PRACTICE EXAM 19: ASE T5 SIMULATION (50 QUESTIONS)

1. The proper response when a heavy-truck driver complains of slow steering response that improves at higher engine RPM is:

A. Replace the front shock absorbers

B. Re-torque the front spring U-bolts

C. Verify pump output, belt tension, and inspect for slip

D. Adjust the cab leveling valve

2. The component on a heavy-truck integral hydraulic steering gear that opens fluid passages during steering input is the:

A. Torsion bar

B. Pressure relief valve

C. Flow control spool

D. Sector shaft

3. The proper response when a heavy-truck driver complains that the chassis sits significantly lower than design ride height is:

A. Replace the rear shock absorbers

B. Drain the power steering reservoir

C. Re-torque the front spring U-bolts

D. Verify the height control valve linkage and inspect for a stuck valve

4. The component on a heavy-truck rear suspension that resists axle wind-up under torque on an air-spring design is the:

A. Drag link

B. Torque rod

C. Stabilizer bar

D. Pitman arm

5. A heavy-truck driver complains of vibration that occurs at all speeds and does not change with cornering load. The most likely cause is:

A. Worn front shock absorbers

B. Mismatched front tire pressures

C. An imbalanced wheel-and-tire assembly

D. A bent pitman arm

6. The proper response when a heavy-truck driver complains of significant steering wheel free play with linkage components within specification is:

A. Inspect steering U-joints and intermediate shaft splines

B. Replace the steering pump

C. Re-torque the front spring U-bolts

D. Adjust the cab leveling valve

7. The component on a heavy-truck rear suspension that allows two drive axles to share load is the:

A. Drag link

B. Pitman arm

C. Stabilizer bar

D. Equalizing beam

8. The proper response when a heavy-truck wheel-end shows fluid weeping at the inboard seal is:

A. Top off the oil and continue normal service

B. Disassemble the hub and replace the seal

C. Apply a polymer sealing compound around the seal

D. Replace only the hub cap

9. A heavy-truck driver complains of grinding noise from a wheel-end on cornering. The most likely cause is:

A. Excessive caster on the front wheels

B. Mismatched dual rear tires

C. Bearing pitting and roller damage

D. Worn front shock absorbers

10. The proper response when a heavy-truck driver complains of brake-related pull during deceleration is:

A. Verify equal brake function on both sides

B. Replace the front shock absorbers

C. Adjust front-end alignment angles

D. Re-torque the front spring U-bolts

11. The component on a heavy-truck integral hydraulic steering gear that establishes the gear's center mesh tightness is the:

A. Pitman arm

B. Recirculating ball

C. Torsion bar

D. Sector shaft

12. The proper procedure for measuring rear axle thrust angle on a heavy-truck tractor requires:

A. Lifting the rear axle off the ground

B. Calibrated alignment equipment with the truck on a level rack at curb weight

C. Disconnecting the trailer from the fifth wheel

D. Applying parking brakes during measurement

13. The proper response when a heavy-truck driver complains of slow return-to-center after a turn is:

A. Re-torque the front spring U-bolts

B. Replace the front shock absorbers

C. Verify caster on both front wheels

D. Adjust the cab leveling valve

14. The component that holds air pressure inside a tubeless heavy-truck tire is:

A. The air-impermeable inner liner combined with sealed bead-to-rim contact

B. A separate inner tube installed inside the tire

C. The tire's outer tread surface

D. A factory-applied sealant inside the tire body

15. A heavy-truck driver complains of slow steering response that improves as the engine warms. The most likely cause is:

A. A bent pitman arm

B. Mismatched front tire pressures

C. Worn front shock absorbers

D. Cold-fluid viscosity reducing pump output

16. The component on a heavy-truck steer axle that combines with caster to produce wheel-return-to-center behavior is:

A. Toe

B. Steering axis inclination (SAI/KPI)

C. Camber

D. Thrust angle

17. The OSHA federal regulation that requires lockout/tagout procedures during heavy-truck servicing is:

A. 49 CFR 393, Subpart F

B. 29 CFR 1910.177

C. 29 CFR 1910.147

D. 49 CFR 393, Subpart G

18. A heavy-truck integral hydraulic steering gear has been damaged from operating with low fluid level. The technician should expect to find:

