PRACTICE EXAM 14: ASE A2 SIMULATION (50 QUESTIONS)

1. A vehicle with a six-speed automatic transmission has been brought in because the customer noticed that the transmission "hesitates" momentarily during the 3-4 upshift when climbing a long moderate grade at 55 mph. On flat highway at the same speed, the 3-4 shift is smooth. No other shifts are affected under any condition, and there are no DTCs stored. Which of the following BEST explains why the symptom appears only on the grade?

A. The transmission fluid overheats on the sustained grade, reducing the viscosity enough to delay the 3-4 clutch fill time

B. The increased engine torque load on the grade demands more clutch clamping force, revealing a 4th gear clutch circuit that is marginally weak

C. The output speed sensor signal fluctuates on grades due to the changing vehicle load, confusing the shift timing calculation

D. The engine management system reduces timing advance on grades, which briefly interrupts torque during the shift transition

2. A technician is evaluating a customer complaint of "rough riding" that the customer attributes to the transmission. During the road test, the technician confirms a vibration between 35 and 45 mph that is present in all gears and in Neutral. The vibration disappears above 50 mph and below 30 mph. The technician shifts to Park at a stop and briefly raises engine RPM to the range that corresponds to the 35-45 mph driving RPM. No vibration is felt in Park. What do these combined tests reveal?

A. The vibration is from a transmission internal bearing that loads differently in Park than in driving gears

B. The vibration is from the torque converter, since it unloads in Park and cannot produce the vibration in that range

C. The vibration is engine-related because the RPM range in Park matches the driving RPM at 35-45 mph

D. The vibration is speed-dependent and unrelated to engine RPM — it is from a rotating component downstream of the transmission

3. A vehicle equipped with an automatic transmission has the following complaint: the transmission shifts normally through all gears, but every shift — both upshifts and downshifts — feels noticeably firmer than the customer remembers. The customer purchased the vehicle used two months ago. A scan tool shows adaptive learning values near factory default with minimal correction applied. Line pressure at idle is 78 psi (specification: 55-75 psi). What does the elevated idle pressure indicate?

A. The pressure regulation system is commanding or defaulting to above-normal pressure, which is causing every shift to feel firmer

B. The adaptive system has not yet learned the vehicle's characteristics and will reduce pressure over the next several thousand miles

C. The elevated pressure is within normal range for a vehicle that has recently had its adaptive values reset after a battery disconnect

D. The pump has developed internal wear that creates excessive unregulated pressure at idle but will normalize at higher RPM

4. Technician A says that when a torque converter's stator one-way clutch freewheels in both directions, the converter loses its torque multiplication capability. Technician B says that a freewheeling stator will cause the vehicle to have poor low-speed acceleration but relatively normal highway cruising performance. 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. A vehicle with a rear-wheel-drive automatic transmission has a rhythmic thumping noise at approximately 2 thumps per second while driving at 30 mph. The thumping is present in Drive and

Neutral and persists when the engine is turned off while coasting. The noise disappears when the vehicle slows to 15 mph. The technician calculates that at 30 mph, the driveshaft rotates approximately twice per second. What is the MOST LIKELY noise source?

A. The torque converter with a damaged internal component that produces two impacts per revolution of the converter housing

B. The driveshaft or a U-joint with a fault that produces one impact per revolution, which at 30 mph equals approximately two thumps per second

C. The transmission output shaft bearing with a defect that produces two impacts per revolution at the output shaft speed

D. A rear wheel bearing with a defect that produces multiple impacts per revolution at the specific wheel speed of 30 mph

6. A vehicle's automatic transmission exhibits the following behavior: in Drive, the transmission starts in 2nd gear instead of 1st, then shifts normally from 2nd through 6th. Reverse works perfectly. Manual selection of 1st gear results in a normal 1st gear start. When manual 1st is released, the transmission immediately upshifts to 2nd. There are no DTCs. What is the MOST LIKELY cause?

A. A failed one-way clutch in the 1st gear circuit that freewheels during automatic Drive but holds when the overrun device is applied in manual 1st

B. A stuck 1-2 shift valve that blocks the 1st gear fluid path in automatic mode but is bypassed by the manual low circuit

C. A faulty vehicle speed sensor that reports a false minimum speed to the module, causing it to skip 1st gear in Drive mode

D. A control module calibration error that has deleted 1st gear from the automatic Drive shift schedule but retains it in manual mode

7. A customer states that the vehicle's automatic transmission "shakes the whole car" during the exact moment of the TCC lockup event at approximately 45 mph during light-throttle cruising. Once the TCC is fully locked, the shaking stops and the vehicle cruises smoothly. There are no DTCs. Which of the following BEST describes this symptom?

A. A failed engine mount that cannot absorb the torsional change when the engine transitions from fluid coupling to mechanical lock

B. A worn 4th gear clutch pack that shudders during the simultaneous events of the 3-4 shift and TCC engagement at 45 mph

C. A contaminated friction disc in the TCC clutch pack that chatters during the initial contact before full clamping pressure develops

D. A TCC shudder from degraded friction modifier properties in the transmission fluid or worn TCC friction material in the converter

8. A technician performs a line pressure test on a transmission and records the following: Drive idle = 63 psi (spec 55-75), Drive stall = 162 psi (spec 150-180), Reverse idle = 95 psi (spec 85-110), Reverse stall = 250 psi (spec 220-260). All pressures are within specification. However, the customer reports a soft, slipping 1-2 upshift. What should the technician conclude from the pressure data?

A. The pump is marginally weak and cannot maintain pressure during the brief high-demand period of the 1-2 clutch fill event

B. The EPC solenoid is functioning at the low end of its range, producing adequate static pressure but insufficient dynamic shift pressure

C. The main hydraulic system is producing correct pressure, and the 1-2 slip is caused by a fault in the 1-2 shift-specific circuit

D. The Reverse stall pressure is disproportionately high compared to Drive, indicating a regulator imbalance that affects the 1-2 circuit

9. A vehicle equipped with an automatic transmission produces a whining noise that increases in pitch with engine RPM. The noise is present in Park, Neutral, Drive, and Reverse — all ranges. The noise level does not change when shifting between ranges. A stethoscope placed on the bell housing near the pump area produces the loudest reading. What is the MOST LIKELY source?

A. The oil pump, since the noise tracks engine RPM in all ranges and is loudest at the pump location on the bell housing

B. The torque converter, since it rotates at engine speed in all ranges and the bell housing conducts its internal bearing noise

C. The input shaft, since it spins at engine speed and produces spline noise that radiates through the pump housing to the bell housing

D. A worn pilot bushing in the crankshaft that the converter pilot rides in, producing a whine that increases with crankshaft speed

10. A vehicle with an automatic transmission has the following road test results: 1st gear operates normally under all conditions. 2nd gear slips under moderate and heavy throttle but holds under light throttle. 3rd gear operates normally. 4th gear operates normally. 5th gear slips under all throttle conditions. Using the component application chart, the technician identifies that 2nd and 5th gears share a single common holding device that is not applied in 1st, 3rd, or 4th. What is the MOST LIKELY diagnosis?

