PRACTICE EXAM 12: ASE A2 SIMULATION (50 QUESTIONS)

1. A vehicle with a six-speed automatic transmission has been driven 85,000 miles with no fluid service. The customer reports no shift complaints. During a routine inspection, the technician checks the fluid and finds it is dark reddish-brown with no burnt odor, and the pan magnet has a thin coating of fine gray paste. Based on these findings alone, what should the technician recommend?

A. Immediate transmission removal for overhaul because dark fluid always indicates internal component failure

B. No action needed since the absence of customer complaints confirms the transmission is in good condition

C. A stall test and pressure test before any fluid service to establish a baseline of internal component health

D. A transmission fluid and filter service using the manufacturer's specified fluid to restore fluid properties

2. A vehicle produces a vibration during steady-speed cruising at 55 mph in 5th gear. The technician shifts to Neutral at 55 mph — the vibration persists. The technician then decelerates to 40 mph in Neutral — the vibration disappears. What can the technician conclude from these two tests?

A. The vibration is engine-related because it persists in Neutral and disappears when the engine RPM drops at lower speed

B. The vibration is speed-dependent and external to the transmission, since it persists in Neutral but disappears below a certain speed

C. The vibration is from the torque converter because the converter continues to spin in Neutral at all vehicle speeds

D. The vibration is from the 5th gear planetary elements that remain partially loaded even when Neutral is selected

3. A customer states that the transmission "surges" during highway cruising. The technician road-tests the vehicle and observes the tachometer oscillating approximately 200 RPM at a steady 60 mph in 6th gear. The scan tool shows TCC commanded ON with TCC slip RPM steady at 0 RPM — no oscillation in the slip reading. What does the steady zero-slip TCC reading tell the technician about the surge source?

A. The TCC is slipping intermittently but the scan tool's sample rate is too slow to capture the oscillation in the slip data

B. The TCC is fully locked with zero slip, meaning the surge is NOT caused by TCC slippage — the 200 RPM oscillation has another source

C. The TCC is fully engaged and the surge is caused by the converter's internal fluid dynamics producing a resonant oscillation

D. The zero-slip reading confirms the converter and transmission are functioning correctly and the surge is from the engine itself

4. Technician A says that a transmission fluid leak from the bell housing area should always be investigated by adding UV dye to the transmission fluid before condemning the front pump seal. Technician B says that adding UV dye to both the engine oil and the transmission fluid simultaneously allows the technician to identify which fluid is leaking if both seals are suspect. Who is correct?

A. Both Technician A and Technician B

B. Technician A only

C. Technician B only

D. Neither Technician A nor Technician B

5. A vehicle with a rear-wheel-drive automatic transmission produces a clunk every time the transmission shifts from any forward gear to the next — both upshifts and downshifts. The clunk is absent during gear engagement from Park or Neutral. The driveshaft, U-joints, and differential have been inspected and found to be in good condition. Which of the following is the MOST LIKELY cause?

A. A loose torque converter bolt that allows rotational play during every shift event as torque loading changes

B. A worn output shaft bearing that shifts axially during every shift as the internal thrust loads change direction

C. Excessive transmission internal endplay that allows the gear train to shift axially during every shift transition

D. A broken flexplate that flexes during the torsional changes of each shift and produces a mechanical snap

6. A vehicle equipped with a four-speed automatic transmission has the following test results: stall speed in Drive = 2,200 RPM (matches specification), stall speed in Reverse = 1,600 RPM (specification: 2,200 RPM). What does the significantly lower Reverse stall speed indicate?

A. The reverse clutch is slipping, preventing the transmission from resisting engine torque in Reverse during the stall test

B. The stator one-way clutch has seized, preventing normal torque multiplication specifically during reverse fluid flow

C. The engine produces less power in Reverse because the exhaust backpressure increases during reverse engine loading

D. The engine is being loaded more heavily in Reverse due to a mechanical bind or dragging component in the reverse gear train

7. A technician is road-testing a vehicle and notices that the 1-2 upshift produces a brief 0.5-second shudder during light-throttle acceleration, but the shift is perfectly smooth during moderate and heavy-throttle acceleration. There are no DTCs. Which of the following BEST explains why the shudder occurs only at light throttle?

