PRACTICE EXAM 19: ASE T8 PMI SIMULATION

1. A driver reports the vehicle's brake lamp on one side does not illuminate during brake application. The most likely cause is:

A. Burned bulb, corroded socket, or wiring issue at affected lamp

B. Normal lamp variation between sides

C. Driver perception error during operation

D. Brake pedal switch affecting only one circuit

2. The correct procedure for inspecting a commercial vehicle's drive belt tensioner is to:

A. Apply belt dressing to tensioner pivot

B. Replace tensioner at scheduled intervals

C. Check pivot operation, spring force, and pulley wear

D. Measure tensioner dimensions with precision tools

3. A Class 8 tractor's engine produces a knocking sound that occurs only at startup and disappears after warmup. The most likely cause is:

A. Connecting rod bearing failure

B. Normal cold-engine combustion sound

C. Valve train wear during operation

D. Piston slap from cold piston-to-wall clearance

4. The correct interpretation of a commercial vehicle's air pressure that drops below 90 psi during sustained brake application on a grade is:

A. Normal air system behavior during heavy braking

B. Compressor capacity insufficient for sustained demand

C. Driver technique during grade descent

D. Excessive trailer brake application

5. A technician inspecting a tractor's fifth wheel finds visible wear on the kingpin lock surface. The correct action is:

A. Evaluate wear and service or replace as needed

B. Apply additional grease to compensate

C. Continue service if locking still occurs

D. Reposition fifth wheel to avoid worn area

6. The correct procedure for verifying a commercial vehicle's air dryer purge function is to:

A. Apply maximum pressure to test purge

B. Disconnect purge valve for bench testing

C. Replace purge valve at scheduled intervals

D. Listen for audible purge at governor cut-out

7. A driver reports that the engine produces excessive black smoke during continuous highway operation. The most likely cause is:

A. Normal exhaust during highway operation

B. Driver technique during cruise

C. Air filter restriction or aftertreatment problem

D. Engine management system requiring update

8. The correct interpretation of a commercial vehicle's transmission fluid with normal red color is:

A. Contaminated fluid requiring replacement

B. Normal fluid condition at service interval

C. Extended service interval producing degradation

D. Fresh fluid recently installed

9. A technician performing PMI finds that a tractor's brake pedal travels 75% to the floor before engagement. The correct action is:

A. Investigate brake system: air, fluid, wear, or master cylinder

B. Continue service since pedal still operates

C. Adjust brake pedal position to reduce travel

D. Replace brake pedal assembly

10. The correct procedure for inspecting a commercial vehicle's exhaust manifold is to:

A. Remove manifold for bench inspection

B. Measure manifold dimensions with precision tools

C. Visual inspection for cracks, warping, and secure mounting

D. Replace manifold at scheduled intervals

11. A Class 8 tractor's driver reports that the steering produces a clicking sound during steering input. The most likely cause is:

A. Normal steering operation during input

B. Driver technique during steering

C. Tire scrubbing during steering input

D. Worn steering linkage or U-joint requiring service

12. The correct interpretation of a commercial vehicle's engine oil pressure gauge reading consistently zero during operation is:

A. Normal pressure variation during operation

B. Critical lubrication failure requiring immediate engine shutdown

C. Driver perception error reading the gauge

D. Sending unit failure producing false reading

13. A driver reports that the cab heater produces hot air normally but stops producing heat after 20 minutes of operation. The most likely cause is:

A. Heater core problem, control valve, or air pocket developing

B. Normal heater behavior during extended operation

C. Driver setting error during operation

D. Coolant temperature dropping during operation

14. The correct procedure for verifying a commercial vehicle's fuel tank cap function is to:

A. Replace cap at scheduled intervals

B. Pressure test cap at specified levels

C. Visual inspection for damage, proper seal, and venting

D. Disconnect cap for bench testing

15. A technician inspecting a tractor's coolant system finds visible green crystalline deposits around the radiator cap. The most likely cause is:

A. Normal radiator cap operation

B. SCA precipitation around the cap

C. Conventional coolant additive accumulation

D. Coolant leak with crystallization at the leak site

16. The correct interpretation of a commercial vehicle's brake chamber with audible air leak from the breather during application is:

A. Failed diaphragm allowing air to escape

B. Normal chamber operation during application

C. Excessive system pressure affecting chamber

D. Driver technique producing apparent leak

17. A driver reports that the engine produces blue smoke continuously during operation, not just at startup. The most likely cause is:

A. Normal diesel exhaust during operation

B. Worn piston rings or turbocharger seals allowing oil burning

C. Driver technique during operation

D. Fuel quality affecting combustion

18. The correct procedure for checking a commercial vehicle's wheel bearing condition is to:

A. Replace bearings at scheduled intervals

B. Apply grease through fittings

C. Visual inspection of hub exterior

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

19. A Class 8 tractor's driver reports that the trailer pulls to the right during cruise operation. The most likely cause is:

A. Normal trailer behavior during cruise

B. Driver technique during operation

C. Trailer alignment, tire pressure, or brake drag issue

D. Tractor coupling producing apparent pull

20. The correct interpretation of a commercial vehicle's coolant reservoir at MAX fill line on cold engine is:

A. Normal coolant level when system is cold

B. Overfilled at previous service requiring drainage

C. Coolant displacement from internal pressure

D. Recovery system malfunction

21. A technician performing PMI finds that a tractor's fifth wheel grease shows minimal contamination after 6 months of service. The correct action is:

A. Drain and replace all existing grease

B. Inspect for distribution, supplement as needed, continue service

C. Replace fifth wheel components preventively

D. Monitor at next service interval without action

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

A. Visual inspection of brake mechanism

B. Measure application pressure with gauge

C. Replace brake components at intervals

D. Apply on moderate grade and verify hold

23. A driver reports that the engine exhibits surging during cruise operation at highway speeds. The most likely cause is:

A. Fuel filter restriction or fuel pump problem

B. Normal cruise control operation

C. Driver technique during cruise

D. Transmission torque converter cycling

24. The correct interpretation of a commercial vehicle's brake fluid with cloudy appearance is:

A. Normal fluid appearance during service

B. Fresh fluid recently installed

C. Moisture contamination requiring replacement

D. Specific fluid type for manufacturer

25. A technician inspecting a tractor's air compressor finds visible oil contamination on discharge line. The most likely cause is:

A. Normal compressor operation during service

B. Compressor wear allowing oil bypass

C. External oil leak onto discharge line

D. Engine oil leak from nearby component

26. The correct procedure for inspecting a commercial vehicle's leaf spring assembly is to:

A. Remove spring for bench inspection

B. Measure spring height at specification points

C. Apply hydraulic pressure to test spring rate

D. Visual inspection for broken leaves, cracks, and shifted leaves

27. A Class 8 tractor's driver reports that the engine produces a metallic ticking from the valve cover area. The sound does not change with engine speed. The most likely cause is:

A. Valve train mechanical wear or interference

B. Normal valve train sound during operation

C. Turbocharger noise transmitted to valve cover

D. Exhaust leak at cylinder head junction

28. The correct interpretation of a commercial vehicle's brake drum with visible cracks is:

A. Apply sealant to cracks for service

B. Continue service if cracks are limited

C. Replace brake drum before return to service

D. Machine drum to remove crack zones

29. A driver reports that the A/C system produces inadequate cooling only when the fan is set at low speeds. High fan speed produces normal cooling. The most likely cause is:

A. Normal A/C operation requiring high fan speed

B. Driver setting error during operation

C. Refrigerant charge issue affecting cooling

D. Restricted cabin air filter affecting low-speed airflow

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

A. Visual inspection during operation

B. Measure voltage at battery with engine running

C. Disconnect alternator for bench testing

D. Replace alternator at scheduled intervals

31. A technician performing PMI finds that a tractor's air dryer cartridge shows oil contamination. The correct action is:

A. Continue service with monitoring

B. Apply heat to remove oil contamination

C. Replace cartridge and investigate compressor wear

D. Add filtration before air dryer

32. The correct interpretation of a commercial vehicle's engine that exhibits oil leaking past the rear main seal is:

A. CCV system restriction producing crankcase pressure

B. Normal seal wear at service mileage

C. Excessive oil level above FULL mark

D. Incorrect oil viscosity for conditions

33. A Class 8 tractor's driver reports that the vehicle requires extended cranking only in cold weather. Battery and starter are normal. The most likely cause is:

A. Driver technique during cold-weather starting

B. Normal diesel cold-weather behavior

C. Engine control module requiring update

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

34. The correct procedure for inspecting a commercial vehicle's tires for damage is to:

A. Measure tire diameter against specification

B. Visual inspection for cuts, bulges, exposed cord, and uneven wear

C. Remove tires for bench inspection

D. Replace tires at scheduled intervals

35. A technician inspecting a tractor's brake hose finds visible swelling under system pressure. The correct action is:

A. Replace hose before return to service

B. Apply hose support to contain swelling

C. Reduce system pressure to minimize stress

D. Continue service with monitoring

36. The correct interpretation of a commercial vehicle's coolant temperature gauge reading consistently below normal is:

A. Normal temperature during light-load operation

B. Driver monitoring error during operation

C. Stuck-open thermostat or sensor problem

D. Cooling system operating efficiently

37. A driver reports that the engine produces a hissing sound during operation. The most likely cause is:

A. Normal engine sound during operation

B. Vacuum leak, intake leak, or air system leak

C. Driver perception error during operation

D. Engine cooling fan operation

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

A. Measure voltage at lamp terminal

B. Disconnect lamps for bench testing

C. Replace lamps at annual inspection

D. Depress brake pedal and verify all stop lamps illuminate

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

A. Turbocharger bearing wear or rotating component issue

B. Normal engine sound at varying RPM

C. Driver perception error during operation

D. Engine mount wear during operation

40. The correct interpretation of a commercial vehicle's engine oil with normal honey color on the dipstick is:

A. Contaminated oil requiring replacement

B. Extended service producing color change

C. Fuel dilution affecting oil

D. Fresh oil recently installed

41. A technician inspecting a tractor's drive shaft finds a U-joint with visible play. The correct action is:

A. Apply grease through lubrication fitting

B. Replace worn U-joint before return to service

C. Continue service if no audible noise

D. Balance driveshaft to compensate

42. The correct procedure for checking a commercial vehicle's clutch master cylinder is to:

A. Pressure test cylinder at maximum pressure

B. Replace cylinder at scheduled intervals

C. Disconnect cylinder for bench testing

D. Visual inspection for fluid level, leaks, and operation

43. A driver reports that the trailer brakes engage normally but release with significant delay compared to the tractor brakes. The most likely cause is:

A. Normal trailer brake behavior during release

B. Restricted exhaust path or relay valve issue

C. Driver technique during brake release

D. Tractor brake signal timing issue

44. The correct interpretation of a commercial vehicle's tire showing center wear pattern across the tread is:

A. Normal tire wear during service

B. Under-inflation producing center wear

C. Over-inflation producing reduced contact patch

D. Alignment problem affecting wear

45. 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 contributing contamination

46. The correct procedure for verifying a commercial vehicle's headlamp aim is to:

A. Visual inspection of headlamp alignment

B. Compare beam pattern to similar vehicle

C. Adjust based on driver preference

D. Aim headlamps using specified procedure and equipment

47. A Class 8 tractor's driver reports that the engine produces inadequate power at high altitude. The most likely cause is:

A. Engine management system requiring altitude calibration

B. Turbocharger issue affecting boost at altitude

C. Normal engine behavior at altitude

D. Driver technique during high-altitude operation

48. The correct interpretation of a commercial vehicle's air brake system with excessive leakage rate is:

A. Investigate leak source and repair before return to service

B. Continue service if pressure builds normally

C. Adjust governor to compensate for leakage

D. Replace air system components at intervals

49. A technician inspecting a tractor's fifth wheel finds visible damage on the secondary safety catch. The correct action is:

A. Continue service if primary jaw operates

B. Apply repair compound to damaged area

C. Adjust catch position to compensate

D. Service or replace damaged secondary safety catch

50. The correct procedure for inspecting a commercial vehicle's coolant for condition is to:

A. Pressure test cooling system at maximum

B. Replace coolant at scheduled intervals only

C. Visual inspection for color, clarity, and contamination

D. Measure coolant temperature during operation

PRACTICE EXAM 19: ANSWER KEY AND EXPLANATIONS

1. A — A single brake lamp not illuminating typically indicates a burned bulb, corroded socket, or wiring issue at the affected lamp circuit. The other side operates normally because its circuit is intact. Investigation of the specific lamp circuit identifies the cause; normal variation, perception, and switch issues produce different patterns.

2. C — Drive belt tensioner inspection includes checking pivot operation (free movement), spring force (provides correct tension), and pulley wear. These functional checks identify tensioner condition. Belt dressing, scheduled replacement, and dimension measurement do not assess actual tensioner function.

3. D — A knocking sound only at startup that disappears after warmup is characteristic of piston slap from cold piston-to-wall clearance. Cold pistons have larger clearances; thermal expansion closes the clearances as the engine warms, eliminating the slap. Bearing failure produces persistent knocking; normal sounds and valve train wear produce different patterns.

4. B — Air pressure dropping below 90 psi during sustained brake application indicates compressor capacity insufficient for sustained demand. The compressor cannot keep pace with the air consumption from continuous braking. Investigation includes compressor performance and system leakage. Normal operation, driver technique, and trailer braking produce different patterns.

5. A — Visible wear on a fifth wheel kingpin lock surface requires evaluation of wear and service or replacement as needed. The lock surface engages the kingpin during coupling; worn surfaces compromise coupling reliability. Grease application, continued service, and repositioning do not address the underlying wear.

6. D — Air dryer purge function verification is performed by listening for audible purge at governor cut-out. The dryer's purge valve releases accumulated moisture with a distinctive sound. Maximum pressure testing, disconnection, and scheduled replacement do not verify actual purge function during operation.

7. C — Excessive black smoke during continuous highway operation typically indicates an air filter restriction or aftertreatment problem. Both reduce engine breathing capacity producing fuel-rich combustion. Investigation identifies the specific cause. Normal exhaust, driver technique, and ECM updates do not produce continuous black smoke.

8. B — Transmission fluid with normal red color indicates normal fluid condition at service interval. The color reflects fluid that has not deteriorated through service. No service action is required.

Contamination, extended interval, and fresh fluid identification do not apply to fluid showing normal color.

9. A — A brake pedal traveling 75% to the floor before engagement requires investigation of the brake system: air in lines, low fluid, severe pad wear, or master cylinder issues. This is not normal operation and indicates a serious problem requiring diagnostic work. Continued service, pedal adjustment, and component replacement without diagnosis are not appropriate.

10. C — Exhaust manifold inspection is a visual procedure examining for cracks, warping, and secure mounting. These visual findings identify conditions affecting exhaust integrity. Removal for bench inspection, dimension measurement, and scheduled replacement are not standard PMI procedures.

11. D — Steering clicking during input typically indicates worn steering linkage or U-joint requiring service. The wear produces play that becomes audible during steering input. Investigation identifies the specific worn component. Normal operation, driver technique, and tire scrubbing produce different patterns.

12. B — An oil pressure gauge consistently reading zero during operation indicates critical lubrication failure requiring immediate engine shutdown. Continued operation produces catastrophic engine damage within minutes. Normal variation, perception, and sending unit failures should be confirmed only after engine is safely stopped.

13. A — Cab heater that produces hot air initially but stops producing heat after 20 minutes typically indicates a heater core problem, control valve issue, or air pocket developing in the system. The progressive loss suggests a developing condition. Investigation identifies the specific cause; normal operation, settings, and temperature drops produce different patterns.