A. A system-wide pressure regulation fault that reduces pressure only during the specific RPM ranges used in 2nd and 5th gear

B. The shared holding device has worn friction material that slips under moderate-to-heavy loads in 2nd and fails completely in 5th

C. Two separate clutch pack failures that coincidentally affect 2nd and 5th gears simultaneously from independent wear patterns

D. A shift solenoid fault that produces incorrect pressure in both 2nd and 5th gears due to shared solenoid control logic

11. Technician A says that during a transmission fluid change, the technician should always shift through all gear ranges (P-R-N-D-3-2-1) before checking the fluid level after refill. Technician B says that this procedure circulates fresh fluid through all clutch circuits, the valve body passages, and the servo apply circuits to ensure an accurate level reading. 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

12. A vehicle has DTC P0757 — Shift Solenoid B Performance/Stuck Off — stored intermittently. The transmission operates normally most of the time but occasionally skips 2nd gear, shifting directly from 1st to 3rd. The technician tests Shift Solenoid B resistance at the case connector and finds 13 ohms (specification: 11-16 ohms). What should the technician do NEXT?

A. Perform a bidirectional scan tool test to command Solenoid B ON while monitoring for a pressure change to verify the solenoid moves its shift valve

B. Replace Shift Solenoid B since the intermittent code confirms the solenoid is failing despite the resistance being within specification

C. Replace the valve body assembly because an intermittent "stuck off" code always originates from a mechanically stuck shift valve

D. Clear the code and monitor for recurrence since single intermittent codes do not warrant investigation until they become consistent

13. A technician monitors scan tool live data on a vehicle cruising at 60 mph in 6th gear with TCC ON. The data shows: Engine RPM = 2,000, Input Shaft Speed = 1,970, TCC Slip = 30 RPM. The manufacturer's specification for TCC slip in 6th gear at cruise is 0-20 RPM. The technician notes the TCC slip has been gradually increasing over the past three service visits — from 5 RPM to 15 RPM to the current 30 RPM. What does this progressive increase in TCC slip indicate?

A. Normal TCC operation since the slip values are within the converter's acceptable range and do not require intervention

B. A degrading TCC solenoid that is progressively losing its ability to command maximum apply pressure over time

C. Progressive wear of the TCC friction material that requires gradually more slip to achieve the same torque transfer

D. Declining transmission fluid friction modifier effectiveness that reduces the TCC's ability to achieve full lock over time

14. A vehicle equipped with a ten-speed automatic transmission produces DTC P0733 — Gear 3 Incorrect Ratio. The scan tool freeze frame shows the code was set during a WOT acceleration run. The technician performs a WOT acceleration test and observes that the 2-3 upshift produces a brief 300 RPM flare before 3rd gear catches and holds normally. All other WOT shifts are clean with no flare. What is the diagnostic significance of the flare occurring only at WOT?

A. The WOT flare proves the 3rd gear clutch is completely failed and is only catching due to the adaptive system increasing pressure

B. The one-way clutch associated with the 3rd gear circuit is failing, and the high torque of WOT overcomes its weakened hold

C. The EPC solenoid cannot produce adequate maximum pressure during WOT, causing a system-wide pressure deficit during high-load shifts

D. The 3rd gear clutch holds under light and moderate loads but slips briefly under the maximum torque of WOT before clamping fully

15. A vehicle has DTCs P0715 (Input/Turbine Speed Sensor Circuit) and P0720 (Output Speed Sensor Circuit) stored simultaneously. Both sensors are magnetic pulse generator types located externally on the transmission case. The technician inspects the sensors and finds that both sensor connectors share a common ground wire that connects to a ground bolt on the transmission case. The ground bolt has heavy corrosion. What effect would the corroded ground have on both sensors?

A. The sensors would produce normal signals because magnetic pulse generators do not require a chassis ground to produce voltage

B. The corroded ground creates high resistance in both sensor return circuits, attenuating both signals and causing the module to set codes

C. The corroded ground would affect only the output sensor because the input sensor uses the engine block ground path

D. The ground corrosion would cause both sensors to produce inverted signals that the module interprets as reverse rotation

16. A technician is diagnosing a vehicle where the transmission shifts normally in all gears but the fuel economy has decreased by approximately 3 mpg over the past 10,000 miles. The engine has been

evaluated and found to be performing within specification. The scan tool shows TCC slip at 60 mph cruise in top gear = 65 RPM. The manufacturer's specification for this condition is 0 RPM (full lockup). What is the connection between the TCC slip and the fuel economy decrease?

A. The engine has a performance fault that is causing higher-than-normal converter loading, which prevents the TCC from achieving lockup

B. The fuel economy decrease is not related to the TCC slip — 65 RPM of slip does not produce measurable efficiency loss

C. The TCC slip is a symptom rather than the cause — the actual fuel economy loss is from the transmission operating in the wrong gear ratio

D. 65 RPM of TCC slip represents continuous energy loss through fluid friction in the converter, directly reducing fuel efficiency over every highway mile

17. A vehicle equipped with a CVT has the following customer complaint: during moderate acceleration from a stop, the engine RPM rises smoothly to 4,000 and the vehicle accelerates normally. However, the customer is accustomed to conventional automatic transmissions and is uncomfortable with the high RPM during acceleration. The scan tool shows the CVT ratio changing smoothly from 2.5:1 to 0.85:1 during the acceleration event. Is the CVT operating correctly?

A. No — 4,000 RPM during moderate acceleration is excessive and indicates the CVT belt is slipping on the primary pulley

B. No — the CVT ratio range of 2.5:1 to 0.85:1 is too wide and indicates the pulleys are not clamping the belt at the correct positions

C. Yes — the CVT is holding the engine at an efficient RPM point while varying the ratio continuously, which is normal CVT behavior

D. Yes — but only if the vehicle is equipped with a "simulated shift" mode that creates the RPM steps the customer expects

18. A technician reviews scan tool data on a vehicle with an eight-speed automatic transmission. The adaptive learning data shows: 1-2 clutch = +8%, 2-3 clutch = +10%, 3-4 clutch = +12%, 4-5 clutch = +42%, 5-6 clutch = +9%, 6-7 clutch = +7%, 7-8 clutch = +11%. What does the significantly elevated 4-5 clutch adaptation (+42%) indicate compared to the others?

A. The 4-5 shift solenoid has a higher resistance than specification, requiring the module to command more duty cycle to compensate

B. The 4-5 clutch has worn significantly more than the other clutch packs and the adaptive system is compensating with increased pressure

C. The 4-5 accumulator has failed, causing the module to increase pressure to overcome the sticking accumulator piston during the shift

D. The module's adaptive algorithm inherently weights the 4-5 shift more heavily because it occurs at the highest frequency during driving

19. A vehicle stores DTC P0894 — Transmission Component Slipping — as a current code. The scan tool data shows that during the 5-6 upshift, the input shaft speed does not drop to the expected 6th gear value — it remains at the 5th gear speed for approximately 1.5 seconds before finally dropping. During this 1.5-second delay, the engine RPM increases approximately 200 RPM. What is happening during this delay?