A. Reduced maximum pressure during a full-lock dead-head test

B. Excessive bearing endplay on the front wheels

C. Off-center steering wheel position

D. Erratic ABS engagement during normal driving

19. The proper response when a heavy-truck driver complains of progressively worsening front tire wear without an obvious alignment cause is:

A. Replace the front shock absorbers

B. Adjust toe at the tie rod adjusting sleeves

C. Re-torque the front spring U-bolts

D. Verify wheel bearing condition and rear axle thrust angle

20. The proper response when a heavy-truck wheel speed sensor produces erratic signals only at low speeds is:

A. Replace the entire ABS controller

B. Verify wheel bearing endplay falls within specification

C. Increase tire inflation pressure

D. Adjust the cab leveling valve

21. A heavy-truck driver complains of slow steering response only at full-lock turns. The most likely cause is:

A. Worn front shock absorbers

B. Mismatched dual rear tires

C. Insufficient pump flow at full-lock conditions

D. Excessive caster on both front wheels

22. The component on a heavy-truck rear suspension that resists side-to-side body roll during cornering is the:

A. Stabilizer bar

B. Pitman arm

C. Drag link

D. Torque rod

23. The proper response when a heavy-truck driver complains of significant steering effort during low-speed cornering with foamy power steering fluid is:

A. Replace the steering gear

B. Re-torque the front spring U-bolts

C. Adjust the over-center screw

D. Inspect the suction line for air ingestion that produces cavitation

24. The component on a heavy-truck steering linkage that synchronizes both front wheels during a turn is the:

A. Drag link

B. Tie rod assembly

C. Pitman arm

D. Sector shaft

25. The TMC RP 618 specification for final wheel bearing endplay measured with a dial indicator is:

A. 0.000 to 0.001 inch

B. 0.005 to 0.010 inch

C. 0.001 to 0.005 inch

D. 0.010 to 0.015 inch

26. The proper response when a heavy-truck driver complains that the chassis sits noticeably tilted to one side after sitting overnight, but resolves when the engine starts is:

A. Inspect for a leaking air bag or air supply line

B. Re-torque the front spring U-bolts

C. Replace the rear shock absorbers

D. Adjust the cab leveling valve

27. The proper response when a heavy-truck driver complains of significant steering wheel free play before any front-wheel response is:

A. Replace the steering gear immediately

B. Apply additional torque to the pitman arm nut

C. Adjust the over-center screw immediately

D. Inspect external linkage components for wear

28. A heavy-truck driver complains of vibration that intensifies during right-hand cornering and decreases during left-hand cornering. The most likely cause is:

A. Excessive caster on the right front wheel

B. A worn right front wheel bearing

C. Mismatched front tire pressures

D. Excessive front tire pressure

29. The proper response when a heavy-truck oil-bath wheel-end has fluid level below the minimum mark is:

A. Continue normal service if no faults are present

B. Apply additional grease to compensate

C. Identify and correct the leak source before topping off

D. Drain and refill with a different fluid grade

30. A heavy-truck driver complains of accelerated front tire wear with feathered edges pointing toward the inside of the tread. The most likely cause is:

A. Excessive toe-out

B. Worn front shock absorbers

C. Chronic underinflation

D. Excessive negative camber

31. The proper procedure for inflating a heavy-truck multi-piece rim wheel under OSHA 29 CFR 1910.177 is:

A. Inflate at a remote location away from any structure

B. Stand directly in line with the rim during inflation

C. Use a hand-held inflation chuck for precise control

D. Use a tire cage with a clip-on remote inflation chuck

32. The component that allows fore-and-aft repositioning of a sliding fifth wheel on the chassis is the:

A. Cab tilt mechanism

B. Slider lock pin engaging the slider rails

C. Pintle hook on the rear bumper

D. Pivot point at the kingpin contact surface

33. The component that supports vertical load between the steering knuckle and the lower face of the axle eye is the:

A. Upper kingpin bushing

B. Lower kingpin bushing

C. Thrust bearing

D. Sealing flange

34. The proper response when a heavy-truck driver complains that the truck "remembers" the last steering input and continues drifting after the wheel returns to center is:

