PRACTICE EXAM 11: ASE A3 SIMULATION (50 QUESTIONS)

50 Questions · 60-Minute Time Limit

1. A clutch pedal must be pressed nearly to the floor before the clutch begins to disengage, and the gears are hard to select. On a hydraulic clutch, the MOST likely cause is:

A. A glazed friction disc slipping under acceleration load

B. Air in the hydraulic system or a low fluid reservoir level

C. A worn pilot bearing binding the input shaft to the crankshaft

D. A cracked flywheel ring gear contacting the starter pinion

2. A clutch friction disc shows a hard, shiny, glazed appearance on its facings. This condition MOST directly causes the clutch to:

A. Slip because the glazed surface loses its grip on the flywheel

B. Chatter only when starting out on a steep uphill grade

C. Fail to disengage when the pedal is pressed to the floor

D. Make a squealing noise only while the pedal is held down

3. Technician A says a dual-mass flywheel reduces drivetrain vibration with internal springs. Technician B says a dual-mass flywheel can be machined flat like a solid flywheel. Who is correct?

A. Both Technician A and Technician B

B. Technician B only

C. Neither Technician A nor Technician B

D. Technician A only

4. A new clutch was installed, and now it slips under load almost immediately. The MOST likely installation error is:

A. The pilot bearing was driven in slightly too deep in the bore

B. The release fork was installed on the wrong side of the pivot

C. Grease or oil was left on the flywheel or new disc facings

D. The bell housing bolts were torqued in the wrong sequence

5. The free play in a clutch linkage exists to ensure that the:

A. Pilot bearing stays lubricated during normal driving

B. Flywheel maintains its correct runout specification

C. Release bearing is not loaded against the diaphragm at rest

D. Clutch disc remains centered on the input shaft splines

6. A manual transmission grinds going into every forward gear from a stop, but shifts smoothly between gears while moving. The MOST likely cause is:

A. A clutch that is not fully releasing the input shaft

B. Worn synchronizers in every individual gear position

C. A low gear lubricant level overheating all the gearsets

D. A worn output shaft bearing in the extension housing

7. A transmission has a fourth-gear ratio of 1.00:1. This direct-drive ratio means the:

A. Output shaft turns twice for each input shaft turn

B. Countershaft carries the full engine load in this gear

C. Input and output shafts turn at the same speed together

D. Engine torque is multiplied by a factor of four to one

8. A growling noise from a manual transmission is present in fourth gear (direct) and disappears in all other gears. The MOST likely cause is:

A. Worn countershaft cluster gear bearings under load

B. A worn third-gear synchronizer blocking ring assembly

C. Low lubricant level starving the countershaft of oil

D. A worn output shaft (mainshaft) bearing loaded in direct

9. Before removing a manual transmission, the technician disconnects the battery primarily to:

A. Prevent accidental starter engagement and electrical shorts

B. Reset the transmission control module shift adaptations

C. Relieve the hydraulic pressure in the clutch release line

D. Allow the synchronizers to return to a neutral position

10. A manual transmission jumps out of third gear during hard acceleration. Technician A says worn third-gear clutching teeth can cause it. Technician B says a worn or bent shift fork can cause it. Who is correct?

A. Technician A only

B. Both Technician A and Technician B

C. Technician B only

D. Neither Technician A nor Technician B

11. A whine that tracks road speed and is localized to the tailshaft area of a manual transmission MOST likely comes from the:

A. Input shaft bearing at the front of the transmission case

B. Speedometer drive or driven gear teeth wearing at the tailshaft

C. Countershaft cluster gear bearings loaded in the lower gears

D. Pilot bearing seated in the rear of the engine crankshaft

12. A transmission leaks gear oil from the front of the bell housing area after a clutch job. The MOST likely cause is:

A. An overfilled transmission case forcing oil out the vent

B. A loose drain plug at the bottom of the main case

C. A worn output shaft seal at the rear extension housing

D. A failed input shaft seal behind the bearing retainer

13. A clutch will not fully disengage and the gears grind going into first, but the hydraulic fluid is full and the linkage is correct. The next item to inspect is the:

A. Output shaft bearing for excessive radial play

B. Clutch disc and pressure plate for warpage or damage

C. Speedometer driven gear for worn or chipped teeth

D. Differential side gear for excessive backlash in mesh

14. During a manual transmission rebuild, a roller bearing shows pitting and discoloration on its races. The correct action is to:

A. Replace the bearing, since pitting indicates fatigue failure

B. Reinstall it after cleaning and repacking with fresh grease

C. Polish the races smooth with fine emery cloth and reuse

D. Add a thicker lubricant to compensate for the worn surface

15. A manual transmission is overfilled with lubricant well above the fill plug level. A likely result is:

A. Hard cold shifting from a lubricant that is too thin

B. Permanent damage to the synchronizer blocking rings

C. Foaming, leaking seals, and possible overheating of the oil

D. Improved cooling and longer bearing service life overall

16. A transmission makes a clicking or knocking that increases with engine speed in neutral and stops when the clutch is depressed. The MOST likely cause is:

A. A worn output shaft bearing loaded only while driving

B. Worn synchronizer rings on the third-fourth shift hub

C. A dragging release bearing under clutch pedal pressure

D. A worn input shaft bearing or pilot bearing turning at idle

17. A manual transmission specifies a synthetic 75W-90 gear oil. Substituting a non-specified additive package can cause:

A. Permanently improved synchronizer engagement in all gears

B. A lower fluid level reading at the fill plug opening

C. Synchronizer damage or shift quality problems over time

D. A measurable increase in the final drive gear ratio

18. A FWD vehicle clicks during tight cornering and the noise worsens over several weeks. The MOST likely cause is:

A. A worn outer CV joint that articulates at full steering lock

B. A worn inboard plunge joint loading during acceleration

C. A loose front wheel bearing with excessive radial play

D. A worn lower control arm bushing flexing during turns

19. A FWD transaxle final drive uses an 18-tooth pinion and a 72-tooth ring gear. The final drive ratio is:

A. 4.00:1

B. 3.50:1

C. 4.50:1

D. 3.00:1

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

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

B. A worn front wheel bearing humming during cornering

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

D. A slipping clutch disc flaring under acceleration load

21. A FWD half shaft is installed, and the hub nut is left only hand-tight. The MOST likely result is:

A. Incorrect final drive backlash inside the transaxle case

B. A torn outer CV boot from grease pressure buildup

C. A dragging front brake caliper on the same side

D. A loose wheel bearing with play, noise, and possible damage

22. A FWD transaxle is low on fluid, and a stain is found at the left inner CV joint. The MOST likely leak source is:

A. The transaxle breather venting fluid under pressure

B. The left axle (output) shaft seal at the differential

C. The outer CV boot slinging grease at highway speed

D. A cracked final drive ring gear weeping under load

23. Technician A says a FWD transaxle combines the gearbox and differential. Technician B says the differential side gear seals are a common transaxle leak point. Who is correct?

A. Technician A only

B. Both Technician A and Technician B

C. Technician B only

D. Neither Technician A nor Technician B

24. A whine from a FWD transaxle rises with road speed, not engine speed, in both drive and coast. After ruling out tires, the MOST likely cause is:

A. A slipping clutch disc under light acceleration loads

B. A worn outer CV joint clicking during cornering only

C. Worn final drive ring-and-pinion gears or their bearings

D. A dragging brake pad contacting the rotor surface

25. A clicking is heard only during tight right turns and is absent when driving straight. The MOST likely cause is:

A. A worn left-side outer CV joint loaded during right turns

B. A worn right-side inboard plunge joint under acceleration

C. A worn right front wheel bearing humming under load

D. A loose right front strut mount knocking over bumps

26. To remove a FWD half shaft from the transaxle, after the outer hub and ball joint are freed, the inner joint is released by:

A. Removing the differential cover to access the side gear clip

B. Pressing the wheel bearing from the steering knuckle bore

C. Unbolting the engine torque-strut mount from the body

D. Prying or pulling the inner stub from the differential side gear

27. A FWD vehicle has a steady drone that rises with road speed and is unaffected by acceleration or light braking. The MOST likely cause is:

A. A worn inboard plunge joint loading under acceleration

B. A worn front wheel bearing producing a speed-related drone

C. A slipping clutch disc under light throttle conditions

D. A warped brake rotor pulsing through the steering wheel

28. A torn inner CV boot is discovered with grease loss, but the joint is still quiet. The recommended service is to:

A. Add grease and reseal the boot, leaving the joint in place

B. Wait until the joint becomes noisy before any service

C. Replace the boot and repack, or replace the joint or shaft

D. Replace the wheel bearing and hub on that corner

29. A FWD transaxle is hard to shift into reverse and grinds, while forward gears engage cleanly. On a transaxle with non-synchronized reverse, the MOST likely cause is:

A. A clutch that is dragging and not fully releasing the input

B. A worn reverse synchronizer blocking ring in the unit

C. Low transaxle fluid starving the reverse idler of oil

D. A worn outer CV joint on the left front half shaft

30. A RWD vehicle has a vibration that increases with road speed and is unaffected by engine load or the gear selected. After balancing the tires, the MOST likely cause is:

A. A slipping clutch disc flaring under light throttle

B. A worn third-gear synchronizer blocking ring set

C. A worn differential side gear in the carrier assembly

D. A bent driveshaft or an out-of-balance driveline component

31. A clunk from the driveline is heard each time a RWD vehicle changes between accelerating and coasting. After the U-joints are checked, the next inspection is the:

A. Clutch master cylinder pushrod free play adjustment

B. Front wheel bearing preload on each side of the axle

C. Slip-yoke splines and rear axle backlash for excess play

D. Transmission mount torque and the shift linkage bushings

32. A universal joint operates at an excessive angle because the rear axle pinion angle is incorrect. The MOST likely symptom is:

A. A clicking noise heard only during low-speed cornering

B. A vibration that increases with vehicle speed and load

C. A whine that varies directly with engine idle speed only

D. A grinding felt through the clutch pedal at engagement

33. The slip yoke at the front of a one-piece driveshaft allows the:

A. Driveshaft length to change as the suspension travels

B. Pinion gear depth to change under heavy acceleration

C. Rear wheels to steer slightly during hard cornering

D. U-joint operating angle to stay fixed at all ride heights

34. A rear axle produces a howl that is loudest on coasting (deceleration) and quieter under power. The MOST likely cause is:

A. A worn pinion bearing growling at every throttle position

B. A bent axle shaft wobbling once per wheel revolution

C. A worn limited-slip clutch pack lacking friction modifier

D. Incorrect ring-and-pinion coast-side tooth contact or wear

35. During differential setup with a crush sleeve, the pinion nut is tightened too far and the rotating torque is now too high. The correct action is to:

A. Back off the pinion nut slightly to reduce the preload

B. Add shims behind the inner pinion bearing race

C. Move the ring gear away from the pinion with adjusters

D. Replace the crush sleeve, since it cannot be backed off

36. A rear axle ratio is described as 3.55:1. This number represents the:

A. Number of pinion turns for each one turn of the ring gear

B. Number of ring gear turns for each turn of the axle shaft

C. Backlash clearance between the ring and pinion in inches

D. Pinion bearing preload measured in inch-pounds of torque

37. A limited-slip differential chatters in tight turns. After the friction modifier and gear oil are addressed and the chatter remains, the MOST likely cause is:

A. Ring-and-pinion backlash adjusted too loosely at assembly

B. A worn pinion bearing growling at all vehicle speeds

C. Worn or glazed limited-slip clutch plates inside the carrier

D. A bent axle shaft producing a once-per-turn vibration

38. A C-clip axle shaft can be pulled from the housing only after the technician:

A. Presses the wheel bearing off the outer end of the shaft

B. Removes the differential cover and the pinion (cross) shaft

C. Disconnects the parking brake cable from the backing plate

D. Crushes a new collapsible spacer to set the pinion preload

39. A rear axle leaks lubricant at the pinion yoke on a RWD vehicle. The MOST likely cause is:

A. A worn axle shaft seal at one of the outer wheel ends

B. A loose differential cover with a failed paper gasket

C. An overfilled axle venting fluid through the breather

D. A worn pinion seal allowing lubricant to escape at the yoke

40. A full-floating axle shaft fractures while driving, yet the wheel stays on the vehicle. This is because the:

A. Wheel and hub are supported by the spindle, not the shaft

B. Differential locks both side gears once the shaft breaks

C. Wheel bearing presses directly onto the axle shaft itself

D. Broken shaft is welded to the hub flange during assembly

41. During ring-and-pinion setup, the pattern shows the pinion riding too far toward the tooth face (high and toward the toe). The correct adjustment is to:

A. Increase the ring gear backlash with the side adjusters

B. Replace both axle shafts and their wheel bearings

C. Move the pinion deeper with a thicker depth shim

D. Add friction modifier to the differential gear lubricant

42. A vehicle with an open differential is stuck with one drive wheel on ice. The wheel on ice spins while the other does nothing because an open differential:

A. Locks both wheels together when traction is lost

B. Sends extra torque to the wheel with the most grip

C. Allows both wheels to turn at identical fixed speeds

D. Sends equal torque to both, so the low-grip wheel spins

43. A semi-floating axle differs from a full-floating axle because the semi-floating design:

A. Carries no vehicle weight on the axle shaft at all

B. Supports the vehicle weight on the axle shaft and bearing

C. Uses two bearings to support each outer axle shaft end

D. Is used only on the front axles of four-wheel-drive trucks

44. A drive axle's gear lubricant is dark, thin, and smells burnt during an inspection. This MOST likely indicates:

A. Overheating from heavy loading or a low lubricant level

B. Normal condition for a properly serviced high-mileage axle

C. Water contamination that has emulsified the lubricant

D. The correct additive level for a limited-slip differential

45. Ring gear backlash found too tight at 0.002 in versus a 0.006–0.008 in spec is corrected by:

A. Crushing the collapsible spacer further to raise preload

B. Adding a thicker shim behind the inner pinion bearing

C. Moving the ring gear away from the pinion with adjusters

D. Replacing both carrier bearings with oversized units

46. A part-time 4WD truck driven on dry pavement in four-wheel drive develops driveline binding and "crow-hop" during tight turns. This condition is:

A. A sign of a stretched transfer case chain needing service

B. Caused by a failed front axle disconnect actuator motor

C. Normal driveline windup on high-traction surfaces

D. The result of low transfer case fluid causing internal drag

47. A viscous coupling in an AWD system transfers torque by:

A. Engaging a multi-plate clutch with hydraulic line pressure

B. Shearing a silicone fluid between sets of interleaved plates

C. Meshing helical gears between the front and rear outputs

D. Using an electric solenoid to lock the center differential

48. A 4WD vehicle will not engage four-wheel drive, although the transfer case shift motor is heard operating. The next item to check is the:

A. Front axle disconnect actuator and its engagement

B. Rear differential lubricant level and overall condition

C. Clutch pedal position switch and its adjustment setting

D. Speedometer output sensor on the transmission tailshaft

49. The transfer case low range on a part-time 4WD truck is used to:

A. Disengage the front driveshaft for highway cruising

B. Increase final output speed for a higher top-end velocity

C. Lock the rear differential for straight-line traction only

D. Multiply engine torque for improved low-speed pulling power

50. Before condemning a transfer case for a noise complaint, the technician should FIRST:

A. Replace the transfer case shift motor and control module

B. Check the fluid level and condition and verify tire sizes

C. Adjust the front axle disconnect actuator to neutral stop

D. Set the rear differential ring gear backlash to specification

PRACTICE EXAM 11: ANSWER KEY AND EXPLANATIONS

1. B — A pedal that must travel almost to the floor before disengaging, with hard shifting, indicates air in the hydraulic system or a low fluid level. The compressible air absorbs pedal travel instead of moving the release components. Bleeding the system and topping the fluid restores full disengagement.

2. A — A glazed, shiny disc has a hardened surface that loses its grip on the flywheel, causing slip. The reduced coefficient of friction cannot transmit full engine torque. Slippage then generates more heat and worsens the glazing.

3. D — A dual-mass flywheel uses internal springs to absorb drivetrain torsional vibration, so Technician A is right. It is a sealed assembly that cannot be machined flat like a solid flywheel, making Technician B wrong. Only Technician A is right.

4. C — A brand-new clutch that slips immediately almost always has grease or oil left on the flywheel or disc facings during installation. The contamination prevents the disc from gripping. Clean, dry surfaces are essential at assembly.

5. C — Free play exists so the release bearing is not loaded against the diaphragm fingers when the pedal is at rest. Constant bearing contact would partially release the clutch and cause slip and premature bearing wear. The clearance protects both components.

6. A — Grinding into every forward gear from a stop, with smooth shifts while moving, indicates a clutch that is not fully releasing the input shaft. The spinning input prevents the synchronizers from matching speeds at a standstill. Verifying full clutch release is the first step.

7. C — A 1.00:1 direct-drive ratio means the input and output shafts turn at the same speed, with no reduction. Power passes straight through without torque multiplication. This is the most efficient gear in the box.