14. C — Fuel tank cap function verification is a visual procedure examining for damage, proper seal, and venting function. These visual findings identify cap condition affecting fuel system integrity. Scheduled replacement, pressure testing, and bench testing are not standard PMI procedures.

15. D — Visible green crystalline deposits around a radiator cap typically indicate a coolant leak with crystallization at the leak site. Coolant evaporates around the leak and leaves the dye-colored solids. The cap or its seal requires investigation and likely replacement. Normal operation, SCA, and additive accumulation do not produce localized deposits at leak sites.

16. A — Audible air leak from the brake chamber breather during application indicates a failed diaphragm allowing air to escape through the non-pressurized side. The diaphragm is the dynamic seal between pressurized and non-pressurized sections. Replacement is required.

17. B — Continuous blue smoke during operation typically indicates worn piston rings or turbocharger seals allowing oil into the combustion chamber. The continuous smoke distinguishes this from startup-only blue smoke (which indicates valve guide seal wear). Investigation identifies the specific source.

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

19. C — Trailer right pull during cruise operation typically indicates a trailer alignment issue, tire pressure variation, or brake drag at the trailer. Each produces asymmetric forces causing the trailer to track off-center. Investigation identifies the specific cause; normal behavior, driver technique, and coupling do not produce trailer pull.

20. A — A coolant reservoir at MAX fill line on a cold engine indicates normal coolant level when the system is cold. The level rises during operation due to thermal expansion; cold-engine MAX is the expected and normal condition. Overfill, displacement, and recovery system issues produce different patterns.

21. B — Fifth wheel grease with minimal contamination after 6 months of service requires inspection for distribution, supplementation as needed, and continued service. The grease is performing acceptably; full replacement is not necessary. Component replacement, drainage, and inaction do not match the proper response to acceptable grease condition.

22. D — 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.

23. A — Engine surging during cruise typically indicates fuel filter restriction or fuel pump problems producing inconsistent fuel delivery. Investigation targets the fuel system. Normal cruise control, driver technique, and torque converter cycling produce different patterns.

24. C — Brake fluid with cloudy appearance indicates moisture contamination requiring replacement. The cloudiness shows water absorbed by the hygroscopic fluid; water reduces boiling point and damages brake components. Normal appearance, fresh fluid, and specific fluid types produce different appearances.

25. B — Visible oil contamination on an air compressor discharge line typically indicates compressor wear allowing oil bypass past compression rings and seals. The oil enters the discharge stream and accumulates externally. External oil leaks and engine oil produce different patterns from internal compressor wear.

26. D — Leaf spring assembly inspection is a visual procedure examining for broken leaves, cracks, shifted leaves, and damaged shackles. These visual findings identify conditions affecting spring performance. Removal, height measurement alone, and hydraulic testing are not standard PMI procedures.

27. A — A metallic ticking from the valve cover area that does not change with engine speed indicates valve train mechanical wear or interference. The sound occurs at each valve event. Common causes include valve lash, worn rocker arms, or component damage. Normal operation, turbocharger, and exhaust leaks produce different patterns.

28. C — A brake drum with visible cracks requires replacement before the vehicle returns to service. Cracks in cast iron drums are progressive structural defects that can lead to catastrophic failure. Sealants, continued service with cracks, and machining are not appropriate for structural drum cracks.

29. D — Inadequate cooling at low fan speeds with normal cooling at high fan speeds typically indicates a restricted cabin air filter affecting low-speed airflow. At higher fan speeds, more airflow is forced through the restriction. Filter replacement typically resolves the condition.

30. B — 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. Visual inspection, bench testing, and scheduled replacement do not verify actual output.

31. C — Air dryer cartridge with oil contamination requires replacement combined with investigation of compressor wear. The oil came from compressor bypass; addressing only the cartridge without the source produces recurring contamination. Continued service, heat application, and added filtration don't address the root cause.

