PRACTICE EXAM 20: ASE A2 SIMULATION (50 QUESTIONS)

1. A vehicle with a six-speed automatic transmission is brought in by a second owner who states: "The transmission was rebuilt 8,000 miles ago by another shop. It shifted fine for the first 5,000 miles, but now 4th gear has started slipping under heavy throttle. It's getting worse each week." The technician reviews the previous shop's repair order and finds that only the forward clutch pack was replaced during the "rebuild" — no other internal components were serviced. What is the MOST LIKELY explanation for the 4th gear failure 5,000 miles after the repair?

A. The forward clutch replacement was performed incorrectly and the error is now manifesting as a 4th gear-specific failure mode

B. The transmission fluid used by the previous shop was the wrong specification and has degraded the 4th gear clutch friction material

C. The 4th gear clutch was already worn at the time of the partial repair and has now deteriorated to the point of slipping under load

D. The forward clutch replacement altered the internal pressure balance and is now starving the 4th gear clutch of adequate apply pressure

2. A customer brings a vehicle to the shop and reports three distinct symptoms: (1) a 2-second delayed engagement from Park to Drive every morning, (2) a soft 1-2 upshift at all times, and (3) a harsh 3-4 upshift at all times. The technician performs a line pressure test: idle = 48 psi (spec 55-75), stall = 130 psi (spec 150-180). Both readings are below specification. Which of the three symptoms is MOST LIKELY caused by the low system pressure, and which symptoms require separate investigation?

A. The delayed engagement is caused by low pressure, but the soft 1-2 and harsh 3-4 are separate circuit-specific faults

B. The soft 1-2 is caused by low pressure, but the delayed engagement and harsh 3-4 are separate mechanical faults

C. All three symptoms are caused by the low system pressure and will resolve once the pressure regulation is corrected

D. The delayed engagement and soft 1-2 are both caused by low pressure, but the harsh 3-4 is a separate circuit-specific fault

3. A vehicle's automatic transmission has been diagnosed with the following combination of faults: (1) P0741 — TCC System Stuck Off, (2) the 2nd gear band slips under heavy throttle, and (3) the forward clutch engagement into Drive is harsh. The technician suspects three separate component failures. However, an experienced senior technician suggests checking ONE thing first that could explain ALL three symptoms. What single root cause could produce all three symptoms simultaneously?

A. A worn oil pump that produces marginally low pressure — insufficient for TCC lockup and 2nd gear holding, while the harsh engagement results from the module's adaptive high-pressure compensation

B. A faulty TCC solenoid that cross-feeds pressure to the wrong circuits, simultaneously preventing TCC engagement, reducing 2nd gear pressure, and increasing forward clutch pressure

C. A contaminated transmission fluid batch that has degraded friction modifier chemistry affecting TCC grip, band friction coefficient, and clutch engagement smoothness differently

D. A failed transmission control module that is sending incorrect pressure commands to all three circuits simultaneously from a corrupted calibration table

4. Technician A says that when a customer complains "the transmission slips," the technician should first verify what the customer means — because customers use "slip" to describe delayed engagements, soft shifts, flares during upshifts, engine RPM surges, and TCC shudder, all of which have different causes. Technician B says that the technician should immediately perform a pressure test and stall test to establish a baseline before road-testing, because these objective measurements prevent the technician from being misled by subjective descriptions. Who is correct?

A. Technician A only

B. Technician A is more correct — verifying the customer's description through a road test should precede any bench testing

C. Technician B only

D. Both technicians make valid points, but Technician A's approach should come FIRST in the diagnostic sequence

5. A vehicle equipped with an eight-speed automatic transmission has been to four different shops for the same complaint over the past year. The repair history shows: Shop 1 replaced the fluid (no improvement), Shop 2 replaced the valve body (no improvement), Shop 3 replaced the TCM (no improvement), Shop 4 replaced the torque converter (no improvement). The symptom persists: a vibration at exactly 1,800 RPM during light-throttle cruise that disappears when the TCC is commanded OFF. Given that all major transmission components have been replaced, what should the CURRENT technician investigate?

A. The replacement torque converter for a manufacturing defect since the vibration persists with the new converter installed

B. The transmission for an internal hard-part failure that was not addressed by any of the four previous component replacements

C. The input conditions to the TCM — throttle position sensor, engine performance, and CAN bus data — for an engine-side issue transmitted through TCC lockup

D. The engine mounts for a failure that transmits engine vibration through the rigid TCC mechanical coupling at 1,800 RPM

6. A technician is evaluating a vehicle where the customer states: "The transmission works fine — I just want a fluid change." During the routine pan drop, the technician finds the following: the fluid is dark brown with a slight burnt odor, the pan magnet has a heavy accumulation of metallic debris including several visible metal flakes, and two small pieces of friction material are found in the pan. The fluid level was correct and the customer reports no shift complaints. What is the technician's ethical and professional obligation?

A. Inform the customer of the findings, explain the significance of the debris, recommend further evaluation, and document everything — even though the customer only requested a fluid change

B. Complete the fluid change as requested without alarming the customer, since the transmission currently shifts normally and the debris may be from normal wear

C. Refuse to perform the fluid change and insist on a complete overhaul, since the debris confirms the transmission is on the verge of catastrophic failure

D. Complete the fluid change and add a note to the repair order recommending a follow-up inspection in 5,000 miles to monitor debris accumulation

7. A vehicle with a rear-wheel-drive automatic transmission has the following combined symptoms: a speed-dependent vibration between 35 and 45 mph, a clicking noise during tight turns, and a slight clunk when transitioning from acceleration to deceleration. The technician suspects three separate causes. However, all three symptoms could have a SINGLE root cause. Which single component failure could produce all three symptoms?

A. A worn torque converter with bearing damage, internal debris, and a degraded TCC friction surface producing different symptoms at different operating conditions

B. A failed transmission mount that changes the driveshaft angle (vibration), loads the differential abnormally during turns (clicking), and allows drivetrain lash during torque reversal (clunk)

C. A worn driveshaft or U-joint assembly that vibrates at a specific speed range, clicks during the angular change of turns, and clunks during the torque direction change

D. A worn output shaft bearing that vibrates at specific speeds, loads differently during turns, and shifts axially during torque reversal to produce the clunk

8. A technician performs a road test and documents the following shift behavior: 1-2 at 15 mph (spec 18), 2-3 at 24 mph (spec 28), 3-4 at 33 mph (spec 38), 4-5 at 42 mph (spec 48), 5-6 at 51 mph (spec 58). Every upshift occurs approximately 5-7 mph BELOW specification at light throttle. All shifts are smooth and correctly timed in terms of quality. What single sensor fault would cause ALL upshifts to occur at uniformly lower speeds than specification?

A. A throttle position sensor reading lower than actual, causing the module to command earlier upshifts for perceived light-throttle fuel economy

B. An engine MAP sensor reading lower than actual, causing the module to underestimate engine load and command earlier upshifts for economy

C. A vehicle speed sensor reading lower than actual, causing the module to delay upshifts until it perceives the vehicle has reached the correct speed

D. An output speed sensor reading HIGHER than actual, causing the module to believe the vehicle has reached each shift speed 5-7 mph before it actually has

9. A vehicle's transmission has the following test results: normal pressure in all ranges, normal stall speed, smooth shifts in all gears, TCC locks correctly, fluid is clean and at correct level. The scan tool

shows all adaptive values near factory baseline. The customer's only complaint is: "It doesn't feel as peppy as my friend's identical vehicle." Both vehicles are the same year, model, engine, and transmission. What should the technician recommend?

