

PRACTICE EXAM 9: ASE A3 SIMULATION (50 QUESTIONS)

50 Questions • 60-Minute Time Limit

1. A clutch pedal has too little free play, and the clutch slips under acceleration. The MOST likely reason is:

- A. The release bearing rides on the diaphragm, partially releasing the clutch
- B. The pilot bearing is dry and binding the input shaft to the crankshaft
- C. The flywheel surface is warped beyond its allowable runout limit
- D. The clutch master cylinder has air trapped inside its bore

2. A clutch disc is found contaminated with engine oil. Before installing a new disc, the technician must also:

- A. Resurface the flywheel to remove all minor heat checks
- B. Replace the pilot bearing and the release bearing together
- C. Locate and repair the oil leak source, such as the rear main seal
- D. Adjust the clutch cable to set the correct pedal free play

3. A clutch rattles at idle, and the noise disappears when the pedal is pressed slightly. Technician A says a worn pilot bearing is the cause. Technician B says worn clutch disc damper springs can cause this. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B

D. Neither Technician A nor Technician B

4. All of the following can cause a clutch to chatter on engagement EXCEPT:

- A. Oil or grease contamination on the friction facings
- B. Worn or broken engine and transmission mounts
- C. A warped flywheel or unevenly worn pressure plate
- D. Excessive free play in the clutch release linkage

5. The clutch release bearing in a typical mechanical system is moved into contact with the diaphragm fingers by the:

- A. Release fork pivoting on its ball stud or pivot point
- B. Pilot bearing pressed into the end of the crankshaft
- C. Pressure plate cover bolted onto the engine flywheel
- D. Input shaft splines turning inside the driven disc hub

6. A manual transmission is locked and will not shift into any gear, even with the engine off. The MOST likely cause is:

- A. A worn clutch disc near the end of its service life
- B. Low gear lubricant causing the gears to run hot
- C. A worn pilot bearing binding the input shaft nose
- D. Two gears engaged at once or a broken shift interlock

7. A transmission's first gear has 39 driven teeth and the input gear has 13 teeth. The first-gear ratio is:

- A. 2.0:1
- B. 2.5:1

C. 3.0:1

D. 3.5:1

8. A growling noise occurs in every forward gear and in neutral while the clutch is engaged, but it goes away when the clutch pedal is pressed. The MOST likely cause is:

- A. A worn output shaft tailshaft bearing under road load
- B. A worn input shaft bearing turning whenever the clutch is engaged
- C. A worn fourth-gear synchronizer blocker ring assembly
- D. A dragging release bearing contacting the diaphragm fingers

9. During reassembly, a technician must check the clearance of a synchronizer blocker ring against its mating cone. The check is performed by:

- A. Torquing the mainshaft nut and reading the rotating drag
- B. Installing the extension housing and measuring shaft end play
- C. Pressing the ring onto the cone and measuring the gap with a feeler gauge
- D. Spinning the gear by hand and listening for a clicking sound

10. A transmission whines in third gear only and is quiet in all other gears. The MOST likely cause is:

- A. Worn third-gear teeth or its supporting bearing
- B. A worn input shaft bearing loaded in every gear
- C. A worn pilot bearing seated in the crankshaft bore
- D. Low lubricant level starving every gearset of oil

11. A hydraulic clutch does not fully release. After confirming the fluid is full and no air is present, the next item to check is the:

- A. Clutch cable free play adjustment at the release fork
- B. Pilot bearing for binding inside the crankshaft bore
- C. Transmission gear lubricant level and viscosity rating
- D. Clutch disc for warpage or excessive runout when spun

12. A manual transmission pops out of second gear during deceleration. The LEAST likely cause is:

- A. Worn clutching (dog) teeth on the second-gear set
- B. A worn input shaft pilot bearing in the crankshaft
- C. A worn or bent shift fork for the first-second hub
- D. A weak detent spring failing to hold the sleeve engaged

