PRACTICE EXAM 15: ASE A3 SIMULATION (50 QUESTIONS)

50 Questions · 60-Minute Time Limit

1. A customer brings in a manual-transmission vehicle and says the clutch is getting weak. On the lift, the technician finds the clutch slips in fourth gear under load but holds in the lower gears, and the removed friction disc is worn nearly flush with the rivets. The technician should:

A. Replace the clutch disc and inspect the flywheel and pressure plate

B. Adjust the clutch cable to restore the lost free play in the system

C. Bleed the hydraulic clutch system to remove the trapped air

D. Resurface the flywheel and reinstall the same worn friction disc

2. During a clutch replacement, the technician measures the flywheel and finds the friction surface has more than the allowable runout. Before installing the new clutch, the BEST action is to:

A. Install the clutch and let the new disc wear the surface flat

B. Add a shim behind the flywheel to compensate for the runout

C. Resurface the flywheel if within limits, or replace it if not

D. Reduce the pressure plate bolt torque to absorb the runout

3. A vehicle's clutch pedal has no free play and the clutch slips under acceleration. The technician confirms the disc and pressure plate are nearly new. The MOST likely cause of the slip is:

A. Oil contamination on the friction disc from a leaking seal

B. The release bearing held against the fingers by zero free play

C. A warped flywheel surface reducing the friction contact area

D. A weak diaphragm spring that has lost its clamping tension

4. A clutch was replaced two weeks ago, and the customer returns reporting a loud bearing-type noise that occurs only when the clutch pedal is pressed. The MOST likely cause is:

A. A worn pilot bearing that makes noise only in gear at idle

B. A worn output shaft bearing carrying the driveline load

C. Worn synchronizer rings on the most frequently used gear

D. A faulty or improperly installed release bearing

5. A technician road-tests a vehicle for a clutch complaint and notices the engine rpm climbs without a matching increase in vehicle speed when accelerating in third gear up a grade. This finding confirms:

A. The clutch is slipping under load and not transmitting full torque

B. The transmission is jumping out of third gear under the load

C. The release bearing is dragging and partially releasing the clutch

D. The pilot bearing has seized onto the input shaft tip

6. A clutch disc is contaminated with gear oil, and the technician traces the leak to the transmission input shaft seal. After replacing the seal, the BEST practice is to:

A. Replace the contaminated clutch disc, since oil cannot be cleaned off

B. Clean the disc with brake cleaner and reinstall the same disc

C. Sand the friction surface of the disc to remove the oil film

D. Install the disc and allow the oil to burn off during break-in

7. A customer complains that the clutch pedal feels different at different times and engagement is inconsistent. The technician finds the fluid reservoir full and no external leaks, but the pedal is spongy. The BEST next step is to:

A. Replace the clutch disc and pressure plate as an assembly

B. Bleed the hydraulic clutch system to remove the trapped air

C. Adjust the clutch pedal free play to the factory specification

D. Resurface the flywheel to restore consistent engagement

8. A self-adjusting clutch is being installed. The technician forgets to lock the adjuster in its compressed position before installation. The MOST likely result when the vehicle is driven is:

A. The clutch will release too early in the pedal travel

B. The release bearing will overheat and fail within minutes

C. The flywheel will crack from the uneven clamping load

D. Improper clamp load causing slipping or poor clutch operation

9. A customer reports that a five-speed manual transmission whines, and the whine is present in first through fourth gears but disappears in fifth. On this transmission, fifth gear is an overdrive driven through a separate gear set on the rear of the mainshaft. The MOST likely cause is:

A. A worn fifth gear bearing loaded only in the overdrive range

B. Worn synchronizer rings shared across the lower four gears

C. A worn countershaft or its bearings used by the lower gears

D. A dragging clutch that never fully releases the input shaft

10. A technician is diagnosing a transmission that pops out of third gear during deceleration. After removing the transmission and inspecting, the third gear engagement teeth and synchronizer look good. The technician should next inspect the:

A. Shift fork, shift rail detent spring, and detent ball for wear

B. Input shaft bearing for roughness and excessive radial play

C. Clutch disc and pressure plate for wear near the service limit

D. Speedometer drive gear and the driven gear for damage

11. A vehicle's manual transmission is hard to shift into all gears. The technician confirms the clutch fully disengages and the fluid is correct. After further inspection, the MOST likely remaining cause of the hard shifting is:

A. A worn output shaft bearing in the tailshaft housing

B. A worn speedometer drive gear binding the output shaft

C. A cracked transmission case leaking lubricant externally

D. Worn or binding shift linkage or worn internal shift components

12. A transmission makes a growling noise that is present in neutral with the engine idling and the clutch engaged, and the noise continues in all gears. When the clutch pedal is pressed, the noise stops. The MOST likely cause is:

A. A worn output shaft bearing loaded only when driving

B. A worn input shaft bearing turning whenever the clutch is engaged

C. Worn synchronizer rings on the most frequently used gear

D. A worn pilot bearing that makes noise only in gear at idle

13. A technician suspects a worn synchronizer is causing gear clash in second gear. To confirm before disassembly, the BEST diagnostic approach is to:

A. Road-test and note whether clash occurs only on quick shifts into second

B. Drain the lubricant and inspect it for the presence of brass particles only

C. Replace the gear lubricant with a thinner grade and retest the shift

D. Adjust the clutch pedal free play and retest the second gear shift

14. A customer's manual transmission jumps out of fifth gear (overdrive) on the highway under a steady throttle. The synchronizer and engagement teeth check out. The MOST likely cause is:

A. The clutch dragging slightly at highway cruising speed

B. A low gear lubricant level starving the fifth gear set

C. A weak or broken detent spring failing to hold the shift rail

D. A worn pilot bearing supporting the input shaft tip

15. A technician must replace a press-fit gear on a transmission shaft. The correct procedure is to:

A. Drive the gear off with a hammer and a brass drift punch

B. Heat the gear with a torch and pull it off while expanded

C. Pry the gear off using a large screwdriver against the case

D. Use a press and the proper support fixtures to remove it squarely

16. A vehicle's manual transmission leaks lubricant from the front of the bell housing. After removing the transmission, the technician finds the input shaft seal is hardened and leaking. The BEST repair is to:

A. Apply sealant around the input shaft seal and reinstall it

B. Replace the input shaft seal and inspect the input shaft surface

C. Add a thicker lubricant to compensate for the slow leak

D. Replace the entire input shaft bearing retainer assembly only

17. A transmission produces a noise only in third gear, and the noise is the same whether accelerating or decelerating. The MOST likely cause is:

A. A worn input shaft bearing loaded in every gear range

B. The clutch release bearing riding on the diaphragm fingers

C. Worn third gear teeth or the bearing supporting that gear

D. A worn pilot bearing in the crankshaft end bore

18. A technician is diagnosing a transmission that grinds going into reverse. The vehicle has a non-synchronized reverse gear, and the clutch is confirmed to release fully. The BEST advice for the driver is to:

A. Pause briefly in a forward gear before selecting reverse to stop the gears

B. Press the clutch harder to increase the release travel before reverse

C. Add a thicker gear lubricant to reduce the reverse gear rotation

D. Replace the reverse gear synchronizer to eliminate the grinding

19. A vehicle's shifter feels loose and engagement is vague, but a road test confirms all gears work and the internal components are good. The MOST likely cause is:

A. Worn synchronizer blocking rings on the most-used gears

B. Worn shift linkage bushings or a worn shifter pivot point

C. A low gear lubricant level affecting the shift quality

D. A worn clutch disc changing the engagement point of the clutch

20. A FWD vehicle comes in with a clicking noise during turns that the customer says is getting louder. The technician confirms the CV boots are intact and the noise occurs during both left and right turns. The MOST likely cause is:

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

B. The differential side gears worn and creating excessive backlash

C. A worn front wheel bearing loaded during cornering maneuvers

D. Both outer CV joints worn, clicking during turns in each direction

21. A FWD transaxle whines, and the pitch of the whine follows vehicle speed in every gear. The technician suspects the final drive. To confirm, the BEST approach is to:

A. Listen for the noise to change with engine rpm in a fixed gear

B. Check whether the noise changes only when turning the vehicle

C. Note that the noise tracks road speed regardless of the gear selected

D. Verify the noise stops completely when the clutch pedal is pressed

22. A FWD vehicle vibrates and shudders under hard acceleration but is smooth when coasting. The technician confirms the tires are balanced and the boots are intact. The MOST likely cause is:

A. A worn inner CV (tripod) joint loaded during acceleration

B. A worn outer CV joint clicking only during tight turns

C. A worn front wheel bearing growling under cornering load

D. The final drive ring and pinion with excessive backlash

23. A technician removes a FWD half shaft and notices the inner joint housing is full of metal debris and the grease is contaminated. The boot is torn. The BEST repair is to:

A. Wipe out the joint, add fresh grease, and install a new boot only

B. Reinstall the half shaft and monitor the joint for noise over time

C. Replace only the torn boot and reuse the contaminated grease

D. Replace the half shaft assembly or the damaged inner joint

24. A FWD transaxle's reverse gear grinds while the forward gears shift smoothly, and the clutch is confirmed to fully release. On this unit reverse is not synchronized. The MOST likely cause is:

A. The final drive ring and pinion gears worn beyond limits

B. The reverse idler gear or its non-synchronized engagement

C. The differential side bearings set with excessive preload

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

25. A FWD vehicle's transaxle leaks lubricant at the right axle seal. After replacing the seal twice, it leaks again. The technician should inspect the:

A. Clutch master cylinder for an internal bypass leak

B. Differential cover gasket for a warped sealing surface

C. Axle shaft journal and intermediate shaft bearing for wear

D. Transaxle vent for a blockage causing pressure buildup

26. A FWD half shaft is being reinstalled into the transaxle. The technician must ensure the inner joint's retaining clip seats fully because, if it does not:

A. The outer CV boot will tear during the first sharp turn

B. The differential side bearing preload will be set incorrectly

C. The wheel speed sensor signal will become erratic at speed

D. The inner joint can disengage from the transaxle under load

27. A RWD vehicle has a clunk that occurs when the driver shifts from drive to reverse and again when accelerating from a stop. The technician checks the differential and finds it acceptable, then inspects the drive shaft. The MOST likely cause is:

A. Worn universal joints with excessive play in the bearing caps

B. An out-of-balance drive shaft causing a high-speed shake

C. A failed center support bearing on a one-piece drive shaft

D. A bent drive shaft tube causing a low-speed rhythmic thump

28. A technician is checking a drive shaft for the cause of a vibration. The U-joints are tight and the shaft appears straight, and the vibration increases steadily with vehicle speed. The technician should next check the:

A. Slip yoke for a clunk under hard acceleration loads

B. Pinion seal for evidence of a lubricant leak at the yoke

C. Drive shaft balance and the working angles of the joints

D. Parking brake adjustment and the rear brake drag

29. A two-piece drive shaft has a rumbling noise that increases with vehicle speed, and the technician traces it to the center support bearing. The correct repair is to:

A. Repack the bearing with fresh grease and reuse the rubber mount

B. Replace the center support bearing and its rubber insulator assembly

C. Replace both U-joints and leave the support bearing in service

D. Tighten the support bracket bolts to eliminate the rumble

30. A drive shaft is being reinstalled after a U-joint replacement. To avoid creating a vibration, the technician should:

A. Rotate the shaft 180 degrees from its original installed position

B. Install the heaviest available U-joints for the application

C. Shorten the slip yoke engagement to reduce the rotating mass

D. Reinstall the shaft in the same orientation using the index marks

31. A serviceable U-joint will not accept grease from a grease gun during routine maintenance. This MOST likely indicates:

A. The joint's bearings are seized or rusted and it needs replacement

B. The grease gun coupler does not fit the zerk fitting size

C. The drive shaft must be removed before greasing is possible

D. The joint is already full of grease and requires no service

32. A double-Cardan (CV) joint is used at the transmission end of a drive shaft on a lifted truck. Its purpose is to:

A. Allow the drive shaft to change length during suspension travel

B. Eliminate the need for a center support bearing on the shaft

C. Provide smoother power transfer at the larger drive shaft angle

D. Disconnect the rear axle when the vehicle is in two-wheel drive

33. A RWD vehicle has a howling noise from the rear axle that changes in pitch between acceleration and deceleration. The technician removes the cover and inspects the gears. The MOST likely cause of the load-changing howl is:

A. A worn axle shaft bearing producing a constant growl

B. Worn ring and pinion gears or incorrect backlash and setup

C. A bent axle shaft causing a once-per-revolution wobble

D. A plugged axle vent building internal housing pressure

34. A technician is setting up a new ring and pinion. After establishing pinion depth, the next step in the proper sequence is to:

A. Install the axle shafts and check the wheel bearing preload

B. Replace the pinion seal and torque the companion flange nut

C. Fill the axle with lubricant and road-test the vehicle

D. Set the carrier bearing preload and the ring gear backlash

35. A limited-slip differential chatters during slow tight turns in a parking lot. The technician confirms the correct lubricant grade was used. The MOST likely cause is:

A. The lubricant lacks the required friction modifier additive

B. The ring and pinion backlash is set too tight from a prior service

C. The axle shaft bearings are worn and allow the shafts to move

D. The pinion bearing preload is set higher than the specification

36. A C-clip axle shaft is being removed for service. The technician knows that the shaft is retained by a clip inside the differential. The correct first step is to:

A. Press the wheel bearing off the outer end of the axle shaft

B. Disconnect the parking brake cable from the brake backing plate

C. Remove the differential cover and the differential pinion shaft

D. Remove the brake rotor and disconnect the wheel speed sensor

37. A drive axle assembly was found low on lubricant and the gears are heat-discolored. After replacing the damaged gears, the technician must also:

A. Add extra lubricant above the fill plug to ensure coverage

B. Find and repair the source of the lubricant leak that ran it low

C. Install a thicker lubricant to prevent any future leaks

D. Plug the axle vent to keep the lubricant from escaping again

38. A vehicle's rear axle makes a rumbling noise that is constant with vehicle speed and does not change between acceleration and deceleration. The MOST likely cause is:

A. Worn ring and pinion gears from an incorrect backlash setting

B. Excessive differential side gear backlash creating a clunk

C. A bent axle shaft causing a once-per-revolution vibration

D. A worn axle shaft bearing or wheel bearing in the housing

39. A technician must measure ring and pinion backlash during a differential setup. The correct method is to:

A. Use a feeler gauge between the ring gear and the carrier case

B. Measure the pinion nut torque while rotating the pinion shaft

C. Mount a dial indicator against a ring gear tooth and rock the gear

D. Measure across the ring gear outside diameter with a micrometer

40. A drive axle howls under acceleration but is quiet on deceleration. The contact pattern is centered. The MOST appropriate adjustment is to:

A. Increase backlash by moving the ring gear away from the pinion

B. Decrease backlash by moving the ring gear toward the pinion

C. Increase the pinion bearing preload with a new crush sleeve

D. Replace the carrier bearings to eliminate the gear noise

41. A part-time 4WD truck will shift into 4WD, but the front wheels do not receive power even though the transfer case engages internally. The technician should inspect the:

A. Rear driveshaft U-joints for wear and binding under load

B. Transfer case fluid level and condition for low lubricant

C. Rear differential carrier bearings for excessive wear

D. Front axle disconnect and the locking hubs for engagement

42. A 4WD vehicle's transfer case jumps out of low range while climbing a steep grade under load. The technician suspects an internal fault. The MOST likely cause is:

A. The high-range clutch pack slipping under the added load

B. A worn shift fork, range collar, or weak detent in the case

C. The front axle disconnect failing to stay engaged on grades

D. The rear driveshaft slip yoke binding during suspension travel

43. An AWD vehicle with a viscous coupling provides almost no drive to the rear axle on a slick surface. The technician confirms the center differential is mechanically intact. The MOST likely cause is:

A. The front axle disconnect actuator has failed to engage

B. The transfer case chain has stretched beyond its service limit

C. The viscous coupling fluid has degraded and lost its function

D. The rear differential carrier bearings are worn beyond limits

44. A 4WD truck with automatic locking hubs will not disengage the front hubs when shifting back to 2WD, so the front axle keeps turning. The MOST likely cause is:

A. Dirty, worn, or damaged automatic locking hubs requiring service

B. A failed transfer case shift motor stuck in the 4WD position

C. The rear differential carrier bearings worn beyond their limits

D. A stretched transfer case chain skipping on the sprockets

45. A customer reports that their AWD vehicle developed a vibration and driveline strain after they replaced only one worn tire with a new full-size tire. The MOST likely cause is:

A. The new tire's tread pattern is incompatible with the others

B. The new tire's larger rolling diameter strains the AWD system

C. The wheel alignment was disturbed during the tire replacement

D. The tire pressure monitoring system needs to be reset

46. A transfer case is leaking from the rear output shaft seal area on a 4WD vehicle. The correct repair is to:

A. Add fluid regularly and monitor the leak over time

B. Replace the entire transfer case assembly to be safe

C. Tighten the rear output housing bolts to stop the leak

D. Replace the rear output shaft seal and check the shaft surface

47. A 4WD vehicle binds when turning sharply in 4WD on dry pavement, and the customer is concerned. The technician explains that this is:

A. A sign that the transfer case center differential has failed

B. Caused by low transfer case fluid creating internal binding

C. Normal driveline windup for a part-time system on high-traction surfaces

D. A result of the front hubs being improperly engaged

48. Before road-testing a 4WD vehicle for a transfer case noise, the technician should FIRST:

A. Replace the transfer case chain as a baseline repair

B. Lock the front hubs and leave the vehicle in 4WD permanently

C. Check the transfer case fluid level and condition and verify hub operation

D. Disassemble the transfer case to inspect the internal gears

49. An AWD vehicle needs one replacement tire because of road damage, but the other three have moderate wear. The BEST practice to protect the AWD system is to:

A. Install the one new tire on the damaged corner and drive normally

B. Match all four tires by shaving the new tire or replacing all four

C. Install the new tire on the rear axle and rotate it forward later

D. Use a compact spare on that corner for daily driving permanently

50. A 4WD vehicle's transfer case was just serviced. Before returning it to the customer, the technician should verify the:

A. Engine idle speed and the ignition timing are within specification

B. Brake pad thickness on all four wheels meets the minimum spec

C. Tire rotation pattern matches the manufacturer's maintenance schedule

D. Fluid level, engagement in all ranges, and absence of any leaks

PRACTICE EXAM 15: ANSWER KEY AND EXPLANATIONS

1. A — A disc worn nearly to the rivets has reached the end of its life and slips in high gear under load, so it must be replaced and the flywheel and pressure plate inspected. Cable, hydraulic, or flywheel-only fixes ignore the spent disc. Replacing the disc and checking the mating parts is the correct repair.
2. C — A flywheel with excessive runout must be resurfaced if it remains within thickness limits, or replaced if it does not. Installing over runout or shimming it leaves a vibrating, chattering surface. Machining within limits or replacing restores a true surface.
3. B — Zero free play keeps the release bearing pressed against the diaphragm fingers, partially releasing the clutch and causing it to slip even with a new disc. The clamp load is never fully applied. Restoring proper free play eliminates the slip.
4. D — A bearing noise that appears only when the clutch pedal is pressed points to a faulty or poorly installed release bearing, which is loaded only during disengagement. A pilot bearing makes noise in gear with the pedal down. The pedal-pressed condition isolates the release bearing.
5. A — Engine rpm rising under load without a matching gain in vehicle speed confirms the clutch is slipping and not transmitting full torque. The disc cannot hold against the load. This road-test result is the definitive slip indicator.
6. A — Oil cannot be cleaned out of clutch friction material, so a disc contaminated by the input shaft seal leak must be replaced after the seal is fixed. Cleaning, sanding, or burning off the oil leaves the disc compromised. Replacing the disc is the only reliable repair.
7. B — A spongy, inconsistent hydraulic clutch pedal with a full reservoir and no leaks indicates trapped air, which bleeding removes. Air compresses and softens the pedal. Bleeding the system restores firm, consistent engagement.
8. D — A self-adjusting clutch installed without locking the adjuster has an incorrect clamp load, leading to slipping or poor operation once driven. The adjuster must be set before installation. Failing to reset it produces improper clutch function.
9. C — Whine present in first through fourth but absent in the separately driven fifth gear comes from the countershaft or its bearings used only by the lower gears. Fifth bypasses that path, so the noise stops. The lower-gear-only pattern isolates the countershaft.
10. A — With the third gear teeth and synchronizer confirmed good, a gear that pops out next points to the shift fork, detent spring, or detent ball failing to hold the rail. These let the gear walk out under coast load. Inspecting the fork and detent is the next step.
11. D — Hard shifting into all gears, with the clutch releasing and fluid correct, points to worn or binding shift linkage or internal shift components. Bearings, speedometer gears, or case cracks would not cause all-gear hard shifting. The shift mechanism is the remaining cause.
12. B — A growl present in neutral with the clutch engaged and in all gears, stopping when the pedal is pressed, comes from the input shaft bearing, which turns whenever the clutch is engaged. Depressing the pedal stops the shaft and the noise. The condition isolates the input bearing.
13. A — A worn second-gear synchronizer is confirmed by road-testing and noting clash on quick shifts into second, since rushed shifts expose the inability to match speed fast enough. Slow shifts still work. The quick-shift clash points to the synchronizer.

