. Technician A says that a diesel engine producing blue smoke under all operating conditions indicates worn piston rings. Technician B says that blue smoke at startup only indicates worn valve guide seals. Who is correct?

A. Technician A only

B. Technician B only

C. Neither A nor B

D. Both A and B

2. A Class 8 tractor's driver reports that the brake pedal requires pumping to maintain pressure during extended grade descent. The most likely cause is:

A. Normal brake operation during grade descent

B. Air in hydraulic system or master cylinder internal leak

C. Driver technique during grade descent

D. Brake pad wear within acceptable limits

3. The correct interpretation of a commercial vehicle's engine coolant showing bright green color when the specified coolant is extended-life pink is:

A. Incorrect coolant type in system — flush and refill with specified coolant

B. Normal coolant appearance for extended service

C. Temperature-related color change during operation

D. SCA additive producing color variation

4. A technician performing PMI finds that a tractor's rear axle lubricant shows evidence of water contamination. The correct action is:

A. Add gear oil additive to absorb water

B. Continue service with monitoring

C. Drain, flush, and refill with specified gear oil

D. Heat axle to evaporate water content

5. The correct procedure for inspecting a commercial vehicle's steering gear box for external condition is to:

A. Remove gear box for bench inspection

B. Measure gear box dimensions with precision tools

C. Replace at scheduled intervals as preventive service

D. Visual inspection for leaks, cracks, and secure mounting

6. A Class 8 tractor's driver reports that the vehicle produces a clicking sound during turns that does not occur during straight operation. The most likely cause is:

A. Normal sound during turning maneuvers

B. Worn CV joint, U-joint, or steering component producing turn-specific noise

C. Driver technique during turning input

D. Road surface affecting vehicle during turns

7. The correct interpretation of a commercial vehicle's air brake chamber with visible pushrod extension beyond the maximum specification is:

A. Investigate cause of excessive stroke and make appropriate repairs

B. Apply grease to slack adjuster to extend service life

C. Monitor stroke at next service interval

D. Adjust slack adjuster manually to reduce stroke

8. A technician inspecting a tractor's serpentine belt finds visible oil contamination on the belt surface. The most likely cause is:

A. Normal belt exposure during operation

B. Weather-related accumulation on belt

C. Engine oil leak from nearby component requiring investigation

D. Paint residue from previous service

9. The correct procedure for verifying a commercial vehicle's parking brake application is to:

A. Measure air pressure at the parking brake chamber

B. Activate parking brake control and verify mechanical engagement

C. Disconnect parking brake for testing

D. Replace parking brake components at interval

10. A driver reports that the engine exhibits loss of power during sustained highway operation in warm weather. The most likely cause is:

A. Normal engine behavior during warm-weather operation

B. Driver technique during highway cruise

C. Engine management system requiring update

D. Heat-induced problem: cooling, aftertreatment, or intake temperature

11. The correct interpretation of a commercial vehicle's fuel filter showing visible water in the separator bowl is:

A. Fuel contamination requiring system service

B. Drain water and monitor for recurring accumulation

C. Replace filter assembly immediately

D. Fuel tank corrosion producing contamination

12. A technician performing PMI finds that a tractor's battery has visible white crystalline deposits on the positive terminal. The correct action is:

A. Apply battery terminal protector spray only

B. Continue service if electrical operation is normal

C. Tighten terminal connection over deposits

D. Clean terminals, inspect cable ends, apply dielectric grease

13. The correct procedure for checking a commercial vehicle's windshield for condition is to:

A. Visual inspection for cracks, chips, and obstruction of driver vision

B. Apply pressure to test structural integrity

C. Remove windshield for bench inspection

D. Replace at scheduled intervals as preventive service

14. A Class 8 tractor's driver reports that the cruise control engages but maintains incorrect speed. The most likely cause is:

A. Driver error in setting cruise speed

B. Normal cruise control variation during operation

C. Vehicle speed sensor, cruise module, or wiring problem

D. Engine response issue during cruise operation

15. The correct interpretation of a commercial vehicle's engine oil pressure that drops during highway operation is:

A. Verify reading with independent mechanical gauge

B. Replace oil pressure sending unit

C. Add engine oil to increase pressure

D. Continue service with monitoring

16. A technician inspecting a tractor's fifth wheel finds that the pivot point shows excessive play. The correct action is:

A. Apply grease to reduce apparent play

B. Evaluate wear and service pivot components

C. Continue service with monitoring

D. Adjust fifth wheel position

17. The correct procedure for testing a commercial vehicle's alternator belt tension is to:

A. Apply specified force and measure belt deflection

B. Visual inspection of belt appearance only

C. Measure belt length against specification

D. Replace belt at scheduled intervals

18. A driver reports that the vehicle's A/C system produces water dripping in the cab during operation. The most likely cause is:

A. Normal A/C condensation during operation

B. High-humidity conditions affecting system

C. Refrigerant leak into ventilation system

D. Evaporator drain tube restriction

19. The correct interpretation of a commercial vehicle's transmission fluid with metallic particles visible is:

A. Normal transmission operation at service interval

B. Fluid additive producing particle appearance

C. Internal transmission wear requiring service

D. External contamination during filling

20. A Class 8 tractor's engine produces visible smoke during operation. The smoke is dark black in color only during acceleration. The most likely cause is:

A. Normal diesel exhaust during acceleration

B. Air intake restriction or turbocharger issue

C. Fuel pump producing excessive delivery

D. Driver technique during acceleration

21. The correct procedure for inspecting a commercial vehicle's leaf spring U-bolts is to:

A. Remove U-bolts for bench inspection

B. Apply hydraulic pressure to test integrity

C. Visual inspection and torque verification

D. Replace U-bolts at scheduled intervals

22. A technician performing PMI finds that a tractor's DPF differential pressure is significantly higher than specification. The most likely cause is:

A. DPF loading or sensor problem producing incorrect reading

B. Normal DPF operation at high mileage

C. Driver technique affecting DPF operation

D. Engine control module requiring update

23. The correct interpretation of a commercial vehicle's exhaust manifold with visible cracks is:

A. Normal manifold condition after extended service

B. Surface discoloration during operation

C. Apply weld repair compound to seal

D. Replace manifold before return to service

24. A driver reports that the engine produces a rattling sound only at idle that disappears at higher RPM. The most likely cause is:

A. Normal diesel engine idle characteristics

B. Loose component producing idle-specific rattling

C. Driver perception error during idle

D. Engine mount wear during operation

25. The correct procedure for verifying a commercial vehicle's brake chamber clamp band is to:

A. Disassemble chamber for internal inspection

B. Apply maximum pressure and measure dimensions

C. Visual inspection for integrity, cracks, and secure torque

D. Replace clamp band at annual inspection

26. A Class 8 tractor's driver reports that the steering system produces noise during full steering input. The most likely cause is:

A. Low power steering fluid, pump wear, or system air

B. Normal steering during maximum angle

C. Driver technique during steering input

D. Tire scrubbing against road surface

27. The correct interpretation of a commercial vehicle's engine starting with normal cranking but immediate stalling is:

A. Normal engine behavior during initial startup

B. Driver technique during starting sequence

C. Engine control module programming issue

D. Fuel delivery problem, air in system, or fuel contamination

28. A technician inspecting a tractor's driveshaft finds visible impact damage on the tube surface. The correct action is:

A. Continue service since damage is cosmetic

B. Evaluate for balance and structural integrity

C. Apply corrosion-resistant coating

D. Monitor damage at next service interval

29. The correct procedure for checking a commercial vehicle's fire extinguisher is to:

A. Verify mounting, gauge, pin, seal, and inspection tag

B. Discharge briefly to verify operation

C. Weigh extinguisher to verify charge

D. Replace at each annual inspection

30. A driver reports that the engine exhibits reduced power during heavy loads only. Normal operation is unaffected. The most likely cause is:

A. Engine management system requiring calibration

B. Driver technique during heavy-load operation

C. Fuel system, air filter, or turbocharger issue

D. Normal engine behavior under maximum load

31. The correct interpretation of a commercial vehicle's coolant reservoir with visible oil film on the surface is:

A. Normal coolant appearance during service

B. Internal engine leak requiring investigation

C. SCA additive producing oil-like appearance

D. Extended service interval condition

32. A Class 8 tractor's driver reports that the vehicle has developed a 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 during operation

