PRACTICE EXAM 8: ASE A3 SIMULATION (50 QUESTIONS)

50 Questions · 60-Minute Time Limit

1. A vehicle pulls a heavy trailer and the clutch overheats and glazes repeatedly even though the disc and pressure plate are correct for the vehicle. Technician A says the driver may be slipping the clutch excessively during launches. Technician B says an upgraded heavy-duty clutch may be needed for the load. Who is correct?

A. Technician A only

B. Technician B only

C. Neither Technician A nor Technician B

D. Both Technician A and Technician B

2. A clutch master cylinder is being bench-bled before installation. The MOST important reason for bench-bleeding is to:

A. Verify the pushrod length is adjusted to specification

B. Remove trapped air so the system bleeds easily afterward

C. Confirm the reservoir cap vents properly during operation

D. Check the bore for scoring before mounting the cylinder

3. A self-adjusting clutch (SAC) pressure plate is being installed. Failure to properly compress and lock the adjuster mechanism before installation will MOST likely cause:

A. The release bearing to seize against the input shaft sleeve

B. The flywheel to warp from uneven bolt torque during seating

C. Incorrect clamp load and improper clutch operation after install

D. The pilot bearing to spin in its bore and overheat quickly

4. A clutch engages harshly and the vehicle lurches at takeoff. The disc, flywheel, and pressure plate are new and correct. Technician A says broken or collapsed engine and transmission mounts can cause this. Technician B says it is always a defective new clutch disc. 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

5. During clutch service, the technician finds the flywheel friction surface is heat-checked and has hard spots. The MOST appropriate action is to:

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

B. Install the new clutch disc directly onto the existing surface

C. Sand the hard spots lightly by hand and reuse the flywheel

D. Apply friction compound to the surface to fill the checks

6. A hydraulic clutch will not fully disengage, the system holds pressure, and there are no external leaks. After confirming proper fluid and no air, the MOST likely remaining cause is:

A. A weak pressure plate diaphragm spring reducing clamp load

B. A worn release bearing dragging on the diaphragm fingers

C. Contaminated disc facings causing the clutch to grab early

D. A worn or swollen master or slave cylinder seal limiting travel

7. A pilot bearing is being installed. Technician A says the bearing or bushing should be installed to the proper depth so the input shaft tip seats correctly. Technician B says the pilot bearing should be packed with coolant before installation. 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

8. A clutch was just replaced, and now there is a chirping or squealing noise that changes when the clutch pedal is partially depressed. The MOST likely cause is:

A. The new clutch disc facings are still in their break-in period

B. The release bearing or pilot bearing was not lubricated or is faulty

C. The flywheel bolts were over-torqued during the installation

D. The transmission fluid level dropped during the clutch service

9. A five-speed manual transmission has a first gear ratio of 3.50:1 and the drive axle ratio is 4.10:1. What is the overall (final) drive ratio in first gear?

A. 7.60:1 combining the two ratios by addition

B. 0.85:1 dividing the axle ratio by the gear ratio

C. 1.17:1 dividing the gear ratio by the axle ratio

D. 14.35:1 multiplying the gear ratio by the axle ratio

10. A manual transmission in fifth gear has an overdrive ratio of 0.80:1. With the engine turning 2,000 rpm in fifth, the transmission output shaft turns:

A. 1,600 rpm because the output turns slower than the input

B. 2,000 rpm because overdrive keeps the speeds equal

C. 2,500 rpm because the output turns faster than the input

D. 4,000 rpm because overdrive doubles the output speed

11. Technician A says a manual transmission's reverse gear is commonly not synchronized, so the vehicle should be fully stopped before selecting reverse. Technician B says reverse gears never use a synchronizer on any modern vehicle. 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

12. A transmission makes a rattling noise at idle in neutral with the clutch engaged that disappears when the clutch pedal is pressed. The vehicle has a solid-mass flywheel. The MOST likely cause is:

A. A worn output shaft bearing in the tailshaft housing

B. Gear rattle from worn gears, or a clutch disc with weak damper springs

C. A worn pilot bearing supporting the input shaft tip

D. A worn release bearing contacting the pressure plate fingers

13. During a rebuild, the technician must set the correct end play of the main shaft. This is typically adjusted using:

A. A collapsible crush sleeve behind the front bearing

B. The shift fork position relative to the synchronizer

C. Selective shims or snap rings of varying thickness

D. The torque applied to the bearing retainer bolts

14. A transmission whines in fourth and fifth gears but is quiet in the lower gears. Technician A says the higher gears load the shafts and bearings differently and can reveal a worn bearing. Technician B says this proves the synchronizers for the lower gears are all worn out. 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

15. A manual transmission consistently grinds going into every gear, but only when the engine is running. With the engine off, all gears select smoothly. The MOST likely cause is:

A. Worn synchronizers across every gear in the transmission

B. Incorrect gear lubricant viscosity affecting all the gears

C. A bent shift fork dragging on the synchronizer sleeves

D. The clutch is not fully disengaging to stop the input shaft

16. A transmission has a lubricant leak that only appears after highway driving, not during city driving. The MOST likely cause is:

A. A cracked case that opens only under heavy torque loads

B. An overfilled case or a plugged vent expanding fluid when hot

C. A worn input shaft seal that leaks only at low engine speeds

D. A loose drain plug that backs out only at higher road speeds

17. A vehicle owner reports the shifter is hard to move into gear and a notchy feel developed gradually. The clutch operates correctly. After checking the lubricant, the MOST likely cause is:

A. A worn clutch release bearing dragging on the fingers

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

C. Worn synchronizers or worn shift linkage components

D. The output shaft bearing has failed in the tailshaft housing

18. A transmission's fifth gear (overdrive) is the only gear that whines, and the whine tracks vehicle speed. Technician A says worn fifth gear teeth or the fifth gear bearing fits this pattern. Technician B says it must be the final drive because it tracks vehicle speed. 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

19. The proper sequence for diagnosing a manual transmission noise complaint should begin by:

A. Disassembling the transmission to inspect all the bearings

B. Replacing the gear lubricant with a higher-viscosity fluid

C. Adjusting the shift linkage to the factory specification

D. Verifying the noise, fluid level, and condition before teardown

20. A FWD transaxle final drive has a ratio of 3.94:1. If the engine is in a gear with a 1.00:1 ratio at 2,500 rpm, the front axle shafts turn approximately:

A. 2,500 rpm because the direct gear passes speed straight through

B. 635 rpm because the final drive reduces the output speed

C. 9,850 rpm because the ratios multiply the engine speed

D. 1,250 rpm because the final drive halves the input speed

21. A FWD vehicle has a vibration felt in the floor and seat that increases with vehicle speed and is present in a straight line. After verifying tire balance, Technician A says a defective or out-of-round half shaft or

worn inner joint could cause it. Technician B says only the transaxle final drive could be responsible. 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

22. When pressing a new outer CV joint onto a half shaft, the technician must ensure the:

A. Joint is filled with gear oil rather than CV joint grease

B. Boot clamps are left loose to allow the joint to breathe

C. Retaining circlip seats fully in its groove on the shaft

D. Joint is installed at a steep angle to test articulation

23. A transaxle differential makes a noise that changes between acceleration and deceleration and tracks vehicle speed. The MOST likely cause is:

A. A worn input shaft bearing loaded only under engine power

B. Worn or improperly set final drive ring and pinion gears

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

D. A worn release bearing riding on the pressure plate fingers

24. A FWD vehicle clunks during acceleration from a stop and again when lifting off the throttle, and the CV joints and engine mounts check out. The MOST likely cause is:

A. A worn outer CV joint clicking during the cornering load

B. A worn release bearing contacting the diaphragm fingers

C. The clutch disc facings worn near their service limit

D. Excessive backlash in the transaxle differential gears

25. A transaxle is being refilled after service. Using a lubricant that does not meet the manufacturer's specification can MOST likely cause:

A. Synchronizer and gear damage or poor cold-shift quality

B. The clutch hydraulic system to lose pressure over time

C. The CV joint boots to crack from internal pressure buildup

D. The differential side bearings to lose their preload setting

26. A FWD vehicle produces a rhythmic clicking that occurs only during left-hand turns, and all CV boots are intact. This MOST likely indicates:

A. A worn left inner tripod joint loaded during hard acceleration

B. A worn left front wheel bearing growling under cornering load

C. A worn right (outboard side) outer CV joint loaded in left turns

D. The differential side gear backlash being out of specification

27. A RWD vehicle has a vibration that is most noticeable during acceleration and changes with engine torque, not just road speed. The U-joints and balance check out. The MOST likely cause is:

A. An out-of-balance drive shaft creating a constant high-speed shake

B. A bent drive shaft tube producing a steady low-speed thump

C. A worn center support bearing rumbling at all road speeds

D. Incorrect drive shaft working angles changing under load

28. Technician A says a worn slip yoke can be detected by excessive radial movement when the yoke is wiggled on the output shaft. Technician B says worn slip yoke splines can cause a clunk on acceleration. 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

29. A two-piece drive shaft uses a center support bearing. When replacing the bearing, the technician should:

A. Mark the shaft halves before separating to maintain phasing

B. Discard the rubber insulator and install the bearing dry

C. Replace only the bearing and reuse the old slip yoke seal

D. Set the U-joint angles to the maximum allowable specification

30. A clunk occurs from the driveline when the transmission is shifted between gears and during throttle changes. The differential and U-joints are good. The MOST likely cause is:

A. An out-of-balance drive shaft vibrating at highway speed

B. A worn pilot bearing supporting the transmission input shaft

C. Worn slip yoke splines allowing fore-and-aft movement under torque

D. A failed center support bearing rubber mount sagging the shaft

31. The phasing of a drive shaft refers to the:

A. Number of degrees each U-joint can articulate before binding

B. Alignment of the two yokes on the shaft in the same plane

C. Total length the slip yoke can extend during suspension travel

D. Balance weight position welded onto the drive shaft tube

32. A drive shaft that was reinstalled out of phase after a repair will MOST likely:

A. Leak lubricant from the transmission output shaft seal

B. Prevent the transmission from shifting into the higher gears

C. Cause the parking brake to fail to hold on an incline

D. Produce a vibration that worsens as vehicle speed increases

33. A drive axle with a 3.73:1 ratio is being identified. The ring gear has 41 teeth. How many teeth does the pinion gear have (rounded to the nearest whole tooth)?

A. 11 teeth, because 41 divided by 3.73 equals about 11

B. 15 teeth, because 41 divided by 2.73 equals about 15

C. 38 teeth, because 41 minus 3.73 rounds to about 38

D. 153 teeth, because 41 multiplied by 3.73 equals about 153

34. After setting up a ring and pinion, the gear tooth contact pattern is centered on the drive side but sits toward the heel on the coast side. Technician A says the pattern should be evaluated on both the drive and coast sides. Technician B says only the drive side matters for setup. Who is correct?

A. Technician B only

B. Both Technician A and Technician B

C. Technician A only

D. Neither Technician A nor Technician B

35. A limited-slip differential is being bench-tested. With one wheel held, the other should require a measurable amount of torque to rotate. If both wheels spin with no resistance, this indicates:

A. The differential is functioning normally as an open unit

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

C. The pinion bearing preload exceeds the specification limit

D. Worn or failed limited-slip clutch packs or cones

36. A drive axle whines under light acceleration but is quiet on coast and at steady cruise. After confirming the pattern is centered, the MOST appropriate adjustment is to:

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

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

C. Increase pinion bearing preload with a thinner crush sleeve

D. Replace the carrier bearings to eliminate the gear noise

37. A C-clip axle shaft has excessive end play and a clunk during acceleration. Technician A says worn differential side gears or thrust washers can allow this. Technician B says the C-clip itself sets the axle bearing preload. 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