13. A clutch disc rides on the transmission input shaft splines. If those splines and the hub are worn, the result is often:

- A. A clunk or rattle felt during quick engagement and release
- B. A clutch that slips badly under light acceleration loads
- C. A pedal that sinks slowly to the floor while at a stoplight
- D. A grinding heard only when shifting into reverse gear

14. A transmission specifies automatic transmission fluid (ATF) rather than gear oil. Filling it with heavy 80W-90 gear oil can cause:

- A. Reduced wear on the brass synchronizer blocker rings
- B. Improved high-speed shifting once the unit warms up
- C. Hard shifting and notchy synchronizer action when cold
- D. Lower operating temperature inside the gear case overall

15. A clutch pedal is hard to press and the clutch is slow to disengage on a cable system. The MOST likely cause is:

- A. Air trapped inside the clutch master cylinder bore
- B. A worn release bearing contacting the diaphragm fingers
- C. A leaking slave cylinder bypassing fluid internally
- D. A binding, frayed, or corroded clutch release cable

16. A manual transmission output shaft has excessive radial play and a growl that rises with road speed. The MOST likely cause is:

- A. A worn input shaft bearing at the front of the case
- B. A worn output shaft (tailshaft) bearing in the housing
- C. Worn synchronizer blocker rings on the upper shift hub
- D. A dry pilot bearing seated in the crankshaft end bore

17. A flywheel is being resurfaced. If too much material is removed, the result can be:

- A. Incorrect clutch finger height and reduced clamping pressure
- B. A permanently locked pilot bearing in the crankshaft bore
- C. A stretched clutch cable that cannot hold proper free play
- D. A cracked transmission case from misaligned bell housing bolts

18. A FWD vehicle clicks loudly on tight turns, and the outer CV boot is torn with grease thrown around the wheel. The required repair is to:

- A. Add fresh CV grease and clamp a new boot onto the joint
- B. Monitor the joint until the clicking becomes constant
- C. Replace the worn outer joint or the complete half shaft

D. Replace the wheel bearing and hub assembly on that side

19. A FWD final drive uses a 17-tooth pinion and a 68-tooth ring gear. The final drive ratio is:

A. 3.50:1

B. 4.00:1

C. 4.50:1

D. 3.00:1

20. A FWD transaxle leaks at the right inner joint, and the differential fluid is low. The MOST likely source is:

A. The transaxle vent releasing fluid under pressure buildup

B. The outer CV boot slinging grease at highway speed

C. A cracked final drive ring gear weeping under load

D. The right axle shaft seal at the differential side gear

21. A FWD car shudders during hard acceleration from a stop, with no clicking on turns. The MOST likely cause is:

A. A worn or binding inboard tripod (plunge) CV joint

B. A worn outer CV joint nearest the front wheel hub

C. A slipping clutch disc flaring under acceleration load

D. A worn front wheel bearing humming under cornering

22. Before pressing a new front wheel bearing into a FWD knuckle, the technician should first inspect the knuckle bore for:

A. Scoring, wear, or out-of-round damage to the bore

- B. Correct final drive backlash inside the transaxle
- C. The proper torque on the differential pinion shaft
- D. The clutch release bearing running clearance value

23. A whining noise from a FWD transaxle rises with road speed, not engine speed, and is present whether accelerating or coasting. After tires are ruled out, the MOST likely cause is:

- A. A worn outer CV joint clicking only during cornering
- B. A slipping clutch disc flaring under light throttle
- C. Worn final drive ring-and-pinion gears or their bearings
- D. A dragging brake caliper rubbing against the rotor face

24. A FWD half shaft must be removed. To separate the inner joint from the transaxle, the technician usually:

- A. Removes the differential cover to access the side gear
- B. Pries the inner joint stub from the differential side gear
- C. Presses the wheel bearing out of the steering knuckle
- D. Unbolts the strut tower mount from the vehicle body