14. C — With synchronizer and engagement teeth good, an overdrive that jumps out under steady throttle has a weak or broken detent spring that cannot hold the shift rail. The rail walks out at speed. The detent spring is the remaining cause.
15. D — A press-fit gear is removed with a press and proper support fixtures so it comes off squarely without damaging the shaft or gear. Hammering, torching, or prying risks damage. The press with correct support is the proper method.
16. B — A hardened, leaking input shaft seal at the front of the bell housing is replaced, and the input shaft surface is inspected for grooves that could ruin the new seal. Sealant, thicker fluid, or replacing the whole retainer are improper. Replacing the seal and checking the shaft is correct.
17. C — Noise confined to third gear that is the same on acceleration and deceleration comes from the third gear teeth or its supporting bearing. Input, release, or pilot bearings would not single out one gear. The single-gear noise isolates third gear components.
18. A — On a non-synchronized reverse that grinds with the clutch releasing, pausing briefly in a forward gear stops the gears before selecting reverse. This lets the gears stop without a synchronizer. The forward-gear pause is the correct technique.
19. B — A loose, vague shifter with confirmed good internals points to worn shift linkage bushings or a worn shifter pivot. The looseness is external to the gearbox. Replacing the worn linkage parts restores precise engagement.
20. D — Clicking during turns in both directions means both outer CV joints are worn, since each loads most in the opposite turn. A single joint would click in only one direction. Bilateral clicking indicates both outer joints.
21. C — Final drive noise is confirmed when the whine tracks road speed regardless of the gear selected, since the final drive turns with vehicle speed. Engine-rpm or turn-related changes point elsewhere. The road-speed correlation confirms the final drive.
22. A — Shudder under hard acceleration that smooths on coasting, with balanced tires and intact boots, points to a worn inner CV (tripod) joint loaded by driving torque. Outer joints click in turns and wheel bearings growl. The acceleration shudder isolates the inner joint.
23. D — An inner joint full of metal debris with contaminated grease and a torn boot is damaged beyond cleaning, so the half shaft or damaged inner joint must be replaced. Reboot-and-grease only applies to an undamaged joint. Replacing the failed joint is the correct repair.
24. B — Reverse grind with smooth forward gears and the clutch releasing, on a non-synchronized reverse, points to the reverse idler gear or its engagement. Final drive and side bearing faults would affect forward operation. The reverse idler is the cause.
25. C — A repeatedly failing axle seal points to a worn or grooved axle shaft journal or a bad intermediate shaft bearing letting the shaft move and destroy each seal. The master cylinder, cover gasket, and vent are unrelated. Inspecting the journal and bearing finds the cause.
26. D — If the inner joint retaining clip is not fully seated, the half shaft is not locked into the transaxle and the inner joint can disengage under load. Proper seating retains the shaft. An unseated clip is a retention failure.
27. A — A clunk on the drive-to-reverse change and on launch, with the differential acceptable, comes from worn universal joints with play in the bearing caps. The lash takes up audibly as torque loads and reverses. The worn U-joints cause the clunk.
28. C — With the U-joints tight and the shaft straight, a vibration that builds with speed calls for checking drive shaft balance and the joint working angles. These speed-related factors remain. Inspecting balance and angles is the next step.