38. A vehicle's differential has been making noise, and metal flakes are found in the lubricant during a drain. The MOST appropriate next step is to:

A. Refill with fresh lubricant and return the vehicle to service

B. Add a friction modifier additive to quiet the gear noise

C. Disassemble and inspect the ring, pinion, and bearings for damage

D. Tighten the differential cover bolts and recheck for leaks

39. The function of the differential side gears is to:

A. Mesh with the ring gear to provide final gear reduction

B. Connect the axle shafts to the differential power flow

C. Set the pinion bearing preload during axle assembly

D. Retain the axle shafts using internal C-clip grooves

40. A drive axle housing vent (breather) is plugged with mud. The MOST likely result is:

A. The ring and pinion backlash will gradually increase over time

B. The axle shafts will lose their C-clip retention under load

C. The differential gears will lose lubrication and overheat quickly

D. Internal pressure buildup that forces lubricant past the axle seals

41. A part-time 4WD truck operates fine in 2WD but will not engage 4WD; the shift lever moves and the transfer case shifts internally, but no power reaches the front wheels. The MOST likely cause is:

A. The rear driveshaft U-joints are worn and binding under load

B. The transfer case is low on fluid, preventing internal engagement

C. The front axle disconnect or locking hubs are not engaging

D. The center differential has seized and locked the front output

42. An AWD vehicle with an electronically controlled clutch-pack coupling shows a stored fault for the coupling but operates normally on dry roads. Technician A says the system may apply torque only when slip is detected, so a fault can exist without an obvious dry-road symptom. Technician B says any coupling fault always prevents the vehicle from moving. 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

43. A transfer case chain shows significant stretch and the sprocket teeth are hooked. The correct service is to:

A. Adjust the chain tensioner to remove the slack and reuse it

B. Replace only the chain and reuse the existing sprockets

C. Add heavier fluid to quiet the chain noise during operation

D. Replace the chain and both sprockets as a matched set

44. A 4WD vehicle's front axle vacuum disconnect engages slowly or intermittently. Technician A says a cracked vacuum hose or weak actuator can cause this. Technician B says a leaking vacuum reservoir or check valve can also be responsible. 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

45. A full-time 4WD system with a lockable center differential is operated with the center differential locked on dry pavement. The MOST likely result is:

A. Improved fuel economy from the reduced driveline slippage

B. No effect because the center differential should always be locked

C. Driveline windup and binding similar to a part-time system

D. The front hubs will automatically disengage to prevent damage

46. A 4WD vehicle exhibits a vibration that appears only in four-wheel drive and tracks vehicle speed, smoothing out completely in two-wheel drive. The MOST likely cause is:

A. A worn front driveshaft U-joint or out-of-balance front shaft

B. A worn rear differential pinion bearing loaded at all times

C. A slipping clutch disc under light highway acceleration loads

D. Worn rear axle shaft bearings producing a speed-related growl

47. The MOST likely consequence of using a tire with a significantly different rolling diameter on one corner of an AWD vehicle is:

A. The ABS system will permanently disable to protect the brakes

B. Continuous strain and accelerated wear on the AWD coupling or differential

C. The engine computer will reduce power to that wheel only

D. Improved off-road traction from the larger contact patch

48. A transfer case is being filled after a chain replacement. Using the wrong fluid type in the transfer case can MOST likely cause:

A. The front locking hubs to seize in the engaged position

B. The rear driveshaft U-joints to wear out prematurely

C. The center differential gears to strip under light loads

D. Improper lubrication, clutch chatter, or shift problems

49. A 4WD vehicle makes a loud popping or banging from the front when turning sharply in 4WD on a high-traction surface. Technician A says this is driveline windup releasing and is normal on dry pavement. Technician B says it always means the front differential gears are broken. Who is correct?