32. A — Oil leaking past the rear main seal typically indicates CCV system restriction producing elevated crankcase pressure. The pressure forces oil past the rear main seal. Replacing the seal without addressing CCV produces recurring failures. Normal wear, oil level, and viscosity issues produce different patterns.

33. D — Extended cranking only in cold weather with normal battery and starter typically indicates a cold-start component issue: intake heater malfunction, fuel problems, or glow plug issues. The engine needs additional combustion assistance in cold conditions. Driver technique, normal behavior, and ECM updates produce different patterns.

34. B — Tire damage inspection is a visual procedure examining for cuts, bulges, exposed cord, and uneven wear. These visual findings identify damage and wear conditions. Diameter measurement, removal, and scheduled replacement are not standard PMI procedures for damage inspection.

35. A — A brake hose with visible swelling under system pressure requires replacement before the vehicle returns to service. The swelling indicates internal reinforcement failure; the hose may rupture under hard braking. Hose support, pressure reduction, and continued service do not address structural failure.

36. C — A coolant temperature gauge reading consistently below normal indicates a stuck-open thermostat or sensor problem. A healthy thermostat maintains normal temperature; a stuck-open

thermostat allows continuous coolant flow preventing normal temperature. Investigation identifies which specific cause applies.

37. B — A hissing sound during operation typically indicates a vacuum leak, intake leak, or air system leak. Each produces the characteristic hissing as gases escape through the leak point. Investigation identifies the specific source. Normal operation, perception, and fan operation produce different sound patterns.

38. D — Stop lamp function verification consists of depressing the brake pedal and confirming 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.

39. A — A continuous whine that increases pitch with engine RPM typically indicates turbocharger bearing wear or rotating component issue. The whine pitch follows rotational speed of the failing component. Investigation identifies the specific cause. Normal operation, perception, and engine mounts produce different patterns.

40. D — Honey-colored engine oil on the dipstick indicates fresh oil recently installed. New diesel engine oil has this characteristic light amber color; normal operation produces progressive darkening as soot accumulates. The color confirms recent service.

41. B — A U-joint with visible play requires replacement before the vehicle returns to service. Worn U-joints progress to failure, and U-joint failure during operation can cause driveshaft separation with potentially catastrophic consequences. Grease application, continued service, and balancing do not resolve the wear.

42. D — Clutch master cylinder inspection is a visual procedure examining for fluid level, leaks, and proper operation. These visual findings identify conditions affecting clutch hydraulic function. Pressure testing, scheduled replacement, and disconnection are not standard PMI procedures.

43. B — 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.

44. C — Tire wear with center wear pattern across the tread indicates over-inflation producing reduced contact patch concentrated at the center. The reduced contact area produces accelerated center wear. Under-inflation produces shoulder wear; alignment problems and normal wear produce different patterns.

45. 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.

46. D — Headlamp aim verification uses specified procedure and equipment for proper aim. Headlamp aim affects driver visibility and oncoming traffic safety; correct aim is critical. Visual inspection, vehicle comparison, and driver preference do not produce reliable aim setting.

47. B — Inadequate engine power at high altitude typically indicates a turbocharger issue affecting boost at altitude. Modern engines compensate for altitude through turbocharger boost; degraded turbochargers cannot provide full compensation. ECM calibration, normal behavior, and driver technique produce different patterns.

48. A — Excessive air brake system leakage requires investigation of the leak source and repair before the vehicle returns to service. Excessive leakage compromises brake system function and indicates component failures. Continued service, governor adjustment, and scheduled replacement do not address the underlying leakage.

49. D — Visible damage on a fifth wheel secondary safety catch requires service or replacement. The secondary safety catch provides redundancy critical to coupling safety; damage compromises this safety function. Continued service, repair compounds, and position adjustment do not restore the catch's structural integrity.

50. C — Coolant condition inspection is a visual procedure examining for color, clarity, and contamination. These visual findings identify coolant chemistry condition and the need for service. Pressure testing, scheduled replacement only, and temperature measurement are not condition assessment methods.