A. At light throttle, clutch apply pressure is lowest, and a marginal clutch-to-clutch timing overlap causes a brief bind during the transition

B. At light throttle, the engine produces minimal torque, and the planetary gear set mesh noise becomes audible during the unloaded transition

C. At light throttle, the TCC is partially engaged during the shift, creating interference between the converter lock and the gear change

D. At light throttle, the accumulator over-cushions the shift, causing the releasing clutch to drag momentarily against the applying clutch

8. A vehicle owner reports that the transmission works perfectly in summer but develops a persistent 2-second delayed engagement into Drive every winter morning. The delay resolves after 5 minutes of driving. The technician checks the fluid level in winter conditions and finds it at the correct mark. Which of the following is the MOST LIKELY cause of the seasonal delay?

A. The transmission cooler thermostat is stuck open, routing cold fluid through the cooler and further reducing its temperature

B. The battery voltage drops in cold weather, reducing the auxiliary pump's output and delaying initial clutch pressurization

C. Cold fluid viscosity slows the pump's ability to fill the forward clutch circuit, and a marginal piston seal leaks more in cold conditions

D. The parking pawl mechanism stiffens in cold temperatures, mechanically delaying the Park-to-Drive transition at the manual valve

9. Technician A says that when performing a stall test, the brakes must be firmly applied and the vehicle must be secured against movement before applying full throttle. Technician B says that a stall test should be performed in both Drive and Reverse to compare the results between the two ranges. Who is correct?

A. Both Technician A and Technician B

B. Technician A only

C. Technician B only

D. Neither Technician A nor Technician B

10. A vehicle's automatic transmission produces a pronounced thump from the drivetrain exactly once per output shaft revolution during light-throttle acceleration in 3rd gear only. The thump is not present in any other gear during acceleration, cruising, or deceleration. Which of the following is the MOST LIKELY cause?

A. An unbalanced torque converter that produces a thump once per revolution only during the specific loading of 3rd gear

B. A worn universal joint that produces a thump at the specific output shaft speed that corresponds to 3rd gear operation

C. A damaged flexplate with a warped section that contacts a fixed component at the specific RPM of 3rd gear operation

D. A damaged tooth on a planetary gear element in the 3rd gear power flow path that contacts its mating gear once per revolution

11. A technician is diagnosing a vehicle where the transmission operates normally in all forward gears but has a harsh, banging engagement into Reverse. The engagement into Drive is smooth. A pressure test shows line pressure within specification in both Drive and Reverse at idle. The technician suspects the reverse accumulator. Before removing the valve body to inspect the accumulator, what in-vehicle test could help confirm the accumulator theory?

A. A stall test in Reverse to determine if the clutch holds under full engine torque before investigating the accumulator

B. A scan tool review of the adaptive learning values for the Reverse engagement to see if the module has compensated

C. Commanding the EPC solenoid to reduce line pressure through a bidirectional test while engaging Reverse to see if the harshness decreases

D. Monitoring the transmission fluid temperature during multiple Reverse engagements to detect excess heat from the harsh application

12. A scan tool shows the following live data during a road test at 45 mph in 4th gear: Commanded Gear = 4th, Engine RPM = 2,100, Input Shaft Speed = 2,100, Output Shaft Speed = 1,575. The technician calculates the ratio as 2,100 ÷ 1,575 = 1.33:1. The manufacturer's specification for 4th gear is 1.00:1

(direct drive). The transmission shifts and holds 4th gear without slipping. What is the MOST LIKELY explanation for the ratio mismatch?

A. The 4th gear clutch is slipping 33%, producing a ratio that is higher than the direct-drive specification

B. The transmission is not actually in 4th gear despite the scan tool showing 4th as the commanded gear — it is in a lower gear

C. The output speed sensor is reading 25% lower than actual, producing an artificially high ratio calculation from the data

D. The input speed sensor is reading 33% higher than actual, inflating the numerator of the ratio calculation

13. A vehicle has DTC P0751 — Shift Solenoid A Performance/Stuck Off. The transmission is stuck in 2nd gear limp mode. The technician clears the code and the transmission immediately shifts through all gears normally. After 15 miles of driving, the code returns and the transmission reverts to limp mode. What does this pattern indicate?