25. A FWD vehicle has a humming noise that rises with speed and changes when the steering is loaded left or right. The MOST likely cause is a:

- A. Worn inboard plunge joint loading during acceleration
- B. Slipping clutch disc under light throttle conditions
- C. Final drive ring gear cracked and weeping fluid out
- D. Worn front wheel bearing reacting to cornering loads

26. Torque steer on a powerful FWD vehicle is reduced by designs that:

- A. Increase the final drive ratio for stronger acceleration
- B. Lock the differential during hard straight-line launches
- C. Equalize half-shaft lengths, often with an intermediate shaft
- D. Add a viscous coupling between the two front half shafts

27. A FWD transaxle is hard to shift into all gears, but only when warm; cold shifting is normal. The MOST likely cause is:

- A. A clutch that drags slightly more once it heats up
- B. Worn synchronizers in every gear position at once
- C. A bent shift rail that binds only at cold temperatures
- D. An overfilled case forcing oil past the input seal

28. The inboard CV joint on most FWD half shafts is a plunge-type joint that allows the:

- A. Outer wheel to steer through its full turning arc
- B. Shaft to change length as the suspension moves
- C. Final drive ratio to vary with the throttle position
- D. Wheel bearing to preload itself during cornering

29. A FWD transaxle drips fluid only overnight when cold and stops once driven and warm. The MOST likely cause is:

- A. An overfilled case venting fluid through the breather
- B. A cracked CV joint housing leaking grease at speed
- C. A loose drain plug that was not torqued correctly
- D. A worn axle or input shaft seal that seeps when cold

30. A RWD vehicle makes a squeaking noise at low speed that increases in frequency as the vehicle speeds up, along with a vibration. The MOST likely cause is:

- A. A worn wheel bearing humming at a steady road speed
- B. A slipping clutch disc squealing under light throttle
- C. A dry or worn universal joint in the driveshaft
- D. A leaking pinion seal lowering the axle lubricant level

31. A two-piece driveshaft has a rumble that increases with road speed and is felt through the floor. After the U-joints check good, the next item to inspect is the:

- A. Clutch release bearing for drag against the diaphragm
- B. Center support bearing and its rubber isolator mount
- C. Transmission second-gear synchronizer blocking ring
- D. Differential pinion seal for a lubricant leak at the yoke

32. A universal joint is checked for wear by:

- A. Rocking and twisting the driveshaft yokes to feel for play
- B. Adding grease through the zerk until the noise stops
- C. Measuring the differential backlash with a dial indicator
- D. Spinning the rear wheels and timing the coast-down

33. A double-cardan joint at the transmission end of a driveshaft is used mainly to:

- A. Change the driveshaft length as the suspension moves
- B. Provide a mounting surface for the center support bearing
- C. Increase the rear axle gear ratio for better acceleration
- D. Cancel speed fluctuation at steep driveshaft angles

34. A rear axle whines under acceleration but quiets on coasting. The MOST likely cause is:

- A. A worn pinion bearing growling at all throttle positions
- B. A bent axle shaft wobbling once per wheel revolution
- C. Incorrect ring-and-pinion drive-side tooth contact or wear
- D. A worn limited-slip clutch pack lacking friction modifier

35. During differential setup, pinion bearing preload on a shim-style (non-collapsible) pinion is set by:

- A. Selecting the proper thickness preload shim under the bearing
- B. Crushing a collapsible spacer to a fixed rotating torque
- C. Moving the carrier with the side bearing adjuster nuts
- D. Reading the contact pattern with gear marking compound

36. A limited-slip differential spins one wheel on ice exactly like an open differential. The MOST likely cause is:

- A. Ring-and-pinion backlash set too tight at assembly
- B. Worn or glazed limited-slip clutch packs inside the carrier
- C. A worn pinion seal leaking lubricant at the front yoke
- D. A bent axle shaft creating a once-per-turn vibration