A. Inspect kingpin pivots and column U-joints for binding

B. Re-torque the front spring U-bolts

C. Replace the front shock absorbers

D. Adjust the cab leveling valve

35. The proper procedure for replacing a heavy-truck wheel seal during hub service is to:

A. Reuse the original seal if it appears undamaged

B. Apply gasket sealer to the seal lip

C. Heat the seal to soften it before installation

D. Install a new seal regardless of apparent condition

36. The proper response when a heavy-truck driver complains of a thumping sound at the fifth wheel during acceleration and braking transitions is:

A. Re-torque the front spring U-bolts

B. Inspect kingpin lock-up clearance with a 2-inch kingpin gauge

C. Replace the rear shock absorbers

D. Adjust the cab air suspension valve

37. A heavy-truck rear suspension uses a walking-beam design. This architecture is typically chosen for:

A. Highway tractor applications with maximum fuel economy

B. Bus chassis with air-spring requirements

C. Severe off-highway service such as concrete mixers

D. Light medium-duty delivery trucks

38. The component on a heavy-truck rear suspension that mechanically links the axle to the height control valve is the:

A. Linkage rod (height control link)

B. Stabilizer bar end link

C. Pressure relief valve

D. Pitman arm extension

39. The proper response when a heavy-truck driver complains of vibration that occurs only above 55 mph is:

A. Re-torque the front spring U-bolts

B. Replace the front shock absorbers

C. Adjust the cab leveling valve

D. Identify the speed-dependent wheel-and-tire imbalance

40. The proper response when a heavy-truck wheel has been operated with extremely loose nuts before being properly retorqued is:

A. Apply additional torque beyond specification

B. Inspect studs for damage and replace any showing fatigue cracks

C. Continue service if the nuts are now properly torqued

D. Add lock washers between the nuts and the wheel face

41. The component on a heavy-truck integral hydraulic steering gear that limits maximum system pressure is the:

A. Flow control valve spool

B. Torsion bar

C. Pressure relief valve

D. Sector shaft seal

42. A heavy-truck driver complains of a clunking noise that occurs only when accelerating from a stop. The most likely cause is:

A. Worn upper torque rod bushings on the rear suspension

B. Worn stabilizer bar end link bushings

C. Excessive caster on the front wheels

D. Mismatched dual rear tires

43. The component on a heavy-truck integral hydraulic steering gear that converts rotational input into linear motion is the:

A. Sector shaft

B. Pitman arm

C. Torsion bar

D. Worm shaft and recirculating ball mechanism

44. The proper response when a heavy-truck driver complains of a clunking noise during cornering is:

A. Re-torque the front spring U-bolts

B. Inspect stabilizer bar end link bushings

C. Replace the front shock absorbers

D. Adjust the cab leveling valve

45. The proper procedure for diagnosing a heavy-truck pull complaint is:

A. Replace the front shock absorbers

B. Adjust toe at the tie rod adjusting sleeves

C. Verify tire pressures and inspect for damage and conicity

D. Disconnect the steering linkage at the pitman arm

46. A heavy-truck driver complains of a high-pitched whining noise from the power steering pump that increases with engine RPM. The most likely cause is:

A. Pump cavitation from low fluid level or air ingestion

B. A bent pitman arm

C. Worn fifth wheel locking jaws

D. Excessive bearing preload at the wheel-end

47. The component on a heavy-truck steering linkage that connects the pitman arm to the left front steering knuckle is the:

A. Tie rod

B. Stabilizer bar

C. Sector shaft

D. Drag link

48. The proper response when a heavy-truck driver complains of a sudden onset of pull after a recent tire change is:

A. Re-torque the front spring U-bolts

B. Inspect for tire conicity by swapping front tires

C. Replace the steering gear

D. Adjust the cab leveling valve

49. The proper procedure for inspecting heavy-truck stabilizer bar end link bushings is:

A. Apply a torque wrench to the link mounting bolts

B. Remove the bar from the chassis for bench inspection

C. Visually inspect bushings for cracks, tears, or elongation

D. Press on the bar with a dial indicator

50. The proper response when a heavy-truck driver complains of a steady pull during straight-line driving and swapping the front tires reverses the pull is:

A. Diagnose tire conicity in one of the front tires

B. Re-torque the front spring U-bolts

C. Replace the steering gear

D. Adjust the cab leveling valve

PRACTICE EXAM 19: ANSWER KEY AND EXPLANATIONS

1. C — Verify pump output, belt tension, and inspect for slip. Slow steering response that improves as engine RPM increases indicates the pump is not delivering enough flow at low speeds. Belt slip and internal pump wear both produce this signature where higher RPM compensates for the underlying flow deficiency.

2. A — Torsion bar. The torsion bar links the input shaft to the worm shaft and twists slightly when the driver applies steering torque, opening fluid passages that direct pump pressure into the appropriate gear chamber. When torque is released, the bar untwists and pressure equalizes.

3. D — Verify the height control valve linkage and inspect for a stuck valve. Chassis ride height below specification points to a control circuit fault. The height control valve linkage may be misadjusted, damaged, or stuck-closed, preventing the valve from inflating the bags to the proper level.

4. B — Torque rod. Air bags themselves cannot transmit longitudinal forces, so air-spring suspensions rely on torque rods to fix the axle's longitudinal position and resist axle wind-up under braking and acceleration.

5. C — An imbalanced wheel-and-tire assembly. Vibration that occurs at all speeds and does not change with cornering load is the diagnostic signature of imbalance or runout in a rotating component, rather than a load-sensitive component like a bearing.

6. A — Inspect steering U-joints and intermediate shaft splines. With external linkage cleared, the next suspect is the rotational path between the column and the steering gear. Worn U-joints accumulate rotational lag that the driver perceives as steering wheel free play.

7. D — Equalizing beam. The equalizing beam pivots at its center, allowing one drive axle to rise while the other drops by an equal amount. This mechanical equalization keeps both axles loaded and in contact with the road regardless of road surface irregularities.

8. B — Disassemble the hub and replace the seal. A weeping seal indicates a failed sealing interface that requires complete service. The wear sleeve on the spindle may be damaged or worn, and reusing the existing seal would simply continue the failure pattern.

9. C — Bearing pitting and roller damage. Grinding noise from a wheel-end on cornering is the diagnostic signature of bearing damage. The cornering load intensifies the noise from the worn surfaces, and replacement is the only acceptable response.

10. A — Verify equal brake function on both sides. Brake-related pull is a brake system fault, not an alignment or suspension fault. The diagnostic priority is to confirm equal brake performance side-to-side before considering other potential causes.

11. D — Sector shaft. The sector shaft's axial taper, combined with the over-center adjusting screw bearing against the shaft end, sets the gear's center mesh tightness. Tightening the screw advances the sector shaft into deeper mesh with the ball nut teeth, reducing lash at the gear's center position.

12. B — Calibrated alignment equipment with the truck on a level rack at curb weight. Thrust angle measurement requires a calibrated alignment system with the truck at curb weight on a level rack. Other approaches do not provide the geometric reference needed for accurate measurement.

13. C — Verify caster on both front wheels. Slow return-to-center after a turn indicates inadequate self-centering force, which positive caster provides. Verifying caster is the next diagnostic step when the symptom describes weak return-to-center behavior.

14. A — The air-impermeable inner liner combined with sealed bead-to-rim contact. Tubeless tires hold air through the tire's own air-impermeable inner liner combined with the airtight seal between the tire bead and the wheel rim. No separate inner tube is required.

15. D — Cold-fluid viscosity reducing pump output. Cold hydraulic fluid is significantly thicker than warm fluid, which reduces flow through the pump and gear. As the fluid warms, viscosity drops and steering response returns to specification.

16. B — Steering axis inclination (SAI/KPI). Caster causes the wheels to climb against the self-centering force during a turn, and SAI/KPI causes the wheels to follow a slight upward arc. Together they produce the wheel-return-to-center behavior on heavy trucks.