C. Engine mount wear producing vibration

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

33. The correct procedure for inspecting a commercial vehicle's mud flaps is to:

A. Apply tape to close visible gaps

B. Remove flaps entirely for reduced weight

C. Visual inspection for damage and secure mounting

D. Replace at scheduled intervals

34. A technician performing PMI finds that a tractor's air compressor produces continuous operation without cycling. The most likely cause is:

A. Excessive system leakage or compressor capacity problem

B. Normal compressor operation during heavy use

C. Governor operation during normal cycling

D. Driver technique during operation

35. The correct interpretation of a commercial vehicle's brake drum with visible scoring on the friction surface is:

A. Apply drum-surfacing compound to restore

B. Measure drum diameter and evaluate for service

C. Continue service if scoring is cosmetic

D. Clean with brake cleaner and monitor

36. A driver reports that the engine exhibits hesitation during acceleration from a stop. The most likely cause is:

A. Normal engine response during acceleration

B. Driver technique during throttle input

C. Engine control module requiring update

D. Fuel system issue or clutch problem

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

A. Measure voltage at lamp terminal in reverse

B. Visual inspection of lamp reflector

C. Place transmission in reverse and verify illumination

D. Replace lamp at annual inspection

38. A Class 8 tractor's engine oil analysis shows elevated silicon concentration. The most likely cause is:

A. Normal oil contamination during service

B. Air filter bypass allowing dirt entry

C. Fuel dilution affecting analysis

D. Coolant leak into the engine oil

39. The correct interpretation of a commercial vehicle's battery case with visible swelling or distortion is:

A. Replace battery regardless of electrical tests

B. Test battery under load before replacement

C. Continue service if voltage is normal

D. Add water to restore electrolyte balance

40. A technician inspecting a tractor finds a wheel stud with visible thread damage from over-tightening. The correct action is:

A. Apply thread repair compound and reuse

B. Use longer lug nut to engage undamaged threads

C. Continue service if nut holds torque

D. Replace damaged stud and adjacent lug nut

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

A. Visual inspection of tank, straps, and attachment

B. Remove tank for internal inspection

C. Pressure test tank at specified intervals

D. Replace tank at scheduled intervals

42. A Class 8 tractor's driver reports difficulty starting in cold weather with white smoke. Battery and starter are normal. The most likely cause is:

A. Normal diesel cold-weather starting

B. Driver technique during cold startup

C. Engine control module programming

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

43. The correct interpretation of a commercial vehicle's air dryer not producing audible purge at governor cut-out is:

A. Normal air dryer operation during cycling

B. Insufficient air pressure for purge

C. Failed purge valve or stuck discharge line

D. Restricted intake affecting compressor

44. A driver reports that the trailer brakes do not release when the tractor brake pedal is released. The most likely cause is:

A. Normal trailer brake operation during release

B. Restricted service line or failed trailer relay valve

C. Driver technique during brake release

D. Tractor brake signal timing issue

45. The correct procedure for checking a commercial vehicle's cabin air filter is to:

A. Visual observation without removal

B. Measure airflow with flow meter

C. Replace at each service regardless of condition

D. Remove and inspect for loading, damage, and fit

46. A technician performing PMI finds that a tractor's steering column U-joint produces clicking during steering input. The correct action is:

A. Replace worn steering column U-joint

B. Apply grease to reduce wear

C. Adjust column position to reduce load

D. Continue service with monitoring

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

A. Normal temperature during light-load operation

B. Driver monitoring error during operation

C. Stuck-open thermostat or sensor problem

D. Sensor calibration error producing incorrect reading

48. A Class 8 tractor's driver reports that the engine runs roughly only under light load. Full-load operation is normal. The most likely cause is:

A. Normal engine behavior during light load

B. Injector or fuel issue affecting light-load operation

C. Driver technique during light-load cruise

D. Transmission torque converter cycling

49. The correct procedure for verifying a commercial vehicle's engine oil cooler integrity is to:

A. Pressure test cooler and observe for leaks

B. Visual inspection of cooler fins only

C. Replace at scheduled intervals

D. Inspect for leaks and evaluate cooler condition

50. The correct interpretation of a commercial vehicle's brake pedal with slow return after release is:

A. Driver technique during release

B. Normal pedal operation during use

C. Return spring, linkage binding, or master cylinder problem

D. Brake fluid contamination affecting return

PRACTICE EXAM 16: ANSWER KEY AND EXPLANATIONS

1. D — Both technicians are correct. Continuous blue smoke under all operating conditions indicates worn piston rings allowing oil past the rings into the combustion chamber. Blue smoke only at startup that clears as the engine warms indicates worn valve guide seals allowing oil to seep past the seals during engine-off periods, which then burns off during initial running.

2. B — A brake pedal requiring pumping to maintain pressure during extended grade descent indicates air in the hydraulic system or master cylinder internal leak. Air compresses during pedal application, allowing pedal to sink; internal master cylinder leakage bypasses the seals. Both conditions require system diagnosis and repair.

3. A — Bright green coolant when the specified coolant is extended-life pink indicates incorrect coolant type in the system. Different coolant chemistries are incompatible and produce degraded protection when mixed. Flush and refill with the specified coolant restores proper chemistry. Normal appearance, temperature changes, and SCA variations do not produce this color mismatch.

4. C — Gear oil with water contamination requires drain, flush, and refill with specified gear oil. Water contamination accelerates bearing wear and gear damage, and additives cannot effectively remove it from the oil. Continued service and heat application do not adequately remove water contamination.

5. D — Steering gear box inspection is a visual procedure examining for leaks (oil at seals), cracks, and secure mounting. These visual findings identify conditions affecting steering reliability. Removal, precision measurement, and scheduled replacement are not standard PMI procedures.

6. B — A clicking sound during turns that does not occur during straight operation typically indicates a worn CV joint, U-joint, or steering component producing turn-specific noise. These components are loaded differently during turns, revealing wear that is masked in straight operation. Investigation identifies the specific component.

7. A — Excessive pushrod stroke beyond maximum specification requires investigation of the cause and appropriate repairs. Possible causes include worn linings, failed slack adjusters, or foundation brake problems. Grease application, monitoring, and manual slack adjuster adjustment do not address the underlying problem.

8. C — Oil contamination on a serpentine belt typically indicates an engine oil leak from a nearby component requiring investigation. The oil damages belt material and causes slippage. Normal operation, weather accumulation, and paint residue do not produce oil contamination on belts.

9. B — Parking brake application is verified by activating the parking brake control and confirming mechanical engagement. The functional test confirms proper application. Air pressure measurement at the chamber is secondary; disconnection and scheduled replacement are not verification methods.

10. D — Power loss during sustained warm-weather highway operation typically indicates a heat-induced problem: cooling system issues, aftertreatment backpressure, or intake temperature problems. Elevated temperatures affect engine performance through multiple paths. Normal behavior, driver technique, and ECM programming produce different patterns.

11. B — Water in a fuel filter water separator is expected — the separator's purpose is to capture water before it reaches the injectors. The correct action is to drain water and monitor for recurring accumulation. Routine water separation does not indicate contamination, filter failure, or tank corrosion.

12. D — White crystalline deposits on a battery terminal require cleaning terminals, inspecting cable ends, and applying dielectric grease for protection. The deposits are battery acid reaction products that interfere with electrical contact. Spray protectors, continued service, and tightening over deposits do not restore reliable contact.

13. A — Windshield inspection is a visual procedure examining for cracks, chips, and obstruction of driver vision. These visual findings identify conditions affecting driver safety. Pressure testing, removal for bench inspection, and scheduled replacement are not standard PMI procedures.

14. C — Cruise control maintaining incorrect speed typically indicates a vehicle speed sensor, cruise module, or wiring problem. The system receives incorrect speed data and commands throttle changes based on that data. Driver error, normal variation, and engine response issues produce different patterns.

15. A — Oil pressure dropping during highway operation requires verification with an independent mechanical gauge before further action. The dash gauge may be inaccurate; mechanical verification distinguishes gauge error from actual pressure problem. Sending unit replacement, oil addition, and continued service are premature without verification.