A. A transmission fluid exchange with a performance-oriented ATF that provides faster shift response and improved acceleration feel

B. The customer's perception may be accurate — identical vehicles can feel different due to tire pressure, engine tune, or individual unit variation

C. An engine performance evaluation since all transmission parameters test within specification and the perceived difference is in acceleration feel

D. A stall test comparison between the two vehicles to determine if one torque converter has a different stall speed than the other

10. Technician A says that the MOST important diagnostic principle when evaluating a transmission complaint is to verify the customer's description through a thorough road test before performing any testing. Technician B says that reviewing the vehicle's DTC history, freeze frame data, and adaptive learning values before the road test provides context that makes the road test more focused and efficient. Who is correct?

A. Both technicians describe valid approaches, and the ideal diagnostic sequence combines BOTH — scan tool review first, then a focused road test

B. Technician A only — the road test must always come before any electronic data review to prevent scan tool data from biasing the technician's observations

C. Technician B only — scan tool data is more objective than road test observations and should always take priority over subjective driving evaluation

D. Neither — the correct first step is always a visual inspection of fluid level, condition, and external components before any road testing or scanning

11. A vehicle stores DTC P0730 — Incorrect Gear Ratio — intermittently. The technician has performed extensive testing: all speed sensors test within specification, all pressure readings are normal, and the transmission shifts correctly during every road test attempt. The code has set 8 times over 3,000

miles but the technician has never been able to reproduce the fault. Which diagnostic strategy would be MOST effective for identifying this elusive intermittent fault?

A. Replace both speed sensors preventively since intermittent ratio codes that cannot be reproduced always originate from sensor signal anomalies

B. Perform a complete transmission overhaul since 8 ratio codes over 3,000 miles confirms progressive internal mechanical deterioration

C. Install a continuous data logger to record speed sensor PIDs, calculated ratios, and other parameters over the customer's normal driving cycles for several weeks

D. Check the CAN bus network for intermittent communication faults that could corrupt the speed data the module uses for ratio calculation

12. A vehicle equipped with a ten-speed automatic transmission has the following scan tool data during steady 70 mph cruise in 10th gear with TCC ON: Engine RPM = 1,650, Input Speed = 1,650, Output Speed = 2,465. The technician calculates: 1,650 ÷ 2,465 = 0.669:1. The manufacturer specifies 10th gear as 0.636:1. The calculated ratio of 0.669 is approximately 5% higher than specification. What is the MOST LIKELY cause of this consistent 5% ratio offset?

A. The 10th gear clutch is slipping 5%, producing a ratio that is slightly higher than the mechanical specification due to input shaft over-speed

B. The engine RPM sensor reads approximately 5% high, inflating the numerator of the ratio calculation across all gear calculations equally

C. The transmission is physically in 10th gear but the internal gear mesh has worn enough to change the mechanical ratio by 5% from specification

D. One speed sensor has a calibration offset — likely the output sensor reading approximately 5% low — that produces a consistent ratio calculation error

13. A vehicle has DTCs P0751 (Shift Solenoid A Performance/Stuck Off), P0756 (Shift Solenoid B Performance/Stuck Off), and P0761 (Shift Solenoid C Performance/Stuck Off) — all three stored simultaneously. All three solenoids test within resistance specification at the case connector. What single root cause would MOST LIKELY trigger all three performance codes simultaneously while the solenoids test electrically normal?

A. A severely restricted filter or failed pump producing system-wide low pressure that prevents all three solenoid-controlled valves from producing their intended shift results

B. A failed TCM with a corrupted shift table that commands incorrect solenoid patterns for every gear, triggering performance codes on all three circuits

C. A contaminated valve body where varnish or debris has simultaneously stuck all three shift valves in their bores despite the solenoids producing adequate force

D. An internal wiring harness fault at a single splice point that intermittently disrupts signal delivery to all three solenoids during driving conditions

14. A technician monitors scan tool data on a vehicle during a WOT acceleration test. The data shows the following during the 3-4 upshift: the engine RPM drops from 5,800 to 4,200 (the expected RPM for 4th gear at this speed). However, 0.3 seconds after the shift completes, the RPM briefly rises 200 RPM above the 4,200 baseline before settling back. What does this post-shift RPM bump indicate?

A. A normal torque management recovery where the engine briefly over-produces torque as the management system restores full output after the shift

B. A momentary 4th gear clutch slip that occurs 0.3 seconds after the shift completes, as the clutch transitions from initial engagement to full clamping

C. An engine misfire that occurs at the specific RPM and load of the post-shift recovery point, producing a brief torque surge that raises RPM

D. An adaptive learning error where the module releases torque management too quickly after the shift, producing a brief torque surge before correcting

15. A vehicle has the following three codes stored simultaneously: P0715 (Input Speed Sensor Circuit), P0720 (Output Speed Sensor Circuit), and P0562 (System Voltage Low). The battery was tested and found to have a dead cell producing only 10.2 volts. What is the relationship between the low voltage and the speed sensor codes?

A. The low voltage prevents the magnetic pulse generator sensors from producing adequate signal amplitude for the module to detect rotational speed

B. The dead battery cell has nothing to do with the sensor codes — both speed sensors have failed independently and coincidentally during the low-voltage event

C. The low system voltage has reduced the TCM's processing capability, causing it to misinterpret normal sensor signals as circuit faults

D. The sensors need a minimum system voltage to produce an accurate output, and the low voltage condition is responsible for all three codes simultaneously

16. A technician reviews a vehicle's complete diagnostic data and identifies the following pattern: the 2-3 clutch adaptive value has increased from +5% to +28% over the past 15,000 miles, while all other clutch adaptations have remained stable at +5% to +8%. The technician also notes that the transmission fluid temperature has gradually increased from a baseline of 185°F to a current stabilization of 205°F during the same 15,000-mile period. What is the connection between the rising 2-3 adaptation and the rising fluid temperature?

A. The increasing 2-3 clutch adaptation is generating more heat from the progressively worn clutch slipping longer during each shift, raising the overall fluid temperature

B. The rising fluid temperature is degrading the 2-3 clutch friction modifiers faster than other circuits, causing the 2-3 clutch to require more pressure compensation

C. The rising temperature has softened the 2-3 accumulator seal, causing the module to compensate with higher pressure that generates additional heat in a feedback loop

D. The two trends are unrelated — the adaptation increase is from 2-3 clutch wear, and the temperature increase is from a gradually degrading cooler thermostat

17. A vehicle equipped with a CVT has the following simultaneous codes: P0868 (Fluid Pressure Low), P0746 (PCS-A Performance/Stuck Off), and P0841 (Fluid Pressure Sensor Circuit Range/Performance). The technician connects a mechanical gauge: pressure reads 380 psi (specification: 450 psi for the current condition). The internal pressure sensor reads 180 psi on the scan tool. What do these combined findings indicate?

A. The pump is producing adequate pressure and the PCS-A is functioning, but the internal sensor reads 200 psi lower than actual, producing all three false codes

B. The pump is genuinely producing low pressure (380 vs. 450 spec), and the sensor is also reading low, suggesting two separate faults in the system

C. The PCS-A has failed, preventing the system from reaching the commanded 450 psi target, and the sensor is reading the actual reduced pressure correctly

D. The mechanical gauge confirms low pressure, the internal sensor confirms even lower pressure, and the PCS-A code was triggered by the low pressure affecting solenoid operation

18. A vehicle has been diagnosed with TCC shudder. The technician performs a fluid service with the manufacturer's specified fluid. After 200 miles, the shudder is reduced by approximately 50% but has not fully resolved. The technician performs a SECOND fluid exchange to further dilute any remaining old fluid. After an additional 300 miles, the shudder is reduced by another 25% but still persists at a low level. What should the technician recommend NEXT?