A. The 6th gear clutch is engaging normally but the input speed sensor has a delayed response that takes 1.5 seconds to update

B. The engine is producing a torque surge that prevents the 5-6 shift from completing until the torque management system compensates

C. The 5th gear clutch is failing to release, creating a momentary tie-up that prevents the ratio change until it eventually releases

D. The 6th gear clutch circuit is filling slowly and the clutch is not clamping for 1.5 seconds, allowing the engine to flare before engagement

20. A vehicle equipped with a stop/start system has DTC P0A3F — Generator Control Module — stored in the TCM. The stop/start system is not functioning and the engine runs continuously. The transmission shifts normally in all gears. What is the relationship between the generator control module code and the stop/start system?

A. The stop/start system requires communication with the generator module to manage the restart sequence, and the lost communication disabled stop/start

B. The generator module code is unrelated to the stop/start system — the stop/start failure has a separate root cause in the auxiliary pump circuit

C. The TCM stored the code because the generator overcharged during what should have been a stop/start restart, damaging the TCM's voltage regulator

D. The generator module is responsible for controlling the auxiliary transmission pump, and its failure disabled the pump and therefore stop/start

21. A technician is diagnosing a vehicle with a customer complaint that the cruise control "hunts" — the vehicle speed oscillates between 68 and 72 mph when set at 70 mph. The scan tool shows the transmission shifts between 7th and 8th gear during the oscillation. No DTCs are stored. What is the ROOT CAUSE of the cruise control hunting?

A. A failing cruise control actuator that cannot maintain steady throttle, causing the speed variation that triggers the shift oscillation

B. A faulty vehicle speed sensor that produces a fluctuating signal, confusing both the cruise control and the shift schedule simultaneously

C. The transmission's shift schedule crossover point between 7th and 8th gear is positioned at exactly 70 mph, and the gear changes themselves cause the speed fluctuation

D. A worn throttle position sensor that produces a noisy signal near the cruise position, causing the module to alternate between two throttle interpretations

22. A vehicle has DTC P2714 — Pressure Control Solenoid D Performance/Stuck Off. The transmission produces harsh 6-7 and 7-8 upshifts. The technician tests PCS-D at the case connector: resistance = 5.8 ohms (specification: 4-7 ohms). The technician commands PCS-D through a bidirectional test at 50% duty cycle. The scan tool shows 50% commanded with 0.85 amps measured (specification for 50% = 0.8-1.0 amps). Both tests pass. What should the technician investigate NEXT?

A. The transmission fluid temperature, since a cold fluid condition can produce harsh shifts that mimic a PCS performance fault

B. The valve body for a stuck valve downstream of PCS-D that is preventing the commanded pressure from reaching the affected clutch circuits

C. The transmission control module for a failed driver circuit that intermittently loses the PCS-D signal during actual driving conditions

D. The wiring harness for an intermittent fault between the module and PCS-D that only fails under vibration during driving

23. A vehicle has stored both P0730 (Incorrect Gear Ratio) and P0741 (TCC System Stuck Off) simultaneously. The technician monitors scan tool data and observes that TCC slip is consistently at 80 RPM even with TCC commanded ON. The technician also notices that the calculated gear ratio in 4th gear reads 1.05:1 instead of the specified 1.00:1. What is the relationship between these two codes?

A. The 80 RPM TCC slip causes the input shaft to spin faster than the engine, inflating the ratio calculation and triggering the false ratio code

B. Both codes represent separate simultaneous failures — the TCC has an independent fault and the 4th gear clutch has an independent fault

C. The P0730 triggered the P0741 because the module interprets ratio errors as TCC-related since the TCC affects the ratio calculation

D. The TCC slip adds to the input speed, causing the module to calculate a ratio higher than actual, which sets the ratio code as a secondary effect

24. A technician is testing a Hall effect type transmission speed sensor. Unlike a magnetic pulse generator, a Hall effect sensor requires external power to operate. The technician measures the sensor's output with an oscilloscope while the vehicle is on a lift with the wheels spinning. The waveform shows clean digital square waves with consistent amplitude. However, one pulse per revolution is missing — the waveform has a gap where a pulse should appear. What is the MOST LIKELY cause?

A. A cracked sensor housing that allows the internal Hall element to shift and miss one tooth per revolution intermittently

B. A partially shorted sensor power supply that drops voltage during one specific point of the reluctor ring rotation

C. The sensor amplifier circuit has a temperature-dependent fault that drops one pulse per thermal cycle of the sensor

D. A damaged or missing tooth on the reluctor ring that fails to trigger the Hall effect sensor at that specific position

25. A vehicle equipped with a hybrid automatic transmission has a customer complaint of reduced regenerative braking effectiveness. The customer reports that the vehicle does not decelerate as aggressively when lifting off the accelerator during city driving compared to when the vehicle was newer. The hybrid battery state of charge is at 95%. What is the MOST LIKELY cause?

A. The hybrid battery is nearly full at 95% SOC, and the system reduces regenerative braking to prevent overcharging the battery

B. The drive motor's permanent magnets have weakened over time, reducing the motor's ability to generate braking torque in generator mode

C. The regenerative braking friction material has worn, reducing the physical contact area available for energy recovery

D. The hybrid control module has drifted its calibration over time, commanding less regenerative braking torque than the original specification

26. A technician is performing a transmission fluid service on a vehicle that requires a specific fluid exchange procedure using the manufacturer's diagnostic scan tool to cycle the transmission through specific sequences during the fill. The shop does not have the manufacturer's scan tool. What should the technician do?

A. Perform a standard drain-and-fill procedure since the scan tool procedure is only recommended and not required for basic fluid service

B. Skip the fluid service entirely and refer the customer to the dealer since the procedure cannot be performed without the tool

C. Obtain access to the required scan tool before performing the service, as the procedure ensures correct fluid level and circuit charging

D. Use a universal aftermarket scan tool with bidirectional capability to replicate the manufacturer's fill sequence commands

27. A customer's vehicle has a transmission fluid leak at the extension housing seal on a rear-wheel-drive vehicle. The technician replaces the seal. During the repair, the technician notices the slip yoke on the driveshaft has light surface pitting from corrosion in the seal contact area. After installing the new seal and driveshaft, the technician road-tests the vehicle. No leak is visible immediately after the test. Should the technician consider the repair complete?

A. Yes — if no leak is visible after the road test, the new seal has successfully compensated for the minor surface pitting

B. No — the surface pitting will likely cause the new seal to leak within weeks, and a wear sleeve should be installed on the yoke

C. Yes — but only if the technician verifies the extension housing bushing is within specification before declaring the repair complete

D. No — the driveshaft yoke must be replaced entirely because any surface imperfection makes a proper seal impossible

28. A technician discovers during a routine transmission pan inspection that the pan magnet has accumulated a large quantity of fine metallic debris — significantly more than expected for the vehicle's mileage. The fluid is dark but not burnt, and there are no current shift complaints. The customer states the vehicle was purchased used three months ago with unknown service history. What is the MOST appropriate recommendation?