A. Both Technician A and Technician B

B. Technician B only

C. Technician A only

D. Neither Technician A nor Technician B

50. Before returning a 4WD vehicle to the customer after transfer case service, the technician should:

A. Leave the vehicle locked in four-wheel-drive low range permanently

B. Remove the front driveshaft to prevent any driveline binding

C. Verify proper engagement in all ranges and check for leaks

D. Disconnect the vacuum disconnect to simplify the system

PRACTICE EXAM 8: ANSWER KEY AND EXPLANATIONS

1. D — Excessive clutch slipping during launches generates heat that glazes the friction surfaces, so Technician A is right, and a load beyond the standard clutch's capacity calls for a heavy-duty unit, so Technician B is right. Both the driver's technique and the application demand contribute. Both technicians are correct.
2. B — Bench-bleeding the master cylinder removes air trapped in its bore before installation, so the assembled system bleeds out far more easily. Air at the cylinder is the hardest to purge once installed. Pre-removing it streamlines the final bleed.
3. C — A self-adjusting clutch must have its adjuster compressed and locked before installation; if it is not reset, the clamp load is wrong and the clutch operates improperly. The adjuster sets working position. Failing to reset it produces incorrect engagement.
4. A — Broken or collapsed engine and transmission mounts let the drivetrain shift under torque, causing a harsh lurch at takeoff even with a new clutch, so Technician A is right. A new clutch is not "always" the cause, so Technician B is wrong. Only A is right.
5. A — A heat-checked flywheel with hard spots should be resurfaced if it remains within thickness limits, or replaced if it cannot be cleaned up or is too thin. Installing a new disc on a damaged surface causes chatter and early failure. Machining or replacing restores a proper friction surface.
6. D — With fluid correct and no air or external leaks, a clutch that will not fully disengage points to a worn or swollen master or slave cylinder seal that limits hydraulic travel. A weak spring causes slip and a worn bearing causes noise, not failure to release. The internal seal restricts the release stroke.
7. A — The pilot bearing or bushing must be installed to the correct depth so the input shaft tip seats and is supported properly, so Technician A is right. Packing it with coolant is incorrect, so Technician B is wrong. Only A is right.
8. B — A chirp or squeal that changes as the pedal is partially depressed points to a release or pilot bearing that was not lubricated or is faulty, since pedal position changes their loading. Disc break-in, flywheel bolt torque, or fluid level would not produce this pedal-linked noise. The bearings are the source.
9. D — Overall drive ratio is the transmission gear ratio multiplied by the axle ratio: 3.50 × 4.10 = 14.35:1. Ratios in series multiply, not add. This combined reduction sets the torque multiplication in first gear.
10. C — With a 0.80:1 overdrive ratio the output turns faster than the input: 2,000 rpm ÷ 0.80 = 2,500 rpm. Overdrive ratios below 1-to-1 step the output speed up. The output shaft spins faster than the engine.
11. A — Reverse is commonly a non-synchronized sliding gear, so the vehicle should be stopped before engaging it, making Technician A right. Some modern transmissions do synchronize reverse, so Technician B's absolute claim is wrong. Only A is right.
12. B — Idle rattle in neutral with the clutch engaged that quiets when the pedal is pressed is gear rattle from worn gears or a clutch disc with weak damper springs; depressing the clutch removes the engine pulses driving the rattle. Pilot and release bearing noises occur with the pedal down, the opposite condition. The disc damper or gear rattle is the source.