A. The solenoid or its valve is intermittently sticking — the condition clears temporarily when the code resets but returns when the fault recurs

B. The control module has a software glitch that sets false codes after a specific mileage interval regardless of actual solenoid condition

C. The valve body has a thermal expansion issue that causes a tight bore to bind the shift valve after the fluid reaches operating temperature

D. The solenoid coil has an intermittent open that functions when cold but fails as resistance increases with heat during extended driving

14. A vehicle equipped with a ten-speed automatic transmission stores DTC P0796 — Pressure Control Solenoid C Performance/Stuck Off. The transmission produces harsh 7-8 and 8-9 upshifts. All other shifts are smooth. The technician measures PCS-C resistance at 5.5 ohms (specification: 4-7 ohms). What should the technician conclude?

A. The solenoid coil is electrically sound, and the "performance" designation means the valve body or hydraulic circuit downstream of the solenoid is not responding correctly

B. The solenoid resistance confirms it is failing because 5.5 ohms is above the midpoint of the specification range

C. The harsh 7-8 and 8-9 shifts are unrelated to PCS-C and are caused by an adaptive learning error in the module

D. The solenoid is functioning correctly and the code is a false positive set by a momentary CAN bus communication interruption

15. A technician is using a scan tool to monitor transmission data during a road test. The vehicle is accelerating from a stop in 1st gear. The scan tool shows Engine RPM increasing from 1,200 to 3,500 and Input Shaft Speed increasing from 900 to 3,200 during the same acceleration event. What do the different rates of increase between Engine RPM and Input Shaft Speed indicate?

A. The TCC is partially engaged during 1st gear acceleration, creating mechanical coupling that reduces the slip as RPM rises

B. The input speed sensor is malfunctioning and reading lower than actual turbine speed at all engine RPM values

C. The stator one-way clutch is freewheeling, preventing normal torque multiplication and allowing excessive converter slip

D. Normal torque converter operation — the turbine always lags behind the impeller during acceleration due to fluid coupling slip

16. A vehicle has DTCs P0717 (Input Speed Sensor No Signal) and P0732 (Gear 2 Incorrect Ratio) stored simultaneously. The technician replaces the input speed sensor, clears both codes, and road-tests. P0717 does not return, but P0732 returns within 10 miles. What does this indicate?

A. The input speed sensor was faulty, but the 2nd gear ratio code represents a separate, genuine mechanical problem that exists independently

B. The replacement input speed sensor has a slightly different calibration that produces a minor ratio calculation error in 2nd gear only

C. Both codes were caused by the input speed sensor, and the persistent P0732 means the replacement sensor is also defective

D. The control module needs a software update to recalibrate its ratio calculations after the input speed sensor replacement

17. A technician is diagnosing a vehicle where the cruise control disengages every time the transmission makes a 4-5 upshift. The scan tool shows no transmission DTCs. The technician monitors the vehicle speed PID during the shift and observes that it drops from 62 mph to 55 mph for approximately 0.8 seconds during the 4-5 transition, then returns to 62 mph. What is the MOST LIKELY cause of the speed dip?

A. A faulty input speed sensor that produces a signal glitch during the 4-5 shift, which is broadcast as vehicle speed on the CAN bus

B. A momentary output speed sensor signal dropout during the 4-5 shift that causes the module to calculate a briefly incorrect speed

C. A worn 5th gear clutch that slips for 0.8 seconds during the shift, causing actual vehicle deceleration that the speed sensor detects

D. A normal speed sensor recalculation that occurs during every shift as the module transitions between gear-specific speed calibrations

18. A vehicle equipped with a CVT has a customer complaint that the transmission makes a high-pitched whining noise during deceleration with the throttle released. The noise increases in pitch as the vehicle speed decreases. The noise is not present during acceleration or cruising. What is the MOST LIKELY cause?