A. Perform the fluid and filter service, reset the adaptive values, and advise the customer that no further action is needed

B. Recommend immediate transmission overhaul because the excessive debris confirms catastrophic internal failure is imminent

C. Shorten the fluid service interval to 15,000 miles and monitor debris accumulation at each service to establish a wear trend

D. Perform the fluid service, shorten the next service interval significantly, and recommend a follow-up pan inspection to monitor the wear trend

29. A vehicle's automatic transmission engages all gears correctly, but the customer reports that the shift lever requires excessive force to move from Park to Reverse. All other shift lever transitions feel normal. There are no DTCs. What should the technician investigate?

A. The transmission range sensor for a binding condition at the Park-to-Reverse transition point that creates resistance in the selector mechanism

B. The transmission internal parking pawl spring for excessive tension that resists the manual shaft rotation from Park to Reverse

C. The shift interlock mechanism, detent spring, or cable routing for a binding condition specific to the Park-to-Reverse transition

D. The transmission manual valve for a sticky bore in the Park-to-Reverse section that creates hydraulic resistance during the transition

30. A technician replaces the vehicle speed sensor on the transmission extension housing. After clearing DTCs and road-testing, the speedometer reads correctly. However, the cruise control no longer functions — the system will not engage when the button is pressed. The scan tool shows no DTCs in any module. What is the MOST LIKELY cause?

A. A connector or wire that feeds the speed signal to the cruise control module was inadvertently disconnected or damaged during the sensor replacement

B. The replacement sensor has a different output signal format than the original, and the cruise module cannot interpret the new signal

C. The cruise control module requires a re-initialization procedure after any speed sensor replacement to recalibrate its speed reference

D. The replacement sensor is producing an intermittent signal that the speedometer can process but the cruise module rejects as unstable

31. A technician is replacing the transmission pan gasket on a vehicle. During the service, the technician discovers that one of the pan bolt holes in the transmission case has a bolt that will not torque — it spins freely at 3 ft-lbs instead of the specified 8 ft-lbs. The thread insert (HeliCoil) from a previous repair has pulled out of the case. What is the correct action?

A. Clean the hole and install a new HeliCoil insert one size larger than the original repair to restore thread engagement

B. Install a new HeliCoil insert of the original thread size in the existing bore, ensuring it seats deeper than the previous insert

C. Apply thread-locking adhesive to the original bolt and the existing bore to create a chemical bond in place of mechanical threads

D. Leave the stripped hole empty and rely on the remaining bolts to provide adequate clamping force for the pan gasket seal

32. A customer reports that the transmission makes a "gurgling" or "bubbling" noise from the dipstick tube area during the first two minutes after a cold start. The noise disappears after warmup. The fluid level is correct and there are no shift complaints. What is the MOST LIKELY cause?

A. Fluid returning from the cooler lines is creating turbulence in the pan during initial pump circulation after startup

B. The transmission vent is partially clogged, causing internal air pressure to escape through the dipstick tube during warmup

C. The oil pump is producing normal fluid circulation noise that is amplified through the dipstick tube in cold, quiet conditions

D. Air trapped in the valve body passages from overnight drain-back is being expelled through the dipstick tube as the pump circulates fluid

33. A vehicle's automatic transmission has a customer complaint that the "D" indicator light on the dashboard blinks rapidly when the vehicle is driven above 50 mph. Below 50 mph, the indicator is solid. The scan tool shows no DTCs in the TCM. The transmission shifts normally at all speeds. What is the MOST LIKELY cause?

A. A transmission range sensor with a worn contact at the Drive position that produces an intermittent signal above a certain vibration threshold

B. An instrument cluster LED driver fault that causes the Drive indicator to flicker at specific frequencies of vehicle vibration

C. A loose wiring connector between the TCM and the instrument cluster that vibrates open at the resonant frequency above 50 mph

D. A control module software error that triggers the blinking indicator as a warning of a speed-related condition without setting a DTC

34. A technician replaces the transmission cooler lines on a vehicle. After installation, the technician starts the engine, shifts through all ranges, and checks for leaks. No leaks are visible. The technician then performs a road test. After 10 minutes of driving, the transmission fluid temperature reads 230°F (specification maximum: 200°F). What is the MOST LIKELY cause of the overheating?

A. The replacement cooler lines have a smaller inside diameter than the original lines, restricting fluid flow to the cooler

B. The cooler lines were connected to the wrong ports on the radiator, routing fluid through the wrong internal cooler circuit

C. The replacement lines are longer than the originals, increasing the fluid volume in the cooling circuit and reducing heat transfer efficiency

D. The technician inadvertently kinked one of the new cooler lines during installation, restricting the flow through the cooling circuit

35. A vehicle has an intermittent fluid leak from the transmission case connector that appears only after extended highway driving. The leak is never present during city driving or at idle. The technician cleans the area, drives the vehicle on the highway for 30 minutes, and confirms fresh fluid at the case connector. What should the technician investigate?

A. The transmission vent for a clogged condition that allows internal case pressure to build during sustained highway operation

B. The case connector seal and the connector itself for heat-related degradation that allows fluid to seep when the case reaches highway operating temperature

C. The cooler lines for a restriction that causes backpressure to build during highway speed fluid circulation and force fluid past the connector

D. The transmission fluid level for an overfill condition that only manifests at highway speed when the converter is fully charged

36. A technician is performing an in-vehicle valve body replacement. After removing the old valve body, the technician notices that one of the accumulator pistons has fallen out of the case and is lying in the pan. The piston appears undamaged. What must the technician do before installing the new valve body?

A. Discard the old piston and use the new accumulator piston included in the replacement valve body gasket kit

B. Leave the piston out since accumulator pistons are part of the valve body assembly and will be included in the new unit

C. Clean the accumulator bore with solvent, inspect the bore walls for scoring, and reinstall the piston with its spring before installing the valve body

D. Reinstall the old accumulator piston in the case bore, install the new valve body, and verify the accumulator function through a road test

37. A customer reports that the vehicle's automatic transmission shifts normally most of the time, but approximately twice per month the transmission enters limp mode (locked in 3rd gear) while driving. The customer turns the engine off, waits 10 seconds, restarts, and the transmission returns to normal operation for weeks. No DTCs are stored after the restart. What is the MOST LIKELY type of fault?

A. An intermittent electrical fault — such as a loose connector pin, corroded terminal, or wire with marginal insulation — that triggers a momentary module fault

B. A thermally sensitive solenoid that sticks at a specific temperature reached only under certain driving conditions twice per month

C. A software glitch in the transmission control module that randomly corrupts the shift tables and requires a power cycle to reset

D. A CAN bus communication dropout that occurs when the vehicle hits a specific road irregularity at a certain speed and angle

38. A technician is installing a rebuilt transaxle on a front-wheel-drive vehicle. After mating the transaxle to the engine and installing the bell housing bolts, the technician attempts to install the left half-shaft into the differential. The half-shaft will not fully seat — it inserts approximately 3/4 of the way and stops. What is the MOST LIKELY cause of the incomplete insertion?