A. A third fluid exchange to achieve maximum dilution of the remaining contaminated fluid trapped in the converter and cooler passages

B. Allow the fresh fluid's friction modifiers 1,000 more miles to condition the TCC friction surface before recommending further action

C. An aftermarket friction modifier additive specifically designed to enhance TCC engagement characteristics in applications with marginal friction surfaces

D. A control module reflash to update the TCC engagement strategy to a less aggressive calibration that tolerates the reduced friction coefficient

19. A technician monitors scan tool data and observes the following during steady 55 mph cruise: Engine RPM = 1,900, Input Speed = 1,900 (TCC locked), Output Speed = 1,425, Commanded Gear = 5th. The technician calculates the ratio: 1,900 ÷ 1,425 = 1.333:1. The manufacturer specifies 5th gear as 1.000:1 (direct drive). The transmission shifts and drives normally with no slip or DTCs. What is the correct interpretation?

A. The transmission is not in 5th gear — the 1.333:1 ratio corresponds to a different gear, and the module's commanded gear display is inaccurate or misleading

B. The output speed sensor has a 25% calibration error that produces the false 1.333 ratio while the transmission is genuinely in direct-drive 5th gear

C. The 5th gear specification of 1.000:1 in the service manual is incorrect for this specific vehicle variant, and 1.333:1 is the actual 5th gear ratio

D. The TCC is slipping 33% despite showing zero slip on the TCC PID, which inflates the input speed relative to the output and distorts the ratio calculation

20. A vehicle equipped with a dual-clutch transmission stores DTC P0920 — Gear Shift Forward Actuator Circuit. The scan tool shows the forward gear actuator receiving the commanded signal but producing zero movement. The technician measures the actuator motor resistance at 4.2 ohms (specification: 3-5 ohms). What should the technician investigate NEXT?

A. The TCM's driver circuit output for adequate voltage and current delivery to the actuator motor during the commanded shift event

B. The actuator motor's mechanical linkage for a binding condition that prevents the motor from producing movement despite receiving correct current

C. The gear synchronizer for a jammed condition that the actuator motor cannot overcome, preventing the gear from engaging mechanically

D. The actuator's power supply and ground circuits for adequate voltage delivery, and the actuator mechanism itself for a mechanical binding condition

21. A vehicle has the following three complaints reported simultaneously by the customer: (1) the cruise control disengages randomly during highway driving, (2) the speedometer needle occasionally jumps erratically, and (3) the transmission occasionally produces a harsh downshift during deceleration. The technician notes that all three symptoms involve vehicle speed information. What single component failure would MOST LIKELY produce all three symptoms?

A. An intermittent output speed sensor or its circuit that produces signal dropouts affecting the speedometer, cruise control speed reference, and shift timing calculations

B. A failing TCM that intermittently corrupts the vehicle speed data it broadcasts on the CAN bus to the instrument cluster, cruise module, and shift logic

C. A worn transmission range sensor that produces intermittent signal noise affecting speed calculation, cruise engagement logic, and downshift timing

D. An unstable CAN bus connection that intermittently drops the vehicle speed message, affecting all three systems that depend on this shared data

22. A technician is performing a comprehensive pre-purchase inspection on a used vehicle for a customer. The transmission shifts smoothly in all gears, the fluid is clean and at the correct level, and no DTCs are stored. However, the scan tool shows the following adaptive values: 1-2 = +32%, 2-3 = +28%, 3-4 = +35%, 4-5 = +30%, 5-6 = +27%, TCC = +22%. What should the technician advise the prospective buyer about the transmission's condition based on these adaptation values?

A. The adaptations are within normal range for a high-mileage vehicle and indicate the transmission has been well-maintained throughout its service life

B. The uniformly high positive adaptations indicate all clutch packs have significant wear and the transmission may need a major service or overhaul in the near future

C. The adaptations are meaningless without knowing the vehicle's mileage, and the technician cannot make any assessment from these values alone

D. The high TCC adaptation confirms the torque converter has failed and must be replaced before the vehicle is purchased

23. A vehicle's transmission has been professionally diagnosed with a worn 3rd gear direct clutch. The customer asks the technician: "How much longer can I drive before the transmission fails completely?" The 3rd gear currently slips only under WOT acceleration — light and moderate throttle operation in 3rd gear is normal, and all other gears function perfectly. What is the MOST honest and accurate answer?

A. The transmission will fail within 500 miles because a slipping clutch generates heat that cascades into accelerating failure of all internal components

B. The customer can drive indefinitely by simply avoiding WOT acceleration, since the clutch holds at light and moderate throttle without generating additional wear

C. The technician should refuse to estimate a timeline because driving with a known slipping clutch voids any warranty and the shop assumes liability for further damage

D. The timeline is unpredictable — a slipping clutch generates progressive heat damage that can remain stable for weeks or escalate rapidly, and the customer should plan for repair soon

24. A vehicle equipped with a hybrid automatic transmission has been brought in for reduced fuel economy. The scan tool shows the regenerative braking system captures only 40% of the energy it did when the vehicle was new. The hybrid battery SOC is maintained at 55% during normal driving. The conventional friction brakes show normal wear. What is the MOST LIKELY cause of the reduced regenerative braking effectiveness?

A. The friction brakes are compensating for the reduced regenerative braking by engaging more frequently, which masks the reduced energy recovery

B. The hybrid control module's regenerative braking calibration has drifted over time and requires a software reflash to restore original performance

C. The hybrid battery has degraded, reducing its ability to accept the charging current generated by regenerative braking at the rate it could when new

D. The drive motor's permanent magnets have weakened over the vehicle's mileage, reducing the motor's generating efficiency during deceleration

25. A technician has completed a comprehensive diagnostic evaluation of a vehicle and has determined that the transmission requires a complete overhaul. The customer asks: "Can you guarantee the rebuild will last as long as the original transmission?" What is the MOST professional and accurate response?

A. A properly performed overhaul with quality components and correct procedures should provide reliable service, but no rebuild can be guaranteed to match the original's lifespan due to variables including driving habits, maintenance, and conditions

B. Yes — a professional overhaul with OEM-quality components and a proper break-in period will absolutely match or exceed the original transmission's service life

C. No — rebuilt transmissions never last as long as original equipment because the case, shafts, and other hard parts retain microscopic wear from the first life cycle

D. The technician should avoid discussing longevity expectations and instead focus on the warranty terms that cover the rebuild for a specific mileage or time period

26. A technician is performing a transmission fluid service on a vehicle that has 120,000 miles and no record of a previous fluid service. The fluid is very dark with a burnt odor but the transmission currently

shifts normally. The customer asks: "Will changing the fluid hurt my transmission?" What is the MOST accurate and balanced response?

A. There is a common myth that fluid changes harm high-mileage transmissions, but no documented evidence supports this claim for properly performed services

B. Changing the fluid carries a moderate risk on a high-mileage transmission with dark fluid because the fresh friction modifiers may reveal pre-existing clutch wear

C. The customer should definitely NOT change the fluid because the fresh fluid will wash varnish deposits off the valve body spool valves, causing them to stick

D. The fluid should be changed immediately regardless of risk because contaminated fluid is actively damaging the transmission's internal components every mile driven

27. A vehicle's transmission has the following symptoms: delayed engagement into Drive (2 seconds), no Reverse at all, and all forward gears shift normally once engaged. The technician suspects the low-reverse clutch has failed. However, Forward engagements are also delayed by 2 seconds. Using diagnostic logic, what additional component should the technician investigate that could explain BOTH the delayed forward engagement AND the complete loss of Reverse?