A. A worn CVT secondary pulley bearing that loads up specifically during the deceleration phase when engine braking reverses the torque direction

B. A failing CVT fluid pump that cavitates during deceleration because reduced pump demand creates low-pressure voids in the suction line

C. A stretched CVT belt that slips on the pulleys during deceleration and produces a squeal from the belt-to-pulley friction interface

D. Normal CVT operation — the ratio changes rapidly during deceleration, and the pitch change reflects the rapidly changing engine RPM

19. A technician connects a scan tool to a vehicle with a dual-clutch transmission (DCT) and monitors live data. During low-speed creep in stop-and-go traffic, the data shows Clutch 1 slip rate at 450 RPM and Clutch 1 temperature at 310°F. The maximum specification for clutch temperature is 300°F. What should the technician advise the customer?

A. The DCT is functioning normally and the slightly elevated temperature is acceptable for aggressive stop-and-go city driving

B. The DCT requires immediate clutch replacement because temperatures above 300°F indicate imminent clutch failure

C. The DCT clutch is experiencing excessive slip that is generating heat beyond specification, and the fluid and clutch condition should be evaluated

D. The scan tool temperature reading is inaccurate because DCT clutch temperatures cannot be measured directly and are estimated

20. A vehicle has DTC P2763 — Torque Converter Clutch Pressure Control Solenoid Control Circuit High — stored as a current code. The TCC is permanently engaged and cannot be released, causing the engine to stall at stops. The scan tool shows the TCC solenoid is commanded OFF but the measured current is 1.5 amps. What is the MOST LIKELY cause?

A. A short to battery voltage in the TCC solenoid circuit that feeds current to the solenoid independently of the module's command

B. A failed control module driver that is leaking current internally and cannot fully de-energize the TCC solenoid circuit

C. A TCC apply valve stuck in the applied position that mechanically holds the TCC engaged regardless of solenoid state

D. A TCC solenoid with a shorted coil that draws excessive current when energized and creates a magnetic latch effect

21. A technician scans a vehicle and finds DTC U0100 — Lost Communication with ECM/PCM — stored in the TCM. The transmission is operating in limp mode (locked in 3rd gear). The engine is running normally with no engine DTCs. What is the relationship between this communication code and the limp mode?

A. The TCM entered limp mode because it lost essential engine data (RPM, throttle position, engine torque) needed for normal shift logic

B. The TCM cannot communicate with the ECM because the transmission is in limp mode, which disables non-essential CAN bus channels

C. The limp mode was triggered by a mechanical transmission fault, and the communication loss is a secondary effect of the high-current solenoid draw

D. The U-code and the limp mode are unrelated — the TCM enters limp mode for internal transmission faults, not for communication issues

22. A vehicle with an automatic transmission has a customer complaint that the engine RPM drops approximately 300 RPM every time the air conditioning compressor clutch cycles on during city driving at 25 mph in 2nd gear. The RPM drop causes a noticeable deceleration that feels like the transmission is "grabbing." There are no DTCs. What is the MOST LIKELY explanation?

A. The AC compressor clutch engagement is creating an electrical spike that interferes with the shift solenoid circuits momentarily

B. The AC compressor is functioning normally but the engine cannot absorb the additional load smoothly at the low RPM of 2nd gear

C. The transmission is downshifting from 2nd to 1st when the AC compressor engages, producing a harsh gear change simultaneously

D. The AC compressor load causes the engine to drop below the TCC release threshold, and the TCC release produces the deceleration feel

23. A technician is diagnosing a vehicle where the transmission shifts normally in all gears but the shift indicator light for "Sport Mode" flashes continuously on the instrument cluster. The scan tool shows no DTCs in any module, and the sport mode button on the console responds normally when pressed. What is the MOST LIKELY cause?

A. A control module software error that has corrupted the sport mode display function without affecting actual shift operation

B. A faulty instrument cluster LED driver circuit that causes the sport mode indicator to flash independently of any control signal

C. A sport mode switch or its wiring with an intermittent contact that sends rapid on/off signals interpreted as a flashing display

D. A body control module fault that is interrupting the sport mode signal on the data bus between the TCM and the cluster

24. A vehicle equipped with a hybrid powertrain is brought in for a concern that the vehicle decelerates more aggressively than expected when the driver lifts off the accelerator during highway driving. The regenerative braking system is active. A scan tool shows that the regenerative braking torque request is higher than the manufacturer's baseline specification. What is the MOST LIKELY cause?