13. C — Main shaft end play is set with selective shims or snap rings of varying thickness chosen to bring play within specification. Crush sleeves set pinion preload, not shaft end play. The selective shim or snap ring controls end play.
14. A — Higher gears load the shafts and bearings differently and can bring out a worn bearing that is quiet under lighter low-gear loads, so Technician A is right. High-gear whine does not indicate worn low-gear synchronizers, so Technician B is wrong. Only A is right.
15. D — Grinding into every gear only with the engine running, with smooth selection when off, means the clutch is not fully disengaging to stop the input shaft. Worn synchronizers, fluid, or a bent fork would affect engine-off shifting too. The running-only pattern isolates clutch drag.
16. B — A leak appearing only after highway driving points to an overfilled case or a plugged vent, since heat expands the lubricant and forces it out when pressure cannot relieve. City driving stays cooler and does not trigger it. The heat-related leak points to overfill or a blocked vent.
17. C — A gradually developing notchy, hard shift with a properly operating clutch and correct fluid points to worn synchronizers or worn shift linkage components. Release and pilot bearing or output bearing faults present as noise, not shift feel. Worn synchronizers or linkage cause the notchy engagement.
18. A — Noise confined to fifth gear that tracks vehicle speed comes from the fifth gear teeth or its bearing, so Technician A is right. The final drive would make noise in every gear, so Technician B's reasoning fails despite the speed correlation. Only A is right.
19. D — Manual transmission noise diagnosis begins by verifying the noise, then checking fluid level and condition before any teardown. These basic steps often reveal the cause and guide the next move. Verifying first avoids unnecessary disassembly.
20. B — With a 1.00:1 gear and a 3.94:1 final drive, the axle shafts turn $2{,}500 \div 3.94 \approx 635$ rpm, since the final drive reduces output speed. The reduction divides the input speed. The axles turn slower than the engine.
21. A — A defective or out-of-round half shaft or a worn inner joint can create a speed-related straight-line vibration once tires are ruled out, so Technician A is right. The final drive is not the only possible source, so Technician B is wrong. Only A is right.
22. C — When installing an outer CV joint, the retaining circlip must seat fully in its groove so the joint is locked onto the shaft. Filling with gear oil, loose clamps, or a steep test angle are incorrect. Proper circlip seating secures the joint.
23. B — A transaxle differential noise that changes between acceleration and deceleration and tracks vehicle speed comes from worn or improperly set final drive ring and pinion gears, which load oppositely on drive and coast. Input bearings, clutch drag, or release bearings do not track road speed this way. The ring and pinion are the source.
24. D — With CV joints and engine mounts verified, a clunk on both acceleration and throttle lift-off comes from excessive backlash in the transaxle differential gears taking up as torque reverses. Outer joints click in turns, and clutch or release bearing faults present differently. The differential backlash causes the clunk.
25. A — A lubricant that does not meet specification can damage synchronizers and gears and produce poor cold-shift quality, since the fluid's friction and viscosity properties are matched to the unit. It does not affect the separate clutch hydraulics or CV boots. Wrong lubricant harms the synchronizers and gears.
26. C — A click only during left-hand turns loads the joint on the outside of the turn, which is the right outer CV joint, identifying it as worn. The outside wheel carries more weight and steers at a steeper angle in that direction. The right outer joint is the source.