A. The torque converter for a drain-back condition that delays forward engagement and a failed internal component that prevents Reverse torque transfer

B. The transmission range sensor for a misadjustment that delays Drive detection and mispositions the manual valve during Reverse selection

C. The engine idle speed for a condition too low to fill the forward clutch quickly and too weak to overcome the resistance of the Reverse engagement

D. The oil pump for marginal output — low pressure could delay the forward clutch fill time AND prevent the Reverse clutch from developing adequate holding force

28. A customer brings a vehicle in stating: "Another shop told me I need a new transmission, but I want a second opinion." The technician performs a thorough diagnostic evaluation: the transmission slips in 3rd gear under moderate throttle, the fluid is dark but not burnt, and the adaptive value for the 3-4 clutch is at +38%. All other gears function normally. The other shop's repair order recommends a complete transmission replacement at a cost of $5,500. What should the technician recommend?

A. Agree with the other shop's recommendation for a complete replacement since the adaptive value confirms the transmission has reached end of life

B. Recommend a complete overhaul rather than a replacement, since an overhaul addresses the specific internal wear while costing significantly less than replacement

C. Recommend an overhaul with the option to address only the worn 3rd gear clutch if inspection confirms all other components are within specification during teardown

D. Recommend a fluid service and adaptive reset as a first step, since the 3-4 clutch adaptation of +38% may respond to fresh fluid and recalibration

29. A technician discovers during a routine pan inspection that the transmission pan contains a small plastic fragment approximately 1/2 inch long. The fragment appears to be from a connector or clip. The fluid is clean, the shift quality is normal, and no DTCs are stored. What is the MOST appropriate action?

A. Document the finding, photograph the fragment, attempt to identify its source, and inspect accessible connectors and clips for damage before reassembling

B. Disregard the fragment since it is plastic and cannot damage metallic transmission components or affect hydraulic system operation

C. Recommend immediate transmission removal for complete inspection since any foreign object inside the case indicates a compromised internal component

D. Install a fine-mesh inline filter in the cooler return line to capture any additional fragments that may break loose during future operation

30. A customer states: "My transmission shifts perfectly — I just want you to check it because it has 95,000 miles." The technician performs a comprehensive evaluation and finds: shifts are smooth and correctly timed, fluid is at the correct level and appears in good condition, no DTCs are stored, but the adaptive learning values show uniform positive corrections of +20% across all clutch circuits. What should the technician recommend?

A. No action needed — the transmission is performing correctly and the customer should continue driving with confidence until symptoms develop

B. A preventive fluid and filter service using the manufacturer's specified fluid to replace the aging fluid and reset the adaptive values to near baseline

C. Continue monitoring the adaptive values at each service visit, and plan for a rebuild when the values approach the maximum correction limit

D. An immediate overhaul based on the +20% adaptive values, which confirm all clutch packs have worn enough to require replacement

31. A vehicle's automatic transmission has been operating normally for 50,000 miles since an overhaul performed at the technician's shop. The customer returns reporting a new symptom: a faint whine from the transmission that increases with engine RPM and is present in all ranges. The fluid is at the correct level and appears clean. What is the MOST LIKELY cause of this new whine?

A. A torque converter bearing that has worn over the 50,000 miles since the overhaul and is producing noise as it deteriorates

B. An engine accessory that has begun to fail and whose noise is being transmitted through the bell housing, mimicking a transmission whine

C. A worn input shaft bushing or pump bushing in the rebuilt transmission that has developed over the 50,000 miles of post-overhaul service

D. The oil pump gears or bearings wearing over the 50,000 miles since the overhaul, producing a progressive whine proportional to pump speed

32. A technician is performing a transmission range sensor replacement. During the procedure, the technician accidentally drops a small bolt into the open sensor bore. The bolt falls into the transmission case. The technician cannot see or reach the bolt from the sensor opening. What is the ONLY acceptable action?

A. Use a magnetic retrieval tool through the sensor bore to attempt to locate and extract the bolt before proceeding with the sensor installation

B. Leave the bolt inside the case since it will settle to the bottom of the pan and be captured by the pan magnet during the next fluid service

C. Remove the transmission pan and retrieve the bolt from the pan, valve body area, or wherever it has come to rest inside the case before closing anything up

D. Install the sensor and add a note to the repair order advising the customer to have the pan dropped at the next service to retrieve the bolt

33. A customer asks the technician: "What is the single best thing I can do to make my automatic transmission last as long as possible?" The technician considers factors including fluid maintenance, driving habits, cooling system care, and electrical system health. What is the MOST impactful single recommendation?

A. Follow the manufacturer's recommended fluid and filter service intervals using only the specified fluid type, which maintains every internal component simultaneously

B. Install an auxiliary transmission cooler to keep the fluid temperature below 200°F at all times, since heat is the primary cause of transmission failure

C. Avoid aggressive driving habits including hard acceleration, abrupt stops, and towing loads beyond the vehicle's rated capacity

D. Have the transmission scanned annually to monitor adaptive learning values and identify developing wear before it progresses to failure

34. A vehicle is being evaluated for a trade-in at a dealership. The transmission shifts smoothly, the fluid is clean, and no DTCs are stored. However, the technician notices the following scan tool data: adaptive values are all near maximum positive correction (+30% to +38% across all circuits). The vehicle has 145,000 miles. What should the technician's assessment be?

A. The transmission is functioning properly and the high adaptive values are normal for a vehicle with 145,000 miles of accumulated wear

B. The transmission's clutch packs are near the end of their service life despite the currently smooth shift quality, and the vehicle's trade-in value should reflect the likely need for a transmission service or overhaul in the near future

C. The adaptive values are irrelevant to the vehicle's trade-in assessment because they can be reset to baseline at any time to restore the appearance of a healthy transmission

D. The high adaptive values confirm the transmission will fail within the next 5,000 miles, and the vehicle should not be accepted as a trade-in

35. A technician has been asked to evaluate whether a customer's vehicle is suitable for a transmission fluid exchange service. The vehicle has 180,000 miles, no service history, dark fluid with a burnt odor, and occasional harsh shifts. The technician performs a pressure test: all readings are within specification. What is the BEST recommendation?

A. Perform the fluid exchange because the within-specification pressure confirms the internal components can tolerate fresh fluid without adverse effects

B. Refuse the service because the harsh shifts confirm internal damage that a fluid exchange cannot resolve and the customer needs an overhaul instead

C. Perform a partial drain-and-fill (not a full exchange) to minimize the friction modifier change shock while still providing some fluid quality improvement

D. Inform the customer of the risks and benefits, perform the service if the customer consents after understanding the potential outcomes, and document the discussion

36. A technician completes a transmission rebuild and the customer asks: "What should I do differently during the first 500 miles to break in the rebuild?" What break-in instructions are MOST appropriate?

A. Drive normally and avoid sustained heavy loads, WOT acceleration, and towing during the first 500 miles to allow the new friction materials to seat progressively

B. Avoid driving above 45 mph for the first 500 miles to reduce heat generation in the new friction material during the critical initial wear-in period

C. Drive aggressively for the first 100 miles to quickly seat the new friction material, then switch to normal driving for the remaining break-in period

D. No special break-in is required — modern transmission friction materials are pre-conditioned during manufacturing and achieve full performance immediately

37. A customer brings a vehicle with 60,000 miles and a transmission that shifts normally. The customer asks: "Should I have the transmission fluid changed even though there are no problems?" The vehicle's maintenance schedule recommends fluid service at 60,000 miles. What is the BEST response?

A. Yes — preventive fluid service at the manufacturer's recommended interval replaces degraded friction modifiers and worn-out additives before they can cause damage

B. No — if the transmission shifts normally and the fluid appears clean, there is no reason to disturb a system that is functioning correctly at 60,000 miles

C. Yes — but only if the fluid has darkened beyond its original color, which indicates the additives have degraded enough to warrant replacement

D. No — modern synthetic transmission fluids are designed for the life of the vehicle and do not require scheduled replacement under normal driving conditions

38. A technician is performing a transmission overhaul and discovers the following condition: the forward clutch drum has a worn snap ring groove that is 0.008 inches wider than specification. The technician installs a new snap ring in the groove. During the clutch clearance check, the clearance reads 0.020 inches — at the absolute minimum of the 0.020-0.050 specification. The technician is concerned that the worn groove could allow the snap ring to shift under pressure and reduce the effective clearance further. What is the correct action?