17. C — 29 CFR 1910.147. This OSHA regulation governs the control of hazardous energy through lockout/tagout procedures. It applies to heavy-truck servicing whenever the engine could be started or systems could be inadvertently energized during the work.

18. A — Reduced maximum pressure during a full-lock dead-head test. Internal damage from low-fluid operation typically produces seal degradation that allows fluid to bypass between chambers. The first measurable indication is reduced peak pressure during the dead-head test, where the gear cannot retain fluid pressure during full-lock.

19. D — Verify wheel bearing condition and rear axle thrust angle. Front tire wear without an obvious alignment cause often originates in worn wheel bearings (allowing camber-like tilt) or rear axle thrust angle (forcing the driver to compensate with steering input that scrubs the front tires).

20. B — Verify wheel bearing endplay falls within specification. At low speeds, hub wobble produces detectable variation in the sensor-to-tone-ring air gap, generating erratic ABS readings. At highway speed, the rotational momentum stabilizes the hub motion and the ABS signal becomes consistent.

21. C — Insufficient pump flow at full-lock conditions. Slow steering response only at full-lock turns indicates the pump cannot deliver enough flow at peak demand. Pump wear, belt slip at low engine RPM, or fluid issues all produce this signature where the pump runs out of capacity at full-lock.

22. A — Stabilizer bar. The stabilizer bar is a torsion bar that connects the left and right sides of the suspension. When body roll occurs, the bar twists and resists differential motion between the two sides, transferring load to reduce roll angle.

23. D — Inspect the suction line for air ingestion that produces cavitation. Foamy power steering fluid is the diagnostic signature of air being drawn into the pump suction. Cavitation reduces the pump's ability to deliver flow, producing the increased steering effort the driver describes.

24. B — Tie rod assembly. The tie rod connects the left front steering knuckle to the right front steering knuckle through steering arms at each knuckle. When one knuckle pivots, the tie rod transmits the same motion to the other, ensuring both wheels turn together.

25. C — 0.001 to 0.005 inch. TMC RP 618 specifies this endplay range as the standard target for manually adjusted heavy-truck wheel bearings. Endplay below 0.001 inch indicates excessive preload causing heat damage; above 0.005 inch produces hub wobble and accelerated wear.

26. A — Inspect for a leaking air bag or air supply line. Tilt that resolves at engine start indicates an air supply that holds during operation but cannot maintain pressure during shutdown. The height control valve restores pressure when the engine starts and the air system recharges, masking the underlying leak.

27. D — Inspect external linkage components for wear. External linkage wear (drag link, tie rod ends, kingpin bushings) is far more common than internal gear wear and should be eliminated first. Adjusting the gear without addressing external wear produces a setting that drifts as soon as the truck moves.

28. B — A worn right front wheel bearing. Vibration that intensifies during right-side cornering and decreases during left-side cornering indicates a bearing that loads more heavily during right-side cornering. The cornering load transfers additional weight to the right wheel, intensifying noise from the worn bearing.

29. C — Identify and correct the leak source before topping off. A wheel-end with low oil indicates an active leak that will continue to drain fluid in service. Topping off without addressing the leak source defers but does not prevent eventual lubrication failure and bearing damage.

30. A — Excessive toe-out. Feathered wear with sharp edges pointing inward is the diagnostic signature of toe-out, where the tire is dragged sideways with each tread block scrubbing toward the inside.

31. D — Use a tire cage with a clip-on remote inflation chuck. OSHA 29 CFR 1910.177 requires multi-piece rim inflation inside a restraining device with a clip-on remote inflation chuck

specifically to position the technician outside the trajectory zone. Multi-piece rim component failures during inflation can be fatal without these protections.

32. B — Slider lock pin engaging the slider rails. The slider lock pin is the mechanical retention component that holds the fifth wheel at a chosen position on the slider rails. When the pin is disengaged, the fifth wheel can be repositioned along the rails to optimize weight distribution.

33. C — Thrust bearing. The thrust bearing sits between the lower face of the axle eye and the lower face of the steering knuckle, supporting the vertical load of the front wheel. Without an intact thrust bearing, the knuckle settles directly onto the axle eye, causing severe friction.