A. The half-shaft splines have burrs from the removal process that are catching on the differential side gear splines during insertion

B. The differential side gear has rotated to a position where its splines do not align with the half-shaft splines for insertion

C. The half-shaft snap ring on the inner joint has not compressed enough to pass through the differential case bore into the side gear

D. The transaxle differential cover has shifted during the installation, partially blocking the half-shaft insertion bore

39. During a transmission overhaul, a technician discovers that the reaction shell connecting the sun gear to the reverse drum has a crack in one of its tangs. The crack extends approximately halfway through the tang but has not separated completely. What is the correct action?

A. Weld the cracked tang using aluminum brazing to reinforce the remaining material and prevent further propagation during operation

B. Replace the reaction shell because a crack in a tang will propagate under the cyclic loading of gear engagement and eventually fail

C. Inspect the crack under magnification and if it shows no signs of active propagation, reinstall the shell with careful monitoring

D. Apply industrial adhesive to the crack and mark it for inspection at the next service interval to determine if the crack has grown

40. A technician is inspecting clutch friction discs during a transmission overhaul. Three of the five discs show friction material that has separated and peeled away from the steel core on the outer edge — approximately 1/8 inch of the outer friction material is lifted and curled. What caused this delamination, and what action is required?

A. The discs overheated from excessive slippage, and the heat damaged the adhesive bonding the friction material to the steel core — all discs must be replaced

B. The discs were manufactured with inadequate bonding and should be returned to the supplier for a warranty replacement claim

C. The delamination is cosmetic and does not affect clutch performance since the majority of the friction surface remains bonded

D. The clutch clearance was too tight, causing the discs to rub against the drum splines and peel the outer edge during rotation

41. A technician measures clutch pack clearance during reassembly and reads 0.018 inches. The manufacturer's specification is 0.025 to 0.050 inches. The currently installed snap ring is the thinnest available from the rebuild kit. What is the correct action?

A. Install the clutch pack with the current clearance since the thinnest snap ring is already installed and no further adjustment is possible

B. Add an additional steel separator plate to increase the stack height and bring the clearance into the upper portion of the specification

C. Remove one friction disc from the pack to reduce the stack height and bring the clearance within the specification range

D. Remove one steel separator plate from the pack to reduce the stack height and increase the clearance into the specification range

42. A technician is inspecting the valve body during a transmission overhaul. One of the pressure regulator valve bore walls has a visible groove approximately 0.003 inches deep that runs the full length of the valve's travel. The groove was caused by a piece of debris trapped between the valve and the bore wall. What is the consequence of reinstalling the valve in this damaged bore?

A. The valve will bind at the groove location, preventing smooth movement and causing erratic pressure regulation behavior

B. The groove will self-heal as varnish deposits fill the channel during normal operation and restore the bore wall surface

C. The groove provides a leakage path for pressurized fluid to bypass the valve, reducing pressure regulation accuracy and efficiency

D. The valve will function normally because the 0.003-inch groove is smaller than the valve's designed operating clearance in the bore

43. A technician is performing endplay measurement during transmission reassembly. The first measurement reads 0.045 inches. The technician decides to install a thicker selective thrust washer to reduce the endplay. After installing a washer that is 0.015 inches thicker, the technician measures endplay again and reads 0.032 inches — a reduction of only 0.013 inches instead of the expected 0.015 inches. What is the MOST LIKELY explanation for the 0.002-inch discrepancy?

A. Normal measurement variation from component settling, indicator contact angle, and the amount of force applied during measurement

B. The original thrust washer was 0.002 inches thicker than its labeled dimension due to manufacturing tolerance variation

C. The new thrust washer compressed by 0.002 inches during the endplay measurement because it is softer than the original material

D. The dial indicator has a 0.002-inch calibration error that consistently affects every measurement by the same amount

44. A technician completes a transmission overhaul and prepares to install the valve body. The rebuild kit includes a new separator plate and new gaskets. The technician compares the new separator plate to the original and notices that three orifice holes in the new plate are smaller in diameter than the corresponding holes in the original plate. The part numbers match. What is the MOST LIKELY explanation?

A. The new separator plate reflects a manufacturer engineering revision with modified orifice sizes for improved shift quality

B. The smaller orifices are designed for a different fluid viscosity than the original and the technician should use the original plate

C. A manufacturing defect has produced the new plate with undersized orifices that will cause shift quality problems if installed

D. The original plate's orifices have worn larger from 85,000 miles of fluid erosion, and the new plate represents the original specification

45. After installing a rebuilt transmission, filling with fluid, and performing the initial startup, the technician shifts from Park to Drive. The engagement is immediate but is followed by a continuous low-frequency vibration that is felt through the floor. The vibration is present in all forward gears and disappears in Neutral and Park. What should the technician check FIRST?

A. The torque converter for an internal balance issue that produces vibration when torque is transmitted through the converter

B. The engine and transmission mounts for proper installation and correct bolt torque after the rebuild installation process

C. The driveshaft phasing and U-joint condition to verify nothing was disturbed during the transmission removal and installation

D. The flexplate for cracks or warping that produces vibration when the converter is loaded through the drivetrain in gear

46. A technician performs a cooler flow test after a transmission overhaul and obtains the following results: forward flow = one quart in 22 seconds (specification minimum: one quart in 25 seconds), reverse flow = one quart in 23 seconds (specification minimum: one quart in 25 seconds). Both directions meet or exceed specification. Should the technician approve the cooler for service?

A. No — although both readings meet specification, they should be retested after the transmission reaches operating temperature

B. No — the difference between forward and reverse flow rates indicates a developing internal restriction that will worsen

C. Yes — both directional flow rates meet the manufacturer's minimum specification, confirming the cooler is clean and functional

D. Yes — but an inline filter should be installed as a precaution since the flow rates are close to the minimum specification

47. A technician discovers during a transmission overhaul that the transmission case has a small chip on the gasket mating surface where the pan seats. The chip is approximately 1/4 inch long, 1/8 inch wide, and 1/16 inch deep. It is located between two bolt holes. What is the correct action?

A. Clean the chip area, apply a small amount of RTV sealant to fill the depression, and install the pan gasket over the repaired surface

B. Replace the transmission case because any damage to the pan gasket sealing surface will cause a chronic fluid leak

C. Leave the chip as-is and install the pan gasket, since the gasket material will compress and fill the small depression during bolt torquing

D. File the chip smooth and apply gasket maker to the entire pan rail to compensate for the reduced sealing surface at the chip location

48. A technician has completed a major transmission overhaul and installation. During the post-installation road test, all shifts are smooth except the 2-3 upshift, which produces a brief but noticeable "bump" during the transition. All other shifts — including the 3-4, 4-5, and downshifts — are smooth. The adaptive values were reset before the drive. What should the technician investigate?

A. The 3rd gear clutch clearance for a setting that is too tight, causing the clutch to grab abruptly during the 2-3 apply event

B. The 2-3 accumulator, check ball position, or orifice in the 2-3 circuit for a cushioning deficiency specific to that shift

C. The input speed sensor for a signal anomaly during the RPM range that corresponds to the 2-3 shift transition point

D. The transmission fluid level for an overfill condition that causes aeration specifically during the pressure demand of the 2-3 shift

49. A technician completes a transmission rebuild on a vehicle that had a catastrophic planetary gear failure. The rebuild included all new friction components, a new valve body, a new torque converter, and thorough cooler flushing with a verified flow test. After 1,000 miles, the customer returns reporting the inline cooler filter is packed with fine metallic debris. The transmission shifts normally. What is the MOST LIKELY source of the debris?