A. Accept the assembly because the clutch clearance is within specification and the snap ring is properly seated in the groove

B. Replace the forward clutch drum because the worn groove cannot reliably retain the snap ring under the hydraulic pressure of clutch application

C. Install a thicker snap ring to fill the wider groove and recheck the clearance to ensure it remains within the specification range

D. Add a wave spring behind the snap ring to maintain constant pressure on the ring and prevent it from shifting in the widened groove

39. During a transmission overhaul, a technician discovers that the transmission case has a small porous area on an internal passage wall — not a crack, but a cluster of tiny pinholes visible under magnification

in the casting. ATF is slowly weeping through the porous area when the passage is pressurized during a bench test. What is the correct action?

A. Apply industrial sealant or epoxy to the porous area to seal the pinholes and prevent fluid loss during normal transmission operation

B. Machine the porous area to remove the defective metal and apply a welded patch to restore the passage wall integrity

C. Verify that the porosity does not affect system pressure during actual operation by assembling the transmission and performing a pressure test

D. Replace the transmission case because casting porosity cannot be reliably repaired and will likely worsen under the cyclic pressure loading of normal operation

40. A technician is measuring oil pump clearances during a transmission overhaul. All three measurements — tip, side, and mesh — are within specification. However, the technician notices that the pump housing bore has a slight hourglass shape when measured at the top, middle, and bottom — the middle measurement is 0.001 inches larger than the top and bottom. What does this hourglass wear pattern indicate?

A. The pump gears have worn the center of the bore where the gear tips generate the most hydraulic force against the housing wall

B. A manufacturing defect in the pump housing casting that will produce a premature failure if the pump is returned to service

C. The pump bore has worn where the gear tips create maximum outward force from the pressurized fluid, and the pump may produce reduced efficiency despite within-specification gear clearances

D. Normal wear that does not affect pump performance because the gear clearance measurements already account for bore diameter variation

41. A technician is assembling a clutch pack and notices that one of the friction discs from the rebuild kit has a noticeably different friction material color compared to the other four discs — the material appears lighter and has a different texture. All five discs have the same part number stamped on the steel core. What should the technician do?

A. Verify with the kit supplier that all five discs are the correct specification, since the different appearance may indicate a mixed batch from different production runs or materials

B. Install all five discs regardless of color differences since the part numbers match and visual appearance does not affect friction performance characteristics

C. Install the four matching discs and discard the different disc, substituting it with a disc from the old clutch pack that matches the four new ones visually

D. Return the entire rebuild kit because any inconsistency in friction material indicates a quality control failure that may affect other components in the kit

42. A technician has completed a transmission overhaul and is performing the initial startup and road test. All shifts are smooth and the TCC engages correctly. During the return drive to the shop, the technician notices a very faint ticking noise from the transmission area that was not present during the first half of the road test. The noise is proportional to output shaft speed and is barely audible at highway speed. What should the technician do?

A. Continue driving to determine if the noise stabilizes, worsens, or resolves — some post-rebuild noises are temporary break-in sounds that diminish within the first 50 miles

B. Return to the shop immediately and investigate the noise — any new noise that develops during a post-rebuild road test must be identified before the vehicle is returned to the customer

C. Complete the road test and document the noise, scheduling a follow-up inspection in 500 miles to determine if the noise persists or resolves during the break-in period

D. Check the fluid level immediately since a faint ticking proportional to output speed is the classic symptom of a slightly low fluid level causing pump intake aeration

43. A technician discovers during a transmission overhaul that one of the thrust washers has worn completely through — the bronze material is gone and only the steel backing remains. The steel backing has been riding against the mating component's surface. What additional inspection must the technician perform as a result of this finding?

A. Check the fluid filter for bronze material accumulation that may have restricted pump intake flow before the failure was discovered

B. Inspect the pump housing for debris contamination from the disintegrated thrust washer material circulating through the hydraulic system

C. Verify that the mating component surface where the thrust washer rides is not scored, grooved, or heat-damaged from the steel-to-metal contact

D. Inspect the mating component's thrust surface for scoring, heat damage, or material transfer from the steel backing running without the bronze wear surface

44. A technician performs endplay measurement during transmission reassembly and reads 0.022 inches. The specification is 0.020 to 0.040 inches. The measurement is within specification. However, the technician notices that the dial indicator reading drifts approximately 0.003 inches over a 10-second period after the shaft is pushed to its fully inward position — the reading slowly changes from 0.000 to 0.003. What does this drift indicate?

A. Normal dial indicator behavior caused by the indicator spring slowly relaxing after the shaft is pushed to its stop position

B. The dial indicator is defective and must be replaced before an accurate endplay measurement can be obtained from this assembly

C. A thrust bearing or washer is slowly compressing under the applied force, indicating soft material or a component that has not fully seated in its position

D. The pump-to-case gasket is slowly compressing under the axial load, and the endplay measurement should be taken only after the reading fully stabilizes

45. After installing a rebuilt transmission, performing the initial fill, and starting the engine, the technician immediately checks the fluid level. The dipstick reads at the "ADD" mark — approximately one quart below the "FULL" mark. The technician added exactly the amount of fluid specified by the service manual for an initial fill with a new converter. What should the technician do?

A. Add fluid in half-quart increments while the engine idles, shifting through all ranges between additions, until the level reaches the correct operating mark

B. Immediately shut off the engine because the low level indicates a major leak that must be found and repaired before adding more fluid

C. Drive the vehicle for 10 minutes before adding fluid, since the converter may not be fully charged and the level will drop further before stabilizing

D. Add exactly one quart to bring the level to "FULL" since the initial fill specification accounts for the converter charge and the level should read full immediately

46. A technician completes a transmission rebuild and installation on a vehicle that originally failed due to a 3rd gear direct clutch burnout. During the post-installation road test, all shifts are smooth and the rebuild appears successful. What is the MOST important follow-up instruction for the customer?

A. Return for a fluid and filter check at 500 miles and again at 1,000 miles to inspect for debris from the initial break-in and verify the inline filter condition

B. Return for a follow-up inspection at 500 miles to verify shift quality, check for leaks, inspect the inline cooler filter, and confirm the adaptive values are learning correctly

C. No follow-up is needed if the initial road test confirms all systems are functioning correctly, since modern transmissions do not require a break-in monitoring period

D. Return only if a symptom develops, since unnecessary inspections after a completed rebuild add cost without providing measurable benefit to the rebuild's longevity

47. A technician has rebuilt a transmission and is writing the final repair order documentation. Which of the following documentation elements is MOST critical for both warranty coverage and future diagnostic reference?

A. The total cost of parts and labor broken down by individual component to provide a cost-per-component reference for future comparison

B. The names and part numbers of all aftermarket components used, with a comparison to the OEM equivalents they replaced during the rebuild

C. The technician's name, ASE certification number, and the number of previous rebuilds performed on this specific transmission model for quality assurance

D. The specific parts replaced, the selective component measurements (endplay, clutch clearance, pump clearances), fluid type, solenoid calibration codes, and initial road test results

48. A technician is preparing for the ASE A2 certification exam after completing this 1,000-question study guide. The technician has consistently scored 85-90% on the practice exams. Which final preparation strategy would provide the MOST benefit in the remaining days before the exam?