A. The hybrid battery state of charge is low, causing the system to increase regenerative braking torque to recharge the battery more aggressively

B. The conventional friction brakes have worn to minimum thickness and the system has increased regenerative braking to compensate

C. The drive motor has developed increased internal resistance that creates excess drag when it switches from driving to generating mode

D. The hybrid control module has a calibration error that commands excessive regenerative torque regardless of battery charge level

25. A technician monitors scan tool data on a vehicle with an eight-speed automatic transmission. During a WOT acceleration run, the data shows the following sequence: 1st gear at 6,200 RPM → upshift → 2nd gear at 4,100 RPM → upshift → 3rd gear at 4,400 RPM. The engine RPM in 3rd gear (4,400) is HIGHER than the engine RPM after the 2-3 shift in 2nd gear (4,100). What does this RPM increase after the 2-3 upshift indicate?

A. The 3rd gear clutch is slipping, and the engine RPM is rising because the clutch cannot hold the full WOT torque load

B. The engine has a misfire that occurs specifically in the 3rd gear RPM range, causing an artificial RPM reading increase

C. The scan tool is sampling the RPM at different points during each shift, creating an apparent but not actual RPM increase

D. The vehicle continued to accelerate during the shift transition, and the engine RPM in 3rd at 4,400 reflects the higher vehicle speed reached during the shift

26. A technician performs a transmission fluid service and refills with the correct manufacturer-specified fluid. During the post-service road test, the transmission produces a soft, slipping 2-3 upshift that was not present before the service. All other shifts are normal. The fluid level is correct. What is the MOST LIKELY cause of this new symptom?

A. The new fluid has slightly different friction modifier properties than the old fluid, revealing a 2-3 clutch that was marginally holding before

B. Air introduced during the filter replacement has not yet been purged from the 2-3 clutch apply circuit, causing a temporary pressure void

C. The new filter is restricting flow specifically to the 2-3 clutch circuit due to a manufacturing defect in the filter media

D. The valve body was disturbed during the pan removal and a check ball has moved out of position in the 2-3 clutch feed passage

27. A customer reports that the transmission engagement from Park to Drive is delayed by approximately three seconds, but only when the vehicle is parked facing downhill on a steep grade. On flat ground or uphill, engagement is immediate. There are no DTCs and the fluid level is correct. What is the MOST LIKELY explanation?

A. The oil pump cannot overcome the additional load of gravity pulling the vehicle downhill during the initial forward clutch fill event

B. The parking pawl is binding under the load of the downhill grade, mechanically delaying the manual valve from moving to Drive

C. The forward clutch circuit drains more completely when parked nose-down because gravity pulls fluid away from the clutch piston bore

D. The torque converter loses its fluid charge when parked nose-down, requiring additional time to refill before it can transmit torque

28. A technician is replacing the transmission range sensor on a vehicle. The service information indicates that the sensor must be adjusted to a specific voltage output in the Neutral position (2.50 volts ± 0.05 volts). The technician installs the sensor and reads 2.38 volts in Neutral. What should the technician do?

A. Loosen the sensor mounting bolts and rotate the sensor body until the Neutral voltage reads within the 2.45-2.55 volt specification

B. Accept the 2.38-volt reading because it is within 5% of the target value and will not cause any operational concerns

C. Replace the sensor with a different unit because the voltage output cannot be adjusted by repositioning the sensor body

D. Reprogram the control module to accept 2.38 volts as the new Neutral reference value for this replacement sensor

29. A vehicle's automatic transmission has a fluid leak that the technician has traced to the speedometer drive gear housing O-ring on a rear-wheel-drive transmission. After replacing the O-ring, the technician notices that the speedometer drive gear itself has a chipped tooth. What is the potential consequence of leaving the chipped gear in service?