A. The new friction discs are shedding their initial coating material during the break-in period, which appears as metallic debris in the filter

B. The rebuild kit contained defective clutch components that are already wearing prematurely and producing the metallic debris

C. The valve body assembly has internal machining burrs that are gradually being eroded by fluid flow and depositing in the filter

D. Residual debris from the original planetary gear failure that was trapped deep in cooler passages is gradually releasing into the fluid stream

50. A technician has completed the final quality check on a rebuilt transmission installation. All shifts are smooth, the TCC operates correctly, fluid temperature is normal, endplay was within specification during assembly, and no DTCs are stored. What is the single most important documentation step before returning the vehicle to the customer?

A. Photograph the adaptive learning values on the scan tool as a baseline reference for future diagnostic comparison

B. Record the stall test RPM as a baseline for comparison if the customer reports future torque converter concerns

C. Document all work performed, parts used, fluid type, initial road test results, and the recommended service interval for the rebuilt unit

D. Record the cooler flow test results as proof that the cooling system was verified before the rebuilt transmission was connected

Practice Exam 14: Answer Key and Explanations

1. B — On flat highway, the 4th gear clutch apply circuit handles the normal torque load without issue. On a sustained grade, the engine produces significantly more torque to maintain speed, which demands more clamping force from the 4th gear clutch. A marginally weak clutch circuit — worn friction material, a slightly leaking piston seal, or a restricted orifice — can hold under normal load but hesitates briefly under the elevated torque demand of the grade before fully engaging.

2. D — The vibration is present in all gears and in Neutral (eliminating transmission-internal loaded components) but disappears outside the 35-45 mph speed range. The critical test was raising engine RPM in Park to match the driving RPM — no vibration was felt. This eliminates engine RPM as the variable and confirms vehicle speed is the controlling factor. A speed-dependent vibration that is independent of engine RPM originates from a component rotating at vehicle speed downstream of the transmission — driveshaft, wheel bearings, or tires.

3. A — Line pressure at idle is 78 psi — above the 55-75 psi specification. Elevated system-wide pressure causes every clutch to apply with more force than designed, producing universally firmer shifts. The near-default adaptive values confirm the module has not commanded this increase through learning — the pressure is elevated at the source. A failed EPC solenoid, a stuck pressure regulator, or a miscalibrated module is commanding or defaulting to above-specification pressure.

4. C — Both technicians are correct. When the stator one-way clutch freewheels in both directions, the stator cannot redirect the fluid flow returning from the turbine to assist the impeller. Without this redirection, the converter operates as a simple fluid coupling with no torque multiplication — the ratio stays near 1:1 at all speeds. This affects low-speed acceleration most severely because that is when torque multiplication is needed most. At highway cruise, the converter is in coupling phase and the stator should be freewheeling anyway, so performance appears relatively normal.

5. B — At 30 mph, the driveshaft rotates approximately twice per second. A fault that produces one impact per revolution — such as a damaged U-joint, a driveshaft balance weight that has shifted, or a dent in the driveshaft tube — would produce two thumps per second at 30 mph. The noise persists with the engine off while coasting (eliminating engine-speed components) and in Neutral (eliminating transmission-loaded components), confirming a speed-dependent source downstream of the transmission.

6. A — In automatic Drive, 1st gear uses a one-way clutch as the holding device. If the one-way clutch freewheels in both directions, it cannot hold the reaction member, and the transmission cannot maintain 1st gear — it defaults to 2nd. When manual 1st is selected, an overrun holding device (band or clutch) is commanded in addition to the one-way clutch, providing the holding function that the failed one-way clutch cannot. This overrun device holds 1st gear successfully in manual mode.

7. D — The shaking occurs specifically during the TCC lockup transition and stops once the TCC is fully engaged. This is the classic presentation of TCC shudder — the converter clutch friction surface alternately grabs and slips during the initial apply event, producing a rapid vibration. The most common causes are degraded friction modifier chemistry in the ATF or worn TCC friction material. A fluid

service with the correct specification fluid resolves many cases; persistent shudder after fluid service indicates converter replacement.

8. C — All four pressure readings — Drive idle, Drive stall, Reverse idle, and Reverse stall — are within manufacturer specifications. This confirms the pump, pressure regulator, and EPC solenoid are all delivering correct pressure to the main system. Since the system-wide pressure supply is verified as correct, the 1-2 slip must originate in the 1-2 shift-specific circuit — a leaking 2nd gear clutch seal, a stuck accumulator, a restricted orifice, or worn friction material in the 2nd gear apply circuit.

9. A — The noise tracks engine RPM in every gear range (Park, Neutral, Drive, Reverse) without changing level when ranges are selected. The stethoscope confirms the noise is loudest at the pump location on the bell housing. The oil pump is the only transmission component that rotates at engine speed in all ranges and is located at the front of the transmission where the bell housing provides a direct acoustic path. A worn pump with gear noise, cavitation, or bearing wear matches all findings.

10. B — The component application chart identifies a single holding device shared by 2nd and 5th gears that is not applied in any of the working gears. A single component failure explains both gear-specific faults simultaneously. The different severity — 2nd slips only under moderate/heavy throttle while 5th slips at all throttle levels — is consistent with a partially worn device: 2nd gear operates at lower vehicle speed with less torque demand (holds at light throttle), while 5th gear at higher speed demands more holding force (slips at all throttle levels).

11. D — Both technicians are correct. Shifting through all ranges after a fluid service is a mandatory procedure that circulates fresh fluid through every clutch circuit, servo bore, accumulator passage, and valve body channel. Each range positions the manual valve to open different fluid passages and pressurize different circuits. Without this step, some circuits remain filled with old fluid or air, and the dipstick reading will be inaccurate because the total system volume is not yet fully distributed.

12. A — The solenoid resistance is within specification, eliminating a coil failure. The code is intermittent, suggesting the solenoid or its valve works sometimes but not always. A bidirectional test commanding Solenoid B ON while monitoring for a pressure change verifies whether the solenoid can mechanically move its shift valve when electrically commanded. If the valve does not respond despite the solenoid clicking, the valve is mechanically stuck. If the valve moves, the solenoid may have an intermittent plunger sticking issue.

13. C — TCC slip progressively increasing from 5 to 15 to 30 RPM over multiple service intervals indicates a gradual decline in the TCC's ability to achieve full lockup. The friction material on the TCC

clutch disc is wearing progressively thinner, reducing its effective coefficient of friction and requiring more slip to transfer the same torque. Each service visit shows more slip as the wear advances. This progressive pattern will continue until the slip exceeds the module's tolerance and a DTC is set.

14. D — The flare occurs only at WOT — not at light or moderate throttle. At WOT, the engine produces maximum torque, which demands maximum clutch clamping force for a clean shift. A clutch with marginally worn friction material can hold under the lower torque loads of light and moderate throttle but cannot hold the instantaneous maximum torque of WOT. The brief 300 RPM flare represents the moment the clutch slips before the apply pressure builds enough to clamp the worn friction surfaces.