34. A — Inspect kingpin pivots and column U-joints for binding. Memory steer is caused by binding components that prevent the steering system from naturally returning to its centered position. The binding holds the system in the last steering direction even after the driver releases input.

35. D — Install a new seal regardless of apparent condition. Wheel seals must always be replaced when a hub is opened because the lip is easily disturbed during disassembly and rarely reseats properly. Even an apparently undamaged seal will frequently begin weeping within hundreds of miles after disturbance.

36. B — Inspect kingpin lock-up clearance with a 2-inch kingpin gauge. A thumping sound during acceleration and braking transitions is the classic signature of excessive lock-up clearance, where the trailer kingpin has play within the locked jaws. The clearance must be checked with a 2-inch kingpin gauge and adjusted or jaws replaced if it exceeds 1/8 inch.

37. C — Severe off-highway service such as concrete mixers. Walking-beam suspensions use heavy rigid construction with rubber compliance pads designed to handle the impact loads of severe off-highway operation. They sacrifice ride quality for maximum equalization and durability.

38. A — Linkage rod (height control link). The linkage rod connects the height control valve's lever arm to a reference point on the axle, allowing the valve to sense axle position. As the axle moves up or down relative to the frame, the lever rotates and opens the appropriate fluid passage.

39. D — Identify the speed-dependent wheel-and-tire imbalance. Vibration that occurs only above a specific speed and disappears below it is the diagnostic signature of dimensional or balance variation that produces resonance at a specific rotational frequency.

40. B — Inspect studs for damage and replace any showing fatigue cracks. Loose-nut operation flexes the studs under each wheel rotation, initiating fatigue cracks that may not be visible without close inspection. A wheel run on extremely loose nuts is a candidate for stud replacement, not just retorque.

41. C — Pressure relief valve. The pressure relief valve opens when system pressure exceeds the maximum design value, typically 1,500 to 2,200 psi, protecting pump seals, hose assemblies, and gear seals from rupture during full-lock turns.

42. A — Worn upper torque rod bushings on the rear suspension. Clunking that occurs only during acceleration from a stop is the diagnostic signature of axle wind-up under torque inputs. Worn upper torque rod bushings allow the axle to rotate slightly under acceleration, producing the characteristic clunk.

43. D — Worm shaft and recirculating ball mechanism. The worm shaft on the input side rotates as the steering wheel turns, and steel ball bearings circulating between the worm threads and ball nut threads translate the ball nut linearly. This linear motion drives the sector gear that produces pitman arm rotation.

44. B — Inspect stabilizer bar end link bushings. A clunking noise during cornering and uneven pavement transitions is the diagnostic signature of worn stabilizer bar end link bushings. The bushings allow the bar to disengage partially, producing the cornering-specific noise.

45. C — Verify tire pressures and inspect for damage and conicity. Tire-related causes are the most common, easiest to verify, and least invasive to address. Beginning with tire inspection prevents unnecessary alignment adjustments when the actual cause is a tire issue.

46. A — Pump cavitation from low fluid level or air ingestion. A whining pump that intensifies with engine RPM is the classic signature of cavitation, where vapor bubbles form in the suction side because fluid is insufficient or air is being drawn in.

47. D — Drag link. The drag link transmits steering motion from the pitman arm (driven by the steering gear) to the steering arm on the left front knuckle. This connection is what converts the gear's output into steering motion at the front wheels.

48. B — Inspect for tire conicity by swapping front tires. Pull that begins suddenly after a tire change points strongly to the new tire as the cause. Swapping the front tires side-to-side will reverse the pull direction if conicity is the cause, providing rapid diagnostic confirmation.

49. C — Visually inspect bushings for cracks, tears, or elongation. The stabilizer bar's wear points are the rubber bushings at the frame mount and end links. Visual inspection of these components for cracks, tears, and elongation is the most efficient and reliable inspection technique.

50. A — Diagnose tire conicity in one of the front tires. When swapping front tires reverses the pull direction, the cause is tied to the tire itself rather than alignment, brakes, or suspension. Conicity creates a constant lateral force at the contact patch that follows whichever side the affected tire is mounted on.