16. B — Excessive play in a fifth wheel pivot requires evaluation of wear and servicing pivot components. Pivot bearings wear through normal use and require service at intervals. Grease application doesn't reduce actual wear; monitoring and position adjustment don't address the underlying problem.

17. A — Alternator belt tension is verified by applying specified force and measuring belt deflection. Manufacturer specifications provide the deflection range for proper tension. Visual inspection, length measurement, and scheduled replacement do not verify actual tension.

18. D — A/C condensation dripping inside the cab typically indicates a restricted evaporator drain tube. The drain should route condensate outside the vehicle; restriction allows condensate to

accumulate and enter the cab. Normal operation, humidity, and refrigerant leaks produce different patterns.

19. C — Transmission fluid with visible metallic particles indicates internal transmission wear requiring service. The particles come from worn internal components (clutches, bearings, gears). Normal operation, additives, and external contamination do not produce significant metallic particle accumulation.

20. B — Black smoke only during acceleration indicates air intake restriction or turbocharger issues producing insufficient air for fuel-rich combustion. The engine cannot receive adequate air to match fuel demand during acceleration. Normal operation, fuel pump issues, and driver technique produce different patterns.

21. C — Leaf spring U-bolt inspection is a visual procedure combined with torque verification. Visual examination identifies cracks and damage; torque verification confirms proper tension. Removal, hydraulic testing, and scheduled replacement are not standard PMI procedures.

22. A — Elevated DPF differential pressure typically indicates DPF loading (filter contains accumulated particulate) or sensor problem producing incorrect reading. Investigation determines whether regeneration, cleaning, or sensor service is required. Normal operation, driver technique, and ECM updates do not typically produce elevated differential pressure.

23. D — An exhaust manifold with visible cracks must be replaced before the vehicle returns to service. Cracked manifolds produce exhaust leaks that reduce engine performance and create safety hazards. Continued service, surface discoloration interpretation, and weld repair compounds do not address structural damage.

24. B — A rattling sound only at idle that disappears at higher RPM typically indicates a loose component producing idle-specific rattling. At higher RPMs, increased vibration and harmonic changes mask the rattle. Common causes include loose heat shields, brackets, or mounting hardware.

25. C — Brake chamber clamp band inspection is a visual procedure examining for integrity, cracks, and secure torque at fasteners. Spring brake chambers contain substantial spring energy; visual inspection is the safe method. Disassembly for internal inspection and pressure testing are not standard PMI procedures.

26. A — Steering system noise during full steering input typically indicates low power steering fluid, pump wear, or air in the system. These conditions produce characteristic sounds under high-demand steering conditions. Normal operation, driver technique, and tire scrubbing produce different sound patterns.

27. D — An engine that starts with normal cranking but immediately stalls typically has a fuel delivery problem, air in the system, or fuel contamination. The engine starts on residual fuel and stalls when fresh fuel cannot be delivered. Investigation targets the fuel system.

28. B — A driveshaft with visible impact damage requires evaluation for balance and structural integrity. The damage may have produced imbalance, initiated cracking, or compromised structural strength. Simple cosmetic assessment, corrosion coating, and monitoring ignore the potential for hidden damage.

29. A — Fire extinguisher inspection verifies mounting security, pressure gauge reading, pin and seal condition, and current inspection tag. All four factors must be verified for compliance. Discharge testing, weighing, and scheduled replacement are not standard PMI procedures.

30. C — Power loss during heavy loads only indicates a fuel system, air filter, or turbocharger issue revealed under maximum demand. The system cannot deliver full capacity when loaded. Normal operation, driver technique, and ECM calibration produce different patterns.

31. B — A coolant reservoir with visible oil film indicates an internal engine leak requiring investigation. Common sources include failed oil cooler gasket, head gasket, or other internal leak paths. Normal appearance, SCA, and extended service interval do not produce oil contamination.

32. D — New vibration at highway speeds that was not present at previous PMI typically indicates a tire, wheel, bearing, or driveshaft issue that has developed between inspections. The change-over-time pattern points to a new condition. Investigation identifies the specific component.