27. D — A vibration that worsens with acceleration and changes with engine torque, after balance and U-joints check out, points to incorrect drive shaft working angles that shift under load. Balance and bent-tube faults tie to speed, not torque. The load-sensitive angle change is the cause.
28. B — Excessive radial movement when wiggling the slip yoke reveals spline wear, so Technician A is right, and worn slip yoke splines produce a clunk on acceleration, so Technician B is right. Both the test method and the symptom are valid. Both technicians are correct.
29. A — When replacing a center support bearing, the shaft halves should be marked before separating so they reassemble in phase and retain balance. Phasing preserves smooth operation. Marking prevents an out-of-phase, vibrating reassembly.
30. C — A clunk during gear shifts and throttle changes, with the differential and U-joints good, comes from worn slip yoke splines allowing fore-and-aft movement under torque. Balance, pilot bearing, or a sagging support mount present differently. The slip yoke splines cause the clunk.
31. B — Drive shaft phasing refers to the two yokes on the shaft being aligned in the same plane so their speed fluctuations cancel. It is not about articulation degrees, slip length, or weight placement. Yoke alignment in one plane defines phasing.
32. D — A drive shaft reinstalled out of phase produces a vibration that worsens as vehicle speed rises, because the yoke speed fluctuations no longer cancel. It does not cause seal leaks, shift problems, or parking brake failure. The out-of-phase condition creates a speed-related vibration.
33. A — Pinion tooth count equals ring gear teeth divided by the ratio: $41 \div 3.73 \approx 11$ teeth. The ratio relates the two tooth counts. An 11-tooth pinion with a 41-tooth ring gear produces the 3.73:1 ratio.
34. C — Gear tooth contact pattern should be read on both the drive and coast sides to confirm a correct setup, so Technician A is right. The coast side cannot be ignored, so Technician B is wrong. Only A is right.
35. D — In a limited-slip bench test, holding one wheel should require measurable torque to turn the other; if both spin freely, the clutch packs or cones are worn or failed and no longer bias torque. A normal open unit is not the design here. The lack of resistance indicates failed limited-slip elements.
36. B — A drive-side whine under light acceleration, with the pattern centered, is reduced by increasing backlash, moving the ring gear away from the pinion. Drive-side gear noise responds to added backlash. Increasing backlash addresses the acceleration whine.
37. A — Worn differential side gears or thrust washers allow excessive C-clip axle end play and a clunk under acceleration, so Technician A is right. The C-clip retains the axle but does not set bearing preload, so Technician B is wrong. Only A is right.
38. C — Metal flakes in the lubricant combined with noise indicate internal damage requiring disassembly and inspection of the ring, pinion, and bearings. Refilling, adding additive, or tightening bolts leaves the damage unaddressed. Teardown and inspection is the correct next step.
39. B — The differential side gears are splined to the axle shafts and connect them to the differential's power flow, receiving drive from the spider gears. The ring gear provides reduction and the case carries the gears. The side gears link the axles into the differential.
40. D — A plugged axle vent traps expanding hot air and builds internal pressure that forces lubricant past the axle seals. The vent normally relieves this pressure. A blocked breather leads to seal leakage.
41. C — When the transfer case shifts internally but no power reaches the front wheels, the front axle disconnect or locking hubs are not engaging to complete the front drive path. A part-time system has no center differential, ruling that out. The front engagement components are at fault.

42. A — An electronically controlled coupling may apply torque only when slip is sensed, so a stored fault can exist without a dry-road symptom, making Technician A right. A coupling fault does not always immobilize the vehicle, so Technician B is wrong. Only A is right.
43. D — A stretched chain with hooked sprocket teeth requires replacing the chain and both sprockets as a matched set, since worn sprockets quickly ruin a new chain. Adjusting, replacing the chain alone, or adding fluid does not fix the worn sprockets. Replacing them together restores proper drive.
44. B — A cracked vacuum hose or weak actuator can cause slow or intermittent front disconnect engagement, so Technician A is right, and a leaking reservoir or check valve can do the same, so Technician B is right. Both vacuum-system faults apply. Both technicians are correct.
45. C — Locking the center differential on dry pavement removes the front-to-rear speed allowance, producing windup and binding just like a part-time system. It does not improve economy or trigger hub release. Locked on pavement, the system binds.
46. A — A vibration present only in four-wheel drive and tracking vehicle speed comes from the front driveshaft, which turns only in 4WD; a worn U-joint or out-of-balance front shaft fits. Components active in both modes would also vibrate in 2WD. The 4WD-only pattern isolates the front driveshaft.
47. B — A tire of significantly different rolling diameter on an AWD vehicle forces the coupling or differential to absorb a constant speed difference, causing continuous strain and accelerated wear. It does not disable ABS, cut power to one wheel, or improve traction. The mismatch overworks the AWD device.
48. D — The wrong transfer case fluid disrupts lubrication and the engineered friction properties, leading to improper lubrication, clutch chatter, or shift problems. It does not seize hubs, wear U-joints, or strip gears directly. Incorrect fluid causes lubrication and engagement faults.
49. C — A pop or bang when turning sharply in 4WD on a high-traction surface is driveline windup releasing, which is normal on dry pavement, so Technician A is right. It does not always mean broken gears, so Technician B is wrong. Only A is right.
50. C — Before returning a serviced 4WD vehicle, the technician should verify proper engagement in all ranges and check for leaks to confirm the repair. Leaving it locked in low range, removing the driveshaft, or disabling the disconnect are improper. Verifying operation and checking for leaks completes the job.