8. D — In direct drive the input shaft locks to the mainshaft and the countershaft is unloaded, so a growl standing out in direct points to the output (mainshaft) bearing rather than the cluster bearings. The countershaft carries no output load in direct, ruling out its bearings. The mainshaft support is the remaining loaded bearing.

9. A — The battery is disconnected before transmission removal to prevent accidental starter engagement and electrical shorts while working near the bell housing. An unexpected crank could injure the technician. This is a basic safety step.

10. B — Both technicians are right: worn third-gear clutching teeth let the gear walk out, and a worn or bent shift fork fails to hold the sleeve fully engaged. Either allows jumpout under hard acceleration. Both items should be inspected.

11. B — A whine localized to the tailshaft that tracks road speed comes from worn speedometer drive or driven gear teeth. Those gears turn with the output shaft at road speed. Their wear produces the localized whine.

12. D — Gear oil leaking from the front of the bell housing after a clutch job points to a failed input shaft seal behind the bearing retainer. That seal contains lubricant where the input shaft exits the case. A worn or nicked seal lets oil migrate into the housing.

13. B — With the hydraulics full and the linkage correct, a clutch that still will not disengage points to a warped or damaged clutch disc or pressure plate. A bent disc cannot move clear of the flywheel. Inspecting these components locates the fault.

14. A — Pitting and discoloration on bearing races indicate fatigue failure, so the bearing must be replaced. Cleaning, polishing, or relubricating cannot restore a fatigued surface. Reusing it would lead to rapid failure.

15. C — Overfilling above the fill plug causes the gears to churn the excess oil into foam, which leads to leaking seals and overheating. The aerated lubricant loses its film strength. Correct level prevents these problems.

16. D — A knock that rises with engine speed in neutral and stops when the clutch is depressed comes from a worn input shaft or pilot bearing turning at idle. Disengaging the clutch unloads those components and quiets the noise. The constant-mesh input area is the source.

17. C — Using a lubricant with the wrong additive package can damage the synchronizers or cause shift quality problems over time. Friction-modifier and yellow-metal compatibility are tuned to the specified oil. Only the specified fluid protects the components.

18. A — A click during cornering that worsens over weeks is the classic progression of a worn outer CV joint. The outer joint articulates at full steering lock under torque, where worn balls click. Replacing the joint or shaft is required.

19. A — Final drive ratio is ring teeth divided by pinion teeth, so 72 ÷ 18 equals 4.00:1. The pinion turns four times per ring gear revolution. This sets the transaxle reduction.

20. C — 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.

21. D — A hub nut left only hand-tight under-clamps the wheel bearing, causing play, noise, and possible bearing damage. The bearing relies on correct preload from a properly torqued nut. Final torque to specification is essential.

22. B — A leak at the left inner joint with low transaxle fluid traces to the left axle (output) shaft seal at the differential. The breather and outer boot do not release gear oil there. Replacing the seal stops the loss.

23. B — Both technicians are right: a FWD transaxle combines the gearbox and differential in one housing, and the differential side gear seals are a common leak point. Each statement is accurate. The side gear seals are routinely inspected for leaks.

24. C — A whine that follows road speed in both drive and coast comes from worn final drive ring-and-pinion gears or their bearings. Those gears turn with vehicle speed, unlike clutch or CV faults. The speed-linked whine isolates the final drive.

25. A — A click during tight right turns comes from the left outer CV joint, since the left wheel is the outside wheel on a right turn and its outer joint articulates at the greatest angle. The loaded, worn joint clicks. The noisy joint is opposite the turn direction.

26. D — The inner joint is released by prying or pulling its stub from the differential side gear, where a snap ring retains it. Cover, knuckle, and mount steps are not how the inner joint disengages. Freeing the stub releases the shaft.

27. B — A steady drone that rises with road speed and ignores throttle and light braking is a worn front wheel bearing. Bearing noise is speed-dependent and load-tolerant, unlike brake or driveline faults. Replacing the bearing removes the drone.

28. C — A torn inner boot with grease loss calls for replacing the boot and repacking, or replacing the joint or half shaft. Resealing a contaminated joint or waiting for noise guarantees failure. Prompt service protects the joint.

29. A — Grinding into a non-synchronized reverse while forward gears engage cleanly indicates a dragging clutch that does not fully release the input. The synchronized forward gears mask the drag, but reverse has none. Confirming full release is the first step.