37. A rear axle with a 3.73:1 ratio is replaced with a 4.56:1 ratio. At the same road speed, the engine will now:

- A. Turn at a lower rpm and reduce fuel consumption
- B. Turn at the same rpm with no measurable change
- C. Lose low-speed pulling power compared with before
- D. Turn at a higher rpm and improve low-speed acceleration

38. A C-clip axle shaft is being removed. The technician must first remove the differential cover and then:

- A. Press the wheel bearing from the outer end of the shaft
- B. Disconnect the parking brake cable from the backing plate
- C. Crush a new collapsible spacer to preset the preload
- D. Remove the pinion shaft so the C-clips can be released

39. A rear axle leaks lubricant onto the inside of one brake assembly only. The MOST likely cause is:

- A. An overfilled differential venting through the breather
- B. A worn pinion seal leaking at the front yoke area
- C. A worn axle shaft seal at that wheel end of the housing
- D. A loose differential cover with a failed paper gasket

40. During ring-and-pinion setup, the contact pattern is centered but backlash measures too loose at 0.015 in. The correct adjustment is to:

- A. Add a thicker shim behind the inner pinion bearing
- B. Move the ring gear toward the pinion with the adjusters
- C. Crush the collapsible spacer to raise pinion preload
- D. Replace both carrier bearings with oversized units

41. A full-floating axle shaft can be removed without the wheel falling off because:

- A. The vehicle weight rides on the hub and spindle, not the shaft
- B. The differential locks the side gears once the shaft is out
- C. The wheel bearing presses directly onto the axle shaft end
- D. The shaft is welded to the hub flange during manufacturing

42. A limited-slip (positraction) differential requires a special lubricant or additive primarily to:

- A. Raise the final drive ratio for better acceleration
- B. Increase the ring-and-pinion backlash over time
- C. Protect the pinion seal from drying out and leaking
- D. Allow the clutch plates to slip smoothly without chatter

43. A rear axle produces a clunk on acceleration and again when lifting off the throttle, with no noise turning. The MOST likely cause is:

- A. A worn pinion seal allowing lubricant to escape slowly
- B. A loose brake caliper bracket touching the rotor edge
- C. Excessive backlash in the ring and pinion or worn gears
- D. An out-of-round tire creating a rhythmic thumping feel

44. A semi-floating axle shaft supports both the vehicle weight and the drive torque. The wheel bearing on this design rides:

- A. On a separate spindle that bolts to the backing plate
- B. On the axle shaft or in the housing near the shaft's outer end
- C. Inside the differential carrier against the side gear hub
- D. On the pinion shaft within the differential carrier housing

45. A drive axle inspection finds water-contaminated, milky lubricant. The MOST likely entry point is:

- A. A submerged or clogged axle vent allowing water to enter
- B. A cracked ring gear drawing coolant into the housing
- C. A worn pinion bearing pulling air past the front seal
- D. An overfilled housing forcing fluid out of the breather

46. A part-time 4WD truck makes a loud clunk from the front when shifting into four-wheel drive while rolling, and it engages normally otherwise. This is MOST likely:

- A. A failed front differential requiring immediate replacement
- B. A stretched transfer case chain skipping on the sprocket
- C. Low transfer case fluid causing the shift fork to bind
- D. Normal automatic-locking-hub engagement under torque

47. An AWD vehicle binds and scrubs the tires during slow tight turns on dry pavement, and all four tires are the same size. The MOST likely cause is:

- A. A worn front wheel bearing growling under cornering
- B. A failed center differential or coupling that cannot allow speed difference
- C. A leaking pinion seal lowering the rear axle fluid level
- D. A worn outer CV joint clicking at full steering lock

48. The low range of a transfer case is selected to:

- A. Disconnect the front driveshaft for highway driving
- B. Raise the final output speed for higher top-end velocity
- C. Provide added gear reduction and torque for low-speed work
- D. Lock the rear differential for straight-line traction only