15. D — Both sensors share a common ground wire connected to a corroded bolt on the case. The corroded ground creates high resistance in the return path for both sensor signals. Magnetic pulse generators produce AC voltage signals that the module reads through the differential between the signal wire and the ground wire. If the ground circuit has high resistance, the signal amplitude is attenuated — the module sees a weaker signal that may drop below its detection threshold, causing both sensors to set "circuit" codes simultaneously.

16. D — 65 RPM of continuous TCC slip at highway cruise means the engine is spinning the impeller 65 RPM faster than the turbine during every second of highway driving. This speed differential converts engine energy into heat through fluid friction in the converter rather than transmitting it mechanically to the wheels. Over thousands of highway miles, this continuous energy waste directly reduces fuel efficiency. Even small amounts of TCC slip produce measurable mpg losses at sustained highway speeds.

17. A — The scan tool confirms the CVT ratio changes smoothly from 2.5:1 to 0.85:1 during acceleration — the full designed ratio range is being used correctly. The engine holding at 4,000 RPM while vehicle speed increases is exactly how a CVT is designed to operate. Unlike a stepped automatic that shifts through discrete gears, the CVT holds the engine at an efficient operating point while continuously varying the ratio. The customer's discomfort is with unfamiliar but normal CVT behavior.

18. B — The 4-5 clutch adaptive value (+42%) is dramatically higher than all other circuits (+7% to +12%), indicating the module has had to increase the 4-5 clutch apply pressure far more than any other clutch to maintain acceptable engagement quality. This disproportionate adaptation means the 4-5 clutch has worn significantly more than the others. The module is successfully compensating for now, but if the value continues to rise, it will eventually reach its maximum correction limit.

19. D — During the 5-6 upshift, the input speed should drop from the 5th gear value to the 6th gear value as the 6th gear clutch engages and changes the ratio. The 1.5-second delay with the input speed remaining at the 5th gear value means the 6th gear clutch is not clamping — the clutch circuit is filling slowly due to a leaking piston seal, a restricted orifice, or worn friction material. The engine RPM rise of 200 RPM is the flare produced by the unclamped clutch allowing the engine to accelerate freely.

20. C — The stop/start system relies on communication with the generator control module to coordinate the restart sequence. During a stop/start restart, the generator module manages the electrical system — ensuring adequate voltage for the starter, managing the electrical load transfer from battery to generator, and signaling the TCM that the restart is complete. Without this communication, the system cannot safely execute the stop/start cycle and disables it as a precaution.

21. C — The vehicle's operating point at exactly 70 mph with cruise control set places the shift schedule precisely at the crossover threshold between 7th and 8th gear. When the transmission upshifts to 8th, the slightly reduced engine torque causes the vehicle to decelerate marginally, which triggers a downshift to 7th. The increased torque in 7th causes acceleration past 70, triggering an upshift back to 8th. The cruise control throttle corrections chase each gear change, amplifying the oscillation rather than dampening it.

22. B — Both static tests — resistance and bidirectional current — pass, confirming the solenoid is electrically functional and can produce its commanded output. Since the electrical side is verified, the "performance/stuck off" designation means the expected hydraulic result is not occurring downstream. A stuck valve in the valve body between the solenoid and the affected clutch circuits prevents the commanded pressure from reaching the clutch pistons, even though the solenoid itself is producing its intended force.

23. A — The TCC is not fully locking — it has 80 RPM of continuous slip. This slip means the turbine (connected to the input shaft) spins slightly faster than the impeller (connected to the engine). The extra input shaft speed inflates the numerator of the ratio calculation (input ÷ output), producing a calculated ratio of 1.05:1 instead of the true 1.00:1 mechanical ratio of 4th gear. The P0730 ratio code is a secondary effect of the TCC slip, not an independent mechanical fault.

24. D — A Hall effect sensor produces a digital pulse each time a tooth on the reluctor ring passes the sensor element. A consistently missing pulse at one specific position per revolution — while all other pulses are clean and consistent — indicates the magnetic trigger at that position is absent. A damaged, broken, or missing tooth on the reluctor ring fails to produce a magnetic field change at the sensor, resulting in a missing pulse at that specific rotational position every revolution.

25. A — At 95% state of charge, the hybrid battery is nearly full. The battery management system reduces or eliminates regenerative braking torque when the battery is near full charge to prevent overcharging, which can damage lithium-ion cells and cause thermal runaway. The reduced regenerative braking the customer perceives is a designed protective response — the system intentionally limits energy recovery when there is insufficient battery capacity to absorb the generated electricity.

26. C — Some modern transmissions require a manufacturer-specific scan tool procedure during the fluid fill process. The tool commands the transmission to cycle through specific clutch applications, solenoid positions, and pump speeds to properly charge each circuit and verify correct fluid volume. Without this procedure, air may remain trapped in clutch circuits and the final fluid level may be incorrect. The technician must obtain access to the required tool before performing the service.

27. B — Surface pitting on the driveshaft yoke creates microscopic valleys in the seal contact area. A new seal riding on a pitted surface will initially seal due to its fresh, resilient lip, but the pitting will accelerate seal lip wear as the sharp edges of each pit abrade the rubber. Within weeks to months, the seal lip will wear to the point where it can no longer bridge the pits, and the leak will return. A wear sleeve provides a smooth, precision-finished surface for long-term seal reliability.

28. D — Excessive metallic debris with unknown service history warrants concern but not immediate overhaul — there are no current shift complaints. The most appropriate approach is to perform the fluid and filter service (removing the current debris), shorten the next service interval significantly (to monitor the rate of new debris accumulation), and inspect the pan at the shortened interval. If debris accumulation continues at an excessive rate, internal damage is progressing. If it normalizes, the previous owner may have neglected fluid service.

29. A — Excessive force specifically during the Park-to-Reverse transition — with all other transitions feeling normal — points to a binding condition in the selector mechanism at that specific detent point. The shift interlock solenoid (which holds Park until the brake is pressed), a worn detent mechanism, or a cable routing issue that creates resistance specifically during the Park-to-Reverse angular range is the most likely cause. The transmission's internal components do not create directional resistance at the shift lever.

30. D — The speedometer works correctly, confirming the speed sensor signal is reaching the instrument cluster. However, the cruise control does not engage. On many vehicles, the cruise control module receives its speed reference through a separate circuit path or wire from the same sensor. If this specific wire or connector was inadvertently disconnected or damaged during the sensor replacement — while the speedometer's separate path remained intact — the cruise module loses its speed reference and cannot engage.

31. A — The original HeliCoil insert has pulled out, leaving the bore intact but without functional threads. A new HeliCoil insert one size larger than the original drills into the existing bore at a larger diameter, cuts new threads into the case material, and restores proper thread engagement for the pan bolt. The larger-diameter insert engages fresh, undamaged case material outside the footprint of the failed original insert, providing a reliable repair.

32. D — A gurgling or bubbling noise from the dipstick tube during the first two minutes after a cold start that disappears after warmup is caused by air trapped in the valve body passages during overnight drain-back. When the pump starts circulating fluid, the trapped air is pushed through the system and expelled through the path of least resistance — the dipstick tube. Once all air is purged from the passages, the noise stops. This is a normal cold-start characteristic on many transmissions.