30. D — A vibration tied to road speed and unaffected by load or gear, after tire balancing, indicates a bent driveshaft or unbalanced driveline component. Driveshaft imbalance is speed-dependent and load-independent. Clutch and synchronizer faults do not fit.

31. C — A clunk each time the vehicle shifts between accelerating and coasting, with good U-joints, points to slip-yoke spline play and rear axle backlash. The clearances take up suddenly on torque reversal. Inspecting them locates the free play.

32. B — An incorrect pinion angle that forces excessive U-joint operating angles produces a vibration that grows with vehicle speed and load. The joints accelerate and decelerate twice per revolution at high angles. Correcting the angle reduces the vibration.

33. A — The slip yoke lets the driveshaft change length as the suspension moves the axle through its travel. The sliding splines accommodate the changing distance. Without it, the driveline would bind over bumps.

34. D — A howl loudest on coast and quieter under power indicates incorrect coast-side ring-and-pinion tooth contact or wear. Gear mesh noise changes with load direction, unlike a constant bearing growl. The coast-side pattern needs correction.

35. D — A crush sleeve that has been over-collapsed cannot be backed off to reduce preload and must be replaced. Loosening the nut leaves the sleeve permanently crushed and the preload wrong. A new sleeve and fresh setup are required.

36. A — A 3.55:1 ratio means the pinion turns 3.55 times for each single turn of the ring gear. This expresses the gear reduction in the axle. It is not a clearance or torque value.

37. C — Limited-slip chatter that persists after correcting the gear oil and friction modifier indicates worn or glazed clutch plates inside the carrier. The friction surfaces grab instead of slipping smoothly. Rebuilding the clutch pack cures the chatter.

38. B — A C-clip axle shaft comes out only after the differential cover and the pinion (cross) shaft are removed so the clips can be released. The clips are captive until the pinion shaft is withdrawn. This sequence frees the shafts.

39. D — Lubricant leaking at the pinion yoke comes from a worn pinion seal. The seal rides on the yoke or companion flange at the front of the housing. Replacing the seal stops the leak.

40. A — A full-floating axle keeps the wheel on the vehicle after a shaft fractures because the wheel and hub ride on the spindle, not the shaft. The shaft carries only torque. This separation of weight and torque is the design's safety feature.

41. C — A contact pattern riding high toward the tooth face and toe indicates the pinion is too far out and must move deeper, set with a thicker depth shim. Repositioning the pinion centers the pattern. Backlash and modifier adjustments do not fix pinion depth.

42. D — An open differential sends equal torque to both wheels, so when one wheel is on ice it spins while the other receives the same low torque and does nothing. The unit cannot bias torque to the gripping wheel. This is the inherent limitation of an open design.

43. B — A semi-floating axle supports the vehicle weight on the axle shaft and its bearing, unlike a full-floating design that carries weight on the spindle. This is why a broken semi-floating shaft can release the wheel. The load path defines the difference.

44. A — Dark, thin, burnt-smelling gear oil indicates overheating from heavy loading or a low lubricant level. The breakdown and odor signal excessive heat. Refilling and finding the cause is required.

45. C — Backlash that is too tight is corrected by moving the ring gear away from the pinion with the carrier side adjusters. Increasing the clearance brings backlash into spec. Pinion shims and spacers control depth and preload, not backlash.

46. C — Binding and crow-hop during tight turns on dry pavement in four-wheel drive is normal driveline windup on high-traction surfaces. The locked front and rear axles cannot accommodate the turning speed differences. Backing up or returning to two-wheel drive relieves it.

47. B — A viscous coupling transfers torque by shearing a silicone fluid between sets of interleaved plates as a speed difference develops. The fluid thickens under shear and couples the outputs. No mechanical clutch or electronic control is involved.

48. A — When 4WD will not engage but the shift motor runs, the next check is the front axle disconnect actuator and its engagement. If the front axle never couples, the system cannot confirm four-wheel drive. Verifying the actuator isolates the fault.

49. D — Transfer case low range multiplies engine torque for improved low-speed pulling power on steep grades and heavy loads. It trades road speed for mechanical advantage. This is its purpose in off-road use.

50. B — Before condemning a transfer case for noise, the technician first checks the fluid level and condition and verifies matched tire sizes. These common, easily corrected causes are ruled out first. Replacing the case before this basic check wastes effort.