A. Take additional practice exams from different sources to expose yourself to question styles and scenarios not covered in this study guide

B. Memorize the specific answers to every question missed across all twenty practice exams to ensure those exact topics are not missed again

C. Review the answer explanations for every missed question to understand the diagnostic reasoning behind each correct answer, focusing on the underlying principles rather than memorizing specific facts

D. Study the ASE task list and cross-reference each task against your practice exam performance to identify any task areas not adequately covered by the practice exams

49. A technician reflects on the diagnostic principles reinforced throughout this 1,000-question study guide. Which single diagnostic principle, if consistently applied, would prevent the MOST diagnostic errors in real-world automatic transmission repair?

A. Always verify the customer's complaint through a thorough road test and scan tool data review BEFORE performing any disassembly, component replacement, or invasive testing

B. Always perform a stall test and pressure test before any road test to establish objective baseline measurements that cannot be influenced by subjective observation

C. Always replace the transmission fluid before any diagnostic testing to eliminate fluid condition as a variable and establish a clean starting point for evaluation

D. Always check for TSBs and recall information before performing any diagnostic testing to ensure a known fix is not already available for the reported concern

50. A customer asks: "What makes a great transmission technician?" Based on the knowledge, skills, and diagnostic reasoning demonstrated throughout this study guide, what is the MOST complete and accurate answer?

A. Extensive experience rebuilding transmissions, since hands-on overhaul skills are the foundation that all other diagnostic abilities build upon

B. A combination of systematic diagnostic reasoning, thorough knowledge of hydraulic and electronic systems, disciplined use of service information and scan tools, and the professional integrity to recommend only what the vehicle genuinely needs

C. Advanced scan tool proficiency, since modern automatic transmissions are primarily electronic systems that require electronic diagnostic expertise above all else

D. Continuous training and certification, since transmission technology evolves so rapidly that even experienced technicians must constantly update their knowledge to remain competent

Practice Exam 20: Answer Key and Explanations

1. C — The previous shop replaced only the forward clutch pack and called it a "rebuild." All other internal components — including the 4th gear clutch — retained their original 100,000+ mile wear. The 4th gear clutch was already approaching end of life when the partial repair was performed, and 5,000 additional miles of service pushed it past its remaining capacity. This case illustrates why industry best practice requires a complete overhaul when the transmission is opened — all components share the same mileage and wear trajectory.

2. D — Low system pressure (48 psi idle, 130 psi stall — both below specification) directly causes delayed engagement (insufficient pressure to quickly fill the forward clutch circuit) and soft 1-2 upshift (inadequate clamping force on the 2nd gear apply device). However, low pressure cannot cause a harsh shift — harshness requires excessive or uncontrolled pressure. The harsh 3-4 upshift must have a separate cause: a failed 3-4 accumulator, displaced check ball, or blocked orifice in the 3-4 specific circuit.

3. A — A worn oil pump producing marginally low system pressure can explain all three symptoms through a single root cause. Low pressure prevents the TCC from achieving the clamping force needed for lockup (P0741). Low pressure reduces the 2nd gear band's holding capacity below the threshold needed for heavy-throttle operation (slippage). The module's adaptive system detects the pressure deficiency and increases commanded pressure across all circuits to compensate — but the forward clutch accumulator receives this elevated pressure too quickly, producing harsh Drive engagement.

4. B — Technician A's approach is more correct and should come first. The word "slip" means different things to different customers — it could describe a delayed engagement, a soft shift, an RPM flare, a TCC shudder, or actual clutch slippage. Each has a completely different cause and diagnostic path. If the technician performs a pressure test and stall test before understanding what the customer actually

experiences, the test results may be misinterpreted through the wrong diagnostic lens. The road test verifies and classifies the actual symptom first.

5. D — Four shops replaced the fluid, valve body, TCM, and torque converter without resolving a vibration at 1,800 RPM that disappears with TCC OFF. Every major transmission component has been eliminated. The vibration requires TCC lockup to manifest — meaning it needs the rigid mechanical coupling between the engine and transmission to transmit to the cabin. The vibration likely originates from the engine side (torsional pulse, misfire, or accessory) and is simply transmitted through the locked TCC. With TCC OFF, the fluid coupling absorbs the vibration.

6. A — The technician has a professional and ethical obligation to inform the customer of findings that indicate potential internal damage, even when the customer only requested a routine fluid change. Metal flakes, friction material fragments, and burnt fluid are abnormal findings that the customer needs to know about to make informed decisions about their vehicle. Completing the service without disclosure fails the customer; refusing the service and demanding an overhaul oversteps the technician's role. The correct approach is transparent communication with documentation.

7. C — A worn driveshaft or U-joint assembly can produce all three symptoms from a single component failure. A driveshaft with a worn U-joint vibrates at a specific speed range where its imbalance resonates (35-45 mph vibration). The same worn U-joint binds during the angular change produced during tight turns (clicking). The accumulated play in the worn joint takes up during the torque direction change from acceleration to deceleration (clunk). One component — three symptoms.

8. D — Every upshift occurs uniformly 5-7 mph below specification — not just one or two shifts, but all five upshifts by the same amount. A single sensor that makes the module believe the vehicle is moving faster than it actually is would cause all upshifts to occur at lower actual speeds. An output speed sensor reading approximately 5-7 mph higher than actual makes the module think the vehicle has reached each shift speed threshold before it truly has, commanding every upshift prematurely by the same offset.

9. B — All transmission parameters test within specification — pressure, stall speed, shifts, TCC, fluid, and adaptive values. The transmission is functioning exactly as designed. The customer's perception of "less peppy" compared to a friend's identical vehicle falls outside the scope of measurable transmission performance. The technician should honestly communicate that the transmission tests within all manufacturer specifications and suggest that the perceived difference may be from engine tune variation, tire pressure differences, or normal unit-to-unit manufacturing variation.

10. A — Both approaches are valid and complementary. Reviewing scan tool data first (DTCs, freeze frames, adaptive values) provides context — the technician knows what the module has detected, what conditions existed during fault events, and how the system has adapted. This context makes the subsequent road test more focused and efficient because the technician knows exactly what conditions to reproduce and what parameters to monitor. Combining both approaches in this sequence produces the most thorough diagnostic evaluation.

11. C — An intermittent fault that has occurred 8 times over 3,000 miles but cannot be reproduced during targeted road testing requires continuous monitoring during the customer's normal driving patterns. A data logger records speed sensor PIDs, calculated ratios, and other parameters continuously, capturing the exact data at the moment the fault naturally occurs. This provides objective evidence of what happened — whether the fault was a genuine ratio slip, a sensor signal anomaly, or a CAN bus data corruption — without requiring the technician to be present when the fault occurs.

12. D — The calculated ratio of 0.669:1 is consistently 5% higher than the 10th gear specification of 0.636:1. A consistent percentage offset across all measurements — not a random fluctuation — indicates a systematic measurement error in one of the two speed inputs. If the output speed sensor reads approximately 5% lower than actual, the denominator of the ratio calculation (input ÷ output) is smaller than it should be, producing a ratio that is consistently higher than the true mechanical ratio.

13. A — All three solenoids test within resistance specification at the case connector, confirming the coils are electrically intact. Yet all three set "performance/stuck off" codes — meaning the module commanded the solenoids but the expected shift results did not occur. Since the solenoids are producing adequate electromagnetic force (coils are good), the shift valves downstream must not be responding. A severely restricted filter or failed pump producing system-wide low pressure prevents all three solenoid-controlled valves from generating adequate hydraulic force to move their respective shift valves.

14. B — The shift itself completes normally — the RPM drops to the correct 4th gear value. But 0.3 seconds later, the RPM briefly rises 200 RPM above baseline. This post-shift bump indicates the 4th gear clutch momentarily slips after initial engagement. The clutch engages successfully during the shift transition but cannot maintain full grip under the WOT torque load for approximately 0.3 seconds until adequate clamping pressure builds. This brief post-shift slip is an early warning of 4th gear clutch wear.