49. An electronically controlled AWD coupling applies its clutch pack using:

- A. An electric or electrohydraulic actuator commanded by a module
- B. Centrifugal weights that engage as the output speed rises
- C. A mechanical cam linked directly to the accelerator pedal
- D. Engine intake vacuum routed through a diaphragm servo

50. Before road-testing a 4WD vehicle for a driveline vibration, the technician should FIRST:

- A. Replace the front axle disconnect actuator motor assembly
- B. Adjust the rear differential ring gear backlash to spec
- C. Check tire sizes, pressures, and the transfer case fluid level
- D. Bleed the hydraulic clutch release circuit completely

PRACTICE EXAM 9: ANSWER KEY AND EXPLANATIONS

1. **A** — With too little free play, the release bearing stays pressed against the diaphragm fingers and partially disengages the clutch, lowering clamp load. The reduced clamping force lets the disc slip under power. Restoring proper free play returns full clamp pressure.
2. **C** — An oil-soaked disc means the leak source, such as a rear main or input shaft seal, must be repaired before the new disc is installed. Skipping the repair lets oil contaminate the replacement and cause slip or chatter. Fixing the leak protects the new clutch.
3. **B** — A rattle at idle that quiets with slight pedal pressure points to worn clutch disc damper springs reacting to engine torsional pulses. Light pedal pressure changes the load on the springs and silences them. Pilot bearing noise appears with the pedal pressed, not relieved, so only Technician B is right.
4. **D** — Excessive free play causes incomplete disengagement, not chatter, making it the exception. Chatter comes from contaminated facings, worn mounts, or a warped flywheel and pressure plate that grab unevenly. Free play does not produce the shudder.
5. **A** — The release fork pivots on its ball stud and pushes the release bearing into the diaphragm fingers to disengage the clutch. The fork converts pedal motion into bearing travel. Without the pivot, the bearing cannot apply the fingers.
6. **D** — A transmission locked in every gear, even with the engine off, has two gears engaged at once or a broken shift interlock. The interlock normally prevents selecting two gears together. Its failure jams the gear train mechanically.
7. **C** — Gear ratio is driven teeth divided by drive teeth, so $39 \div 13$ equals 3.0:1. The output turns one third as fast as the input in first gear. This reduction multiplies torque for launching.
8. **B** — Noise in every gear and in neutral with the clutch engaged, that stops when the pedal is pressed, is a worn input shaft bearing turning whenever the engine drives the input. Disengaging the clutch stops driving the input and silences it. A release bearing fault would appear with the pedal down, not up.

- 9. C** — Synchronizer ring-to-cone clearance is checked by pressing the blocker ring onto its cone and measuring the remaining gap with a feeler gauge. A small gap confirms the ring can still grip and match speeds. No gap means the ring is worn out.
- 10. A** — Noise confined to one gear isolates the fault to that gear's teeth or supporting bearing. A bearing loaded in every gear would be noisy throughout, not only in third. The single-gear symptom points to the third-gear set.
- 11. D** — With the hydraulics full and free of air yet still not releasing, the next suspect is a warped clutch disc or excessive disc runout. A bent disc cannot move clear of the flywheel even with full pedal travel. Spinning the disc reveals the warpage.
- 12. B** — A worn pilot bearing causes noise, not gear jumpout, so it is the least likely cause of popping out of second. Jumpout traces to worn dog teeth, a worn shift fork, or a weak detent that fails to hold the sleeve. The pilot bearing has no role in retaining a gear.
- 13. A** — Worn input shaft splines and disc hub allow play that produces a clunk or rattle during quick engagement and release. The lash takes up suddenly as torque loads and unloads. This backlash noise signals the worn splines.
- 14. C** — Filling an ATF-specified transmission with heavy 80W-90 gear oil thickens the fluid and causes hard, notchy shifting when cold. The synchronizers cannot move smoothly through the heavy oil. Using the specified fluid restores proper shift feel.
- 15. D** — On a cable clutch, a hard pedal with slow disengagement points to a binding, frayed, or corroded release cable. The added friction resists pedal travel and slows release. Lubricating or replacing the cable cures it.
- 16. B** — Excessive output shaft radial play with a growl that rises with road speed indicates a worn output (tailshaft) bearing. That bearing turns with vehicle speed and supports the output shaft. Its wear allows the play and the noise.
- 17. A** — Removing too much flywheel material moves the friction surface and changes clutch finger height, reducing clamping pressure. The altered geometry weakens engagement and can cause slip. Machining limits exist to prevent this.
- 18. C** — A clicking outer joint combined with a torn boot calls for replacing the worn outer joint or the complete half shaft. The lost grease and contamination have already damaged the joint. Reboot alone will not restore a noisy joint.
- 19. B** — Final drive ratio is ring teeth divided by pinion teeth, so $68 \div 17$ equals 4.00:1. The pinion turns four times per ring gear revolution. This sets the transaxle reduction.
- 20. D** — A leak at the right inner joint with low differential fluid traces to the right axle shaft seal at the side gear. The vent and outer boot do not release gear oil there. Replacing the seal stops the loss.