33. D — The transmission shifts normally at all speeds and no DTCs are stored, ruling out mechanical or electrical faults in the shift control system. A blinking "D" indicator specifically above 50 mph — with no corresponding shift or performance anomaly — suggests the control module software is triggering the indicator as a non-DTC warning condition. Some modules use a flashing gear indicator to signal a condition (such as a pending maintenance reminder or a detected anomaly) that does not rise to the level of a stored DTC.

34. C — The cooler lines were just replaced, and the transmission immediately overheats during the road test. All other components (pump, fluid, thermostat) are unchanged from the pre-repair condition. The most likely cause directly related to the line replacement is a kink in one of the new cooler lines that restricts fluid flow to the cooler. A restriction reduces the volume of fluid that passes through the heat exchanger per minute, reducing cooling capacity below the system's heat generation rate.

35. B — The leak appears only during extended highway driving and is absent during city driving and at idle. Extended highway driving produces the highest sustained case temperatures. The case connector seal, which contains elastomeric sealing elements, degrades from years of heat cycling. At the elevated temperatures of sustained highway driving, the degraded seal softens and loses contact with the bore, allowing fluid to seep past. At lower city-driving temperatures, the seal maintains adequate contact.

36. C — Accumulator pistons in this transmission design are housed in bores in the case — not in the valve body. The piston must be reinstalled in its correct bore with its associated spring before the valve body is installed on top. Without the accumulator piston and spring, the affected clutch circuit will receive full line pressure without cushioning, producing a harsh engagement. The bore should be cleaned and inspected for scoring before reinstalling the piston.

37. A — An intermittent fault that occurs approximately twice per month, triggers limp mode, clears after a power cycle, and leaves no stored DTCs is the classic pattern of an intermittent electrical connection failure. A loose connector pin, corroded terminal, or wire with marginal insulation makes and breaks contact under specific vibration or thermal conditions. The momentary signal loss triggers the module's protective limp mode, but the connection restores before the module can complete its diagnostic monitoring cycle and store a permanent code.

38. C — Half-shafts on most front-wheel-drive vehicles are retained in the differential by a snap ring on the inner CV joint housing. During insertion, this snap ring must compress to pass through the differential case bore before expanding into a groove on the inside of the side gear. If the snap ring does not compress adequately — due to misalignment, the ring catching on the bore edge, or a slightly oversized ring — the shaft stops at the point where the ring contacts the bore and will not seat fully.

39. B — A crack in a reaction shell tang — even if it has not fully separated — exists at a location that endures repetitive, high-stress loading during every gear engagement and release. The cyclic loading will propagate the crack through the remaining material until the tang separates completely, at which point the shell cannot transmit torque between the sun gear and the drum. This failure would cause the affected gear range to lose holding capacity. The shell must be replaced.

40. A — Friction material delamination — where the lining peels away from the steel core at the outer edge — is caused by overheating. Excessive clutch slippage generates heat that breaks down the adhesive bond between the friction material and the steel disc. The outer edge peels first because it is the farthest point from the center of the disc and experiences the highest surface speed, generating the most friction heat. All discs must be replaced, and the cause of the overheating must be identified and corrected.

41. D — The clearance of 0.018 inches is below the minimum specification of 0.025 inches, and the thinnest available snap ring is already installed. The stack height must be reduced to increase the clearance. Removing one steel separator plate reduces the total stack height by the plate's thickness (typically 0.040-0.060 inches), which increases the clearance correspondingly. The technician should select the plate removal that brings the clearance into the specification range and verify by re-measuring.

42. C — A 0.003-inch groove running the full length of the pressure regulator valve's travel creates a channel for pressurized fluid to leak past the valve from the high-pressure side to the low-pressure side. This bypass reduces the valve's ability to maintain precise pressure regulation — line pressure may fluctuate, run low under demand, or fail to respond accurately to the EPC solenoid's commands. The valve body should be replaced or the bore repaired to restore a smooth sealing surface.

43. A — A 0.002-inch discrepancy between the expected 0.015-inch reduction and the actual 0.013-inch reduction is within normal measurement variation for endplay checks. Factors including component settling between measurements, slight differences in the force applied to push and pull the shaft, dial indicator plunger contact angle, and thrust washer seating all contribute to minor measurement variations. Both readings are valid and the 0.032-inch final endplay is within the 0.025-0.050 specification.

44. B — The part numbers match, but three orifice holes in the new separator plate are smaller than the original. Over 85,000 miles, transmission fluid flowing through these orifices at high velocity gradually erodes the hole edges, enlarging them beyond their original manufactured dimensions. The new plate represents the original specification with the correct orifice sizes. The old plate's larger holes are the result of normal wear, not the design intent. The new plate should be installed.

45. C — A continuous vibration present in all forward gears that disappears in Neutral and Park indicates a loaded drivetrain component. During transmission removal and installation, the driveshaft (rear-wheel drive) or half-shafts (front-wheel drive) are disturbed. Incorrect driveshaft phasing (the yoke ears at each end not aligned), a disturbed U-joint, or an incorrectly seated half-shaft can produce vibration when torque is transmitted through the drivetrain. Checking these recently disturbed components is the logical first step.

46. C — Both directional flow rates — 22 seconds and 23 seconds per quart — meet or exceed the manufacturer's minimum specification of 25 seconds per quart (faster time = more flow). The slight difference between forward and reverse rates is within normal variation and does not indicate a developing restriction. The cooler passes the flow test in both directions and is approved for service.

47. A — A small chip on the pan gasket mating surface creates a depression that the gasket may not fully bridge, potentially allowing fluid to seep. Cleaning the chip area and applying a small amount of RTV sealant fills the depression and provides a smooth surface for the gasket to seal against. The repair restores the sealing surface without the expense of case replacement. Filing the chip smooth and applying sealant across the entire pan rail is unnecessary and risks creating additional problems.

48. B — A single harsh shift (2-3) with all other shifts smooth after an adaptive reset points to a circuit-specific cushioning deficiency in the 2-3 apply path. The 2-3 accumulator, its spring, the orifice that controls flow into the accumulator, and the check ball that routes fluid to the 2-3 circuit are the components uniquely responsible for cushioning the 2-3 shift. A displaced check ball, stuck accumulator piston, or blocked orifice would produce harshness specifically in the 2-3 transition.

49. C — The rebuild included a new valve body, new converter, and a thoroughly flushed cooler — all the common contamination sources have been addressed. The inline filter is capturing fine metallic debris after 1,000 miles despite normal shift quality. Residual debris from the original catastrophic planetary failure that was embedded deep in cooler core passages — not dislodged by the initial flush — is gradually working free during normal fluid circulation. The debris was too deeply trapped for the flush to remove.

50. C — Complete documentation of the rebuild — work performed, parts used, fluid type and quantity, initial road test results, and the recommended service interval — provides the customer with a maintenance reference, establishes a warranty baseline, and protects the shop in the event of future disputes. This is the most comprehensive and important single documentation step because it covers legal, warranty, and maintenance information in one record.