15. C — A battery with a dead cell produces only 10.2 volts — well below the 12.6V minimum for normal vehicle operation. At 10.2V, the TCM receives insufficient voltage to power its internal processor, reference voltage circuits, and analog-to-digital converters. The reduced voltage corrupts the module's ability to accurately read and process sensor signals, causing it to interpret normal sensor

outputs as circuit faults. Replacing the battery and clearing codes should resolve all three DTCs if no underlying sensor or wiring faults exist.

16. A — The 2-3 clutch is wearing progressively, which causes the module to increase its adaptive pressure correction from +5% to +28% over 15,000 miles. The worn clutch slips longer during each 2-3 shift than a healthy clutch — this extended slip converts kinetic energy to heat at the clutch surfaces. The cumulative heat from the progressively longer 2-3 slip events raises the overall fluid temperature from the baseline 185°F to 205°F. The rising adaptation and rising temperature are both consequences of the same root cause: progressive 2-3 clutch wear.

17. D — The mechanical gauge reads 380 psi (below the 450 spec), confirming genuinely low pressure. The internal sensor reads only 180 psi — 200 psi lower than the mechanical gauge. Two separate issues are present: the system pressure is genuinely low (380 vs. 450), AND the internal sensor is reading 200 psi lower than actual. The PCS-A performance code was triggered because the module uses the internal sensor reading to evaluate PCS performance — the falsely low 180 psi reading makes the module believe PCS-A is not producing its commanded output.

18. B — Two fluid exchanges progressively reduced the TCC shudder — the first by 50% and the second by another 25%. The improvement confirms the shudder has a friction modifier component — fresh modifiers are improving the TCC engagement. However, residual improvement is still occurring, indicating the new friction modifiers need additional mileage to fully condition the TCC friction surface. Allowing 1,000 more miles of driving gives the modifiers time to penetrate and condition the surface. If shudder persists after this period, converter replacement becomes the next step.

19. C — The scan tool shows the module commanding 5th gear, and the transmission drives normally with no slip or DTCs. However, the calculated ratio of 1.333:1 does not match the 5th gear specification of 1.000:1 (direct drive). In direct drive, the input and output speeds should be equal. The input reads 1,900 while the output reads only 1,425 — a 25% discrepancy. Since the transmission is not slipping (confirmed by smooth operation), the scan tool's commanded gear display may use different nomenclature than the ratio chart, or the transmission is physically in a different gear than the display indicates.

20. D — The actuator motor resistance is within specification (4.2 ohms in the 3-5 range), confirming the motor coil is electrically intact. The scan tool shows the command reaching the actuator, but zero movement occurs. Two possible causes remain: (1) the power supply or ground circuit may not deliver adequate voltage and current to the motor during operation despite the coil being intact, or (2) the actuator mechanism itself may be mechanically bound — a seized gear, jammed linkage, or frozen synchronizer preventing the motor from producing movement.

21. C — All three symptoms depend on vehicle speed information: the speedometer displays vehicle speed, the cruise control maintains a set speed, and the transmission's shift timing uses speed data for downshift calculations. A single component providing vehicle speed data to all three systems — the output speed sensor or its circuit — would produce simultaneous symptoms in all three systems when it fails intermittently. Each signal dropout causes the speedometer to jump, the cruise to disengage, and the shift logic to miscalculate.

22. B — Uniformly high positive adaptations of +28% to +38% across all clutch circuits indicate every clutch pack has required significantly more pressure than the factory baseline to maintain acceptable shift quality. This uniform pattern represents substantial progressive wear across all friction surfaces. While the transmission currently shifts smoothly (because the adaptive system is compensating), the high values indicate the clutch packs are approaching the end of their service life. The buyer should be advised that a major service or overhaul may be needed in the foreseeable future.

23. D — A slipping clutch generates heat at the friction surface during every slip event. This heat damages the friction material, the steel plates, and the fluid in the circuit. The rate of deterioration is unpredictable — it depends on how frequently the driver encounters the WOT condition, the ambient temperature, the cooling system's effectiveness, and the specific clutch's remaining material thickness. The clutch may remain stable at its current marginal level for thousands of miles, or it may cascade rapidly into complete failure. The honest answer is that the timeline is unpredictable and the customer should plan for repair soon.

24. C — The regenerative braking system recovers only 40% of its original energy capture. The battery SOC is maintained at 55% (well below the upper limit), so battery charge capacity is not the limiting factor. The conventional brakes show normal wear. The most likely cause is degraded battery cells that have lost internal capacity — they cannot accept charging current at the rate they could when new, even though the overall SOC reading appears to have room for additional charge. Reduced cell capacity limits the maximum charging rate, which directly limits regenerative braking torque.

25. A — This is the only honest, professional response. A quality overhaul with correct procedures and good components should provide reliable, long-term service. However, no technician can guarantee a specific lifespan because too many variables are beyond the shop's control — the customer's driving habits, maintenance compliance, operating conditions, fluid quality over time, and the inherent variability of remanufactured and aftermarket components. Setting realistic expectations protects both the customer and the shop.

26. B — The most accurate response acknowledges both the real risk and the real benefit. Performing a fluid service on a high-mileage transmission with dark, burnt fluid does carry a moderate risk — the old

fluid's degraded friction modifiers may have developed higher static friction that allows marginally worn clutches to hold. Fresh fluid with correctly formulated modifiers may reveal pre-existing clutch wear that the old fluid was masking. However, NOT changing the fluid allows continued degradation. The customer deserves an honest explanation of both outcomes.

27. D — Both the delayed forward engagement AND the complete loss of Reverse share a common requirement: adequate hydraulic pressure. If the oil pump produces marginally low output, the forward clutch circuit takes longer to fill (delayed engagement), and the reverse clutch may not develop enough clamping force to hold the reverse gear ratio (no Reverse). A single pump deficiency explains both symptoms simultaneously. The low-reverse clutch failure theory explains the Reverse loss but does not account for the forward engagement delay.

28. C — A complete replacement at $5,500 may be excessive if only one clutch pack has failed. A complete overhaul is more cost-effective than replacement and allows the technician to address the specific wear. During teardown, if inspection confirms all other components are within specification, only the worn 3rd gear clutch and other wear items need replacement. If inspection reveals additional wear, the overhaul scope expands accordingly. This approach provides honest, targeted repair based on actual findings rather than a blanket recommendation.

29. A — A plastic fragment inside the transmission case requires investigation, not dismissal. The technician should document and photograph the fragment, attempt to identify its origin (internal connector, retaining clip, sensor housing, or valve body component), and inspect accessible internal connectors and clips for damage. If the fragment's source is identified and the remaining component is intact, the technician can reassemble with confidence. Ignoring foreign material inside a transmission violates basic diagnostic diligence.

30. B — The transmission shifts smoothly and the fluid appears in good condition — positive signs. However, the +20% uniform positive adaptations indicate all clutch packs have worn enough to require 20% more pressure than the factory baseline. The transmission is in the mid-wear stage of its service life. A preventive fluid and filter service replaces the aging fluid's depleted additives and friction modifiers. After the service, resetting the adaptive values allows the module to re-learn from the fresh baseline, potentially revealing whether the current adaptations were partly due to degraded fluid.

31. D — A whine that increases with engine RPM and is present in all ranges — Park, Neutral, Drive, and Reverse — originates from a component that rotates at engine speed in every operating condition. The oil pump is the primary transmission component at the front of the case that rotates at engine RPM continuously. After 50,000 miles of post-overhaul service, the pump gears or bearings have accumulated enough wear to produce audible noise. This is the most common long-term wear item after a rebuild.