33. C — Mud flap inspection is a visual procedure examining for damage and secure mounting. Damaged mud flaps fail to provide the intended protection; secure mounting prevents loss during operation. Tape repairs, complete removal, and scheduled replacement are not appropriate approaches.

34. A — An air compressor operating continuously without cycling indicates excessive system leakage consuming output faster than compressor capacity, or compressor capacity problems. The system cannot reach governor cut-out pressure. Normal operation produces regular cycling; governor and driver technique are not typically responsible.

35. B — A brake drum with visible scoring requires measurement of drum diameter and evaluation for service. The scoring affects braking performance and drum integrity; measurement determines whether the drum can continue service within specification or requires replacement. Surfacing compounds, cosmetic continued service, and cleaning don't address the scoring.

36. D — Engine hesitation during acceleration from a stop typically indicates a fuel system issue or clutch problem affecting initial engagement. Fuel delivery problems produce inconsistent power; clutch issues affect initial power transmission. Normal response, driver technique, and ECM updates produce different patterns.

37. C — Backup lamp function verification is performed by placing the transmission in reverse and confirming that backup lamps illuminate. This direct functional test confirms complete circuit operation. Voltage measurement, visual reflector inspection, and scheduled replacement are not adequate verification methods.

38. B — Elevated silicon in engine oil analysis typically indicates air filter bypass allowing dirt entry into the engine. Silicon is a dirt marker that enters only when the filtration barrier is compromised. Normal contamination, fuel dilution, and coolant leaks produce different analytical markers.

39. A — A battery case with visible swelling or distortion requires replacement regardless of electrical test results. Case deformation indicates internal pressure buildup from heat, overcharging, or cell failure. The battery is unreliable even if current testing shows acceptable readings; continued use risks case rupture.

40. D — A wheel stud with thread damage from over-tightening 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.

41. A — Fuel tank mounting inspection is a visual procedure examining the tank, straps, and attachment hardware. These visual findings identify conditions that affect tank security. Removal for internal inspection, pressure testing, and scheduled replacement are not standard PMI procedures.

42. D — Cold-weather starting difficulty with white smoke and normal battery and starter typically indicates a cold-start component issue: intake air heater malfunction, fuel problems, or glow plug issues. These prevent the combustion chamber from reaching the temperature needed for proper cold-weather combustion.

43. C — An air dryer not producing audible purge at governor cut-out indicates a failed purge valve or stuck-closed discharge line. Normal operation produces a distinctive audible purge as accumulated moisture is released. Silent operation is not normal for modern air dryer designs.

44. B — Trailer brakes not releasing when the tractor brake pedal is released typically indicates a restricted service brake line or failed trailer relay valve. The brake signal remains applied at the trailer chambers after tractor-side release. Normal operation and signal timing produce different patterns.

45. D — Cabin air filter inspection requires removal from the housing to inspect for loading, damage, and proper fit. Visual observation without removal provides incomplete information. Flow measurement and scheduled replacement don't leverage the condition-based inspection that is standard.

46. A — A worn steering column U-joint producing clicking during steering input requires replacement before the vehicle returns to service. Steering integrity is safety-critical, and worn components must be replaced. Grease application, position adjustment, and continued service are not appropriate responses.

47. C — A coolant temperature gauge reading below normal during sustained operation typically indicates a stuck-open thermostat or sensor problem. A healthy thermostat maintains normal

temperature; a stuck-open thermostat allows continuous radiator flow preventing normal temperature. Investigation identifies which specific cause applies.

48. B — Rough engine operation only under light load typically indicates an injector or fuel issue affecting light-load operation specifically. At full load, higher fuel rates mask minor injector problems; at light load, the problem becomes apparent. Normal operation, driver technique, and torque converter cycling produce different patterns.

49. D — Engine oil cooler integrity verification includes inspection for leaks and evaluation of cooler condition. Pressure testing is one verification method; visual inspection for leaks is another essential component. The complete evaluation identifies internal leaks, external leaks, and cooler condition.

50. C — A brake pedal with slow return after release typically indicates a return spring problem, linkage binding, or master cylinder issue preventing normal pedal return. The pedal should return promptly to its rest position when released. Driver technique, normal operation, and fluid contamination produce different patterns.