- 21. A** — A shudder during hard acceleration with no turning clicks indicates a worn or binding inboard tripod (plunge) joint. The plunge joint handles axial movement under torque and shudders when worn. The outer joint instead clicks on turns.
- 22. A** — Before pressing in a new wheel bearing, the knuckle bore is inspected for scoring, wear, or out-of-round damage. A damaged bore will not hold the new bearing and causes early failure. This check protects the repair.
- 23. C** — A whine that follows road speed in both acceleration and coasting comes from worn final drive ring-and-pinion gears or their bearings. Those gears turn with vehicle speed, unlike clutch or CV faults. The constant speed-linked whine isolates the final drive.
- 24. B** — The inner joint is separated by prying its stub out of the differential side gear, where a snap ring retains it. Cover, knuckle, and strut steps are not how the inner joint disengages. Prying at the side gear frees the shaft.
- 25. D** — A hum that rises with speed and changes when the steering is loaded is a worn front wheel bearing reacting to cornering loads. Side loading shifts weight onto the worn bearing, altering the noise. This load sensitivity confirms the bearing.
- 26. C** — Torque steer is reduced by equalizing half-shaft lengths, often by adding an intermediate shaft on the longer side. Equal lengths make the shafts twist equally under load. This balances the tractive effort to each wheel.
- 27. A** — Hard shifting only when warm, with normal cold shifts, indicates a clutch that drags slightly more as it heats and expands. The marginal release keeps the input turning and resists engagement. Worn-fluid faults cause cold, not warm, hard shifting.
- 28. B** — The inboard plunge joint lets the half shaft change length as the suspension moves up and down. Its rollers slide within the housing to absorb the change. The fixed outer joint does not plunge.
- 29. D** — A seep that appears overnight when cold and stops once warm indicates a worn axle or input seal whose lip conforms better at operating temperature. An overfill or boot leak shows up while driving, not parked. The temperature pattern points to the seal.
- 30. C** — A squeak that quickens with road speed alongside a vibration is a dry or worn universal joint, since the squeak occurs once per shaft revolution. Wheel and pinion faults do not squeak this way. Lubricating or replacing the joint cures it.
- 31. B** — A floor rumble that rises with road speed on a two-piece driveshaft, with good U-joints, points to the center support bearing and its rubber isolator. The bearing supports the shaft midpoint and turns with vehicle speed. Its wear creates the speed-related rumble.
- 32. A** — A universal joint is checked by rocking and twisting the driveshaft yokes by hand to feel for play. Felt looseness confirms worn needle bearings. Adding grease to quiet a joint does not test or repair it.