32. C — A bolt dropped into the transmission case through the sensor bore cannot be left inside. It will eventually migrate to a location where it can jam a valve, block a passage, wedge between gears, or damage a clutch pack. The only acceptable action is to remove the pan and retrieve the bolt from wherever it has settled — whether in the pan, on top of the valve body, or lodged in a passage. No amount of rationalization justifies leaving a loose bolt inside a transmission.

33. A — Regular fluid and filter service at the manufacturer's recommended interval using only the specified fluid type is the single most impactful maintenance practice. Fresh fluid restores friction modifiers (protecting clutch surfaces), replenishes anti-wear additives (protecting bushings and bearings), maintains anti-oxidation chemistry (preventing varnish and sludge), and provides correct viscosity (ensuring proper hydraulic function). The filter captures wear debris before it can damage valve body components. One service protects every internal component simultaneously.

34. B — The transmission currently shifts smoothly — the adaptive system is successfully compensating for the wear. However, adaptive values of +30% to +38% across all circuits at 145,000 miles indicate substantial clutch wear approaching the adaptive system's maximum correction range. Once the values reach maximum, the module can no longer compensate and shift quality will deteriorate. The trade-in value should reflect the likelihood that a transmission service or overhaul will be needed in the foreseeable future.

35. D — This is a nuanced clinical situation. The within-specification pressure confirms the hydraulic system can still function, but the dark fluid with burnt odor and harsh shifts suggest internal wear. A fluid exchange may improve shift quality or may reveal pre-existing clutch wear masked by the old fluid's degraded friction properties. The technician's obligation is to explain both potential outcomes honestly, allow the customer to make an informed decision, perform the service if the customer consents, and document the entire discussion for both parties' protection.

36. A — New friction materials benefit from a gradual break-in period where the surfaces conform to their mating components under progressively increasing loads. Driving normally while avoiding sustained heavy loads, WOT acceleration, and towing during the first 500 miles allows the new clutch discs, bands, and TCC surface to seat progressively against their mating steel plates and drums. This controlled wear-in produces uniform contact patterns that maximize the friction surface's long-term holding capacity and service life.

37. A — The manufacturer's maintenance schedule recommends fluid service at 60,000 miles for a reason — the fluid's friction modifiers, anti-wear additives, and anti-oxidation compounds degrade over time and mileage regardless of whether symptoms are present. By 60,000 miles, the protective additive package has depleted significantly. Waiting for symptoms to develop means waiting until the degraded

fluid has already begun causing accelerated internal wear. Preventive service at the recommended interval protects the transmission before damage begins.

38. B — A snap ring groove that is 0.008 inches wider than specification cannot reliably retain the snap ring under the significant hydraulic forces of clutch application. During each clutch apply event, hundreds of pounds of hydraulic force push the clutch pack against the snap ring. In a widened groove, the ring can shift axially, tilt, or pop out under this force — potentially releasing the clutch pack. The drum must be replaced to provide a groove with the correct dimensions for reliable snap ring retention.

39. D — Casting porosity — a cluster of interconnected pinholes in the case wall — is a material defect that cannot be reliably sealed. Sealants and epoxy provide temporary surface coverage but cannot fill the interconnected internal voids in the casting. Under the cyclic pressure loading of normal transmission operation (pressurization and depressurization hundreds of times per minute), the porous area will continue to leak or worsen. The case must be replaced because no field repair can restore the structural integrity of porous cast aluminum.

40. C — An hourglass-shaped bore — wider in the middle than at the top and bottom — indicates the pump housing has worn where the gear tips generate maximum outward hydraulic force. The pressurized fluid between the meshing gears pushes the gear tips against the housing wall with significant force, and over time this force erodes the bore at the point of maximum pressure. Even though the gear clearance measurements taken at the widest point are within specification, the out-of-round bore allows the gears to shift position during rotation, reducing sealing efficiency.

41. A — Friction material consistency is critical for uniform clutch engagement characteristics. A disc with noticeably different color and texture — despite having the same part number — may be from a different production batch, a different material supplier, or a mixed batch in the rebuild kit. The technician should verify with the kit supplier that all discs are the correct specification. Installing a mismatched disc risks uneven friction characteristics within the clutch pack, producing inconsistent engagement, accelerated wear on the different disc, or chatter during application.

42. B — A noise that develops during a post-rebuild road test — one that was not present during the first half of the test — must be investigated before the vehicle is returned to the customer. The progressive nature of the noise (appeared during driving, not at startup) suggests a component that is moving, shifting, or wearing as the transmission reaches operating conditions. Possible causes include a thrust washer migrating, a snap ring not fully seated, or a component that shifts under thermal expansion. Returning the vehicle without investigation risks progressive damage.

43. D — A thrust washer that has worn completely through to its steel backing has been running metal-to-metal against its mating component surface. This direct steel-to-steel contact produces scoring, heat damage, and potential material transfer on the mating surface. Even though a new thrust washer will be installed, the mating component's thrust surface must be inspected for damage. A scored or heat-damaged mating surface will rapidly destroy the new thrust washer, creating a repeat failure.

44. C — A dial indicator reading that drifts 0.003 inches over 10 seconds after the shaft is pushed to its stop indicates a component in the thrust stack is slowly compressing under the applied force. A properly seated, rigid thrust stack should produce a stable reading immediately. The drift suggests a thrust bearing or washer that has not fully seated in its position, or a component made of softer material that compresses under sustained load. The technician should investigate and ensure all components are fully seated before accepting the endplay measurement.

45. A — After the initial fill with the specified amount, the pump has been running and distributing fluid to fill the converter, cooler, lines, and internal passages. The "ADD" reading is expected — the pan level dropped as fluid was redistributed throughout the system. The technician should add fluid in half-quart increments while the engine idles, shifting through all ranges between additions to charge each circuit, and continue adding until the level reaches the correct operating mark at the specified fluid temperature.

46. B — A follow-up inspection at 500 miles after a rebuild serves multiple critical purposes: it verifies shift quality has remained consistent, checks for any leaks that may have developed after the initial thermal cycling, inspects the inline cooler filter for debris (which indicates whether residual contamination from the original failure is still releasing), and confirms the adaptive values are learning correctly. This single follow-up visit catches developing issues early — before they progress to failures that compromise the rebuild's longevity.

47. D — Complete documentation of a transmission rebuild must include: every part replaced (with part numbers), all selective component measurements (endplay, clutch clearances, pump clearances), the fluid type and quantity used, solenoid calibration codes entered, and the initial road test results (shift quality, TCC function, temperature, DTCs). This information serves as the warranty baseline, provides critical reference data for any future diagnosis, and protects both the customer and the shop in the event of a warranty claim or dispute.

48. C — Memorizing specific answers does not build diagnostic reasoning. Taking additional practice exams provides diminishing returns at an 85-90% level. The most effective final preparation is reviewing the detailed answer explanations for every missed question — understanding WHY each correct answer is correct and WHY each wrong answer is wrong builds the analytical framework needed

to answer questions the technician has never seen before. The ASE exam tests diagnostic reasoning, not memorized facts.

49. A — Verifying the customer's complaint through a thorough road test and scan tool data review before any invasive testing prevents the single most common diagnostic error: performing the wrong repair because the technician assumed the problem instead of confirming it. Customers describe symptoms imprecisely. "Slip," "shudder," "clunk," and "hesitation" can each describe multiple different faults. The road test transforms the customer's subjective description into the technician's objective observation — ensuring every subsequent diagnostic step targets the actual problem.

50. B — A great transmission technician combines multiple competencies into a cohesive professional practice: systematic diagnostic reasoning that follows evidence rather than assumptions, thorough understanding of both hydraulic and electronic systems and how they interact, disciplined use of service information, scan tools, and pressure testing to make objective decisions, and the professional integrity to recommend only what the vehicle genuinely needs. Technical skill without integrity leads to unnecessary repairs. Integrity without technical skill leads to missed diagnoses. Excellence requires both.