29. B — A center support bearing traced as the source of a speed-related rumble is replaced as a complete bearing and rubber insulator assembly. The deteriorated mount cannot be reused. Replacing the unit restores proper support.
30. D — A drive shaft must be reinstalled in its original orientation using the index marks to preserve factory balance and phasing. Rotating it or shortening yoke engagement introduces vibration. Reinstalling as marked prevents the vibration.
31. A — A serviceable U-joint that will not take grease has seized or rusted bearings and needs replacement. A healthy joint accepts grease readily. The refusal to grease signals internal failure.
32. C — A double-Cardan joint provides smoother power transfer at the larger drive shaft angle created by a lift, acting as a constant-velocity unit. It does not change length, replace a support bearing, or disconnect drive. Smoothness at the steep angle is its purpose.
33. B — A rear axle howl that changes pitch between acceleration and deceleration comes from worn ring and pinion gears or an incorrect setup, since drive and coast load opposite tooth faces. Bearings, bent shafts, or vents present differently. The load-changing howl points to the ring and pinion.
34. D — After pinion depth is established, the proper sequence is to set the carrier bearing preload and the ring gear backlash. These follow depth in the setup order. Axle, seal, or fill steps come later.
35. A — A limited-slip differential that chatters in slow turns despite the correct lubricant grade is missing the required friction modifier additive, so the clutch packs grab. The modifier allows smooth slip. Adding it eliminates the cornering chatter.
36. C — A C-clip axle is freed by first removing the differential cover and the differential pinion shaft to access the clip, then pushing the axle inward. The clip sits inside the carrier. Removing the cover and pinion shaft is the correct first step.
37. B — After replacing gears damaged by running low, the technician must find and repair the lubricant leak that caused the low level, or the new gears will fail too. Overfilling, thicker oil, or plugging the vent do not address the leak. Fixing the leak prevents recurrence.
38. D — A rumble constant with vehicle speed that does not change with acceleration or deceleration comes from a worn axle shaft or wheel bearing. Ring and pinion noise changes between drive and coast. The steady, load-independent rumble points to a bearing.
39. C — Backlash is measured by mounting a dial indicator against a ring gear tooth and rocking the gear while the pinion is held. This reads the play between the ring and pinion. The dial indicator at the tooth is the correct method.
40. A — A howl on acceleration (drive side) with a centered pattern is reduced by increasing backlash, moving the ring gear away from the pinion. Drive-side noise responds to added backlash. Increasing backlash addresses the acceleration howl.
41. D — When the transfer case engages internally but no power reaches the front wheels, the front axle disconnect or locking hubs are not engaging. These complete the front drive path. Inspecting the disconnect and hubs locates the fault.
42. B — A transfer case that jumps out of low range under load has a worn shift fork, range collar, or weak detent that cannot hold engagement. Clutch packs, axle disconnects, or slip yokes present differently. The worn range components cause the slipout.
43. C — With the center differential intact, an AWD system delivering little rear drive has a viscous coupling whose fluid has degraded and lost function. The coupling provides the torque transfer. Degraded fluid is the cause.

44. A — Automatic locking hubs that engage but will not release, leaving the front axle turning in 2WD, are dirty, worn, or damaged and need service. The hubs control wheel-to-shaft coupling. Servicing the hubs restores disengagement.
45. B — Replacing only one tire with a larger new tire creates a rolling-diameter mismatch that strains the AWD system, producing vibration and driveline stress. Tread pattern, alignment, or the monitoring system are not the cause. The diameter mismatch is the problem.
46. D — A rear output seal leak is repaired by replacing the seal and checking the shaft surface for damage that could ruin a new seal. Adding fluid, replacing the whole case, or tightening bolts do not fix the seal. Replacing the seal and inspecting the shaft is correct.
47. C — Binding when turning in 4WD on dry pavement is normal driveline windup for a part-time system on high-traction surfaces, not a failure. Such systems lack a center differential to absorb the speed difference. Explaining the normal windup answers the customer.
48. C — Diagnosis of a transfer case noise begins by checking the fluid level and condition and verifying hub operation before any road test or teardown. These checks often reveal the cause. They are the correct first step.
49. B — Protecting the AWD system when one tire is replaced requires matching all four by shaving the new tire to equal diameter or replacing all four. A single mismatched tire strains the coupling. Equalizing the diameters preserves the system.
50. D — Before returning a serviced transfer case, the technician verifies the fluid level, proper engagement in all ranges, and the absence of leaks. Engine timing, brake pads, and rotation schedule are outside this service. Confirming fluid, engagement, and leaks completes the job.