- 33. D** — A double-cardan joint cancels the speed fluctuation of a single U-joint at steep driveshaft angles. The paired joints keep output velocity constant under high working angles. This smooths power delivery and reduces vibration.
- 34. C** — A whine under acceleration that quiets on coast indicates incorrect drive-side ring-and-pinion tooth contact or wear. Gear mesh noise changes with load direction, unlike a constant bearing growl. The drive-side pattern needs correction.
- 35. A** — On a shim-style pinion, bearing preload is set by selecting the proper thickness preload shim under the bearing. The shim establishes the bearing crush and rotating torque. A collapsible spacer is used only on crush-sleeve designs.
- 36. B** — A limited-slip unit that spins one wheel like an open differential has worn or glazed clutch packs that no longer transfer torque. The friction surfaces have lost their grip. Rebuilding the clutch pack restores the limited-slip action.
- 37. D** — Changing from 3.73:1 to 4.56:1 raises the numerical ratio, so the engine turns at a higher rpm at the same road speed and gains low-speed acceleration. More torque multiplication trades cruising efficiency for launch. The engine spins faster for a given speed.
- 38. D** — On a C-clip axle, the cover comes off and then the differential pinion shaft is removed so the C-clips can be slipped from the side gears. The clips are captive until the pinion shaft is out. This sequence frees the shafts.
- 39. C** — Lubricant inside one brake assembly only comes from a worn axle shaft seal at that wheel end of the housing. A pinion seal leaks at the front yoke, and a cover leak appears at the rear of the housing. The axle seal is the local source.
- 40. B** — Backlash that is too loose with a centered pattern is corrected by moving the ring gear toward the pinion using the carrier adjusters. Reducing the clearance brings backlash into spec. Pinion shims and spacers control depth and preload, not backlash.
- 41. A** — A full-floating axle shaft can be pulled without the wheel falling because the vehicle weight rides on the hub and spindle, not the shaft. The shaft carries only torque. This is the safety advantage of the full-floating design.
- 42. D** — A limited-slip differential needs friction modifier so its clutch plates slip smoothly instead of grabbing and chattering during turns. The additive controls the clutch friction characteristics. Without it, the unit shudders on slow corners.
- 43. C** — A clunk on acceleration and again on lift-off, with no turning noise, indicates excessive ring-and-pinion backlash or worn gears taking up lash on torque reversal. The free play slams as load direction changes. Resetting backlash or replacing the gears cures it.

- 44. B** — A semi-floating axle's wheel bearing rides on the axle shaft or in the housing near the shaft's outer end, so the shaft carries both weight and torque. This is why a broken semi-floating shaft can release the wheel. The bearing location defines the design.
- 45. A** — Milky, water-contaminated gear oil most often enters through a submerged or clogged axle vent. Driving through deep water lets the vent draw water into the housing. Keeping the vent clear and above water prevents contamination.
- 46. D** — A clunk when shifting into four-wheel drive while rolling, with otherwise normal engagement, is normal automatic-locking-hub engagement as torque locks the hubs. The hubs snap into engagement under load. This is expected behavior, not a fault.
- 47. B** — Binding and tire scrub during slow tight turns on dry pavement, with equal tire sizes, indicates a failed center differential or coupling that cannot allow front-to-rear speed difference. The driveline winds up and binds. The center unit must permit that difference.
- 48. C** — Transfer case low range adds gear reduction to multiply torque for low-speed pulling and steep grades. It trades road speed for mechanical advantage. This is its purpose in heavy-load and off-road use.
- 49. A** — An electronically controlled AWD coupling applies its clutch pack with an electric or electrohydraulic actuator commanded by a control module. The module varies the clamp force based on conditions. No centrifugal, mechanical, or vacuum input is used.
- 50. C** — The first step for a driveline vibration is to check tire sizes, pressures, and the transfer case fluid level before road testing. These common, easily verified items are ruled out first. Replacing parts before this basic check wastes effort.