A. The speedometer will read slightly high because the missing tooth reduces the gear's effective diameter by one tooth

B. The transmission will produce a rhythmic clicking noise proportional to output shaft speed from the damaged gear mesh

C. The chipped tooth will not affect operation because the speedometer drive gear is a non-precision fitment with excess clearance

D. The output speed sensor or speedometer will produce an inaccurate or erratic signal each time the chipped tooth passes the sensor

30. A customer reports that the transmission "pops" out of manual 2nd gear selection when driving over rough roads at 35 mph. When the road surface is smooth, the transmission holds 2nd gear without issue. There are no DTCs. What should the technician investigate FIRST?

A. The 2nd gear clutch pack for a worn piston seal that releases under the vibration forces of rough road driving

B. The shift cable, linkage, and detent mechanism for wear that allows road vibration to jar the manual valve off the 2nd gear detent

C. The transmission control module for an intermittent processing error triggered by the vibration sensor inputs from rough roads

D. The transmission mount for excessive play that allows the case to shift during rough road vibration, moving the manual valve

31. A technician discovers that the transmission external wiring harness on a vehicle has been repaired with three butt-splice connectors by a previous technician. The repairs are located in the harness section between the firewall connector and the case pass-through connector. Currently, no DTCs are stored and the transmission operates normally. What is the MOST appropriate action?

A. Inspect each splice for quality, verify circuit continuity and voltage drop, apply dielectric grease, and document the finding

B. Replace all three butt connectors with soldered and heat-shrink-sealed splices to upgrade the repair quality to best practice standards

C. Replace the entire external harness assembly because three splices indicate the harness has been extensively damaged beyond repair

D. Leave the repairs undisturbed since they are currently functional and the connectors appear to be properly crimped and insulated

32. A vehicle's automatic transmission produces a "whine" from the bell housing area that increases in pitch with engine RPM. The whine is present in Park, Neutral, Drive, and Reverse. The technician removes the inspection cover and listens with a stethoscope. The whine is loudest near the torque converter hub area. What should the technician check to differentiate between a converter bearing noise and a pump noise?

A. The fluid level — a low level causes pump cavitation noise but would not affect converter bearing noise characteristics

B. The stall test pressure — a worn pump producing noise would also show low pressure, while a converter bearing would not affect pressure

C. Whether the noise pitch changes when the transmission is placed in gear — pump noise changes under load while converter bearing noise may not

D. The fluid condition — contaminated fluid causes pump noise from abrasive particles but does not affect converter bearing operation

33. A customer states that the vehicle's automatic transmission works perfectly except that the "Tow/Haul" mode indicator light does not illuminate when the button is pressed. The technician verifies that the tow/haul button clicks when pressed. The scan tool shows the TCM is not receiving a tow/haul mode request signal. What should the technician investigate FIRST?

A. The transmission control module for a failed input processor that cannot detect the tow/haul signal on its dedicated circuit

B. The instrument cluster for a burned-out LED that prevents the indicator from illuminating even though the mode is activating

C. The tow/haul switch wiring and connector for an open circuit that prevents the button's signal from reaching the control module

D. The body control module for a configuration setting that has disabled the tow/haul feature for this vehicle's specific trim level

34. A technician replaces a solenoid on the valve body through the pan opening. After the repair, the transmission shifts normally in all gears except Reverse — Reverse now produces a harsh, banging

engagement. All other engagements are smooth. This symptom did not exist before the solenoid replacement. What is the MOST LIKELY cause of the new Reverse harshness?

A. The new solenoid has a slightly faster response time that produces a more aggressive clutch apply rate in the Reverse circuit

B. A check ball was dislodged from its seat during the solenoid replacement and is now missing from the reverse accumulator feed passage

C. The solenoid calibration code was not entered after the replacement, causing the module to command excessive Reverse apply pressure

D. The pan gasket is restricting fluid flow to the Reverse circuit because it shifted position during the pan reinstallation process

35. A vehicle's transmission mount is found to be severely deteriorated — the rubber has separated from both metal plates and the transmission has dropped approximately 1/2 inch from its correct position. The customer's only complaint is a "clunk" when shifting from Park to Drive. What additional symptoms might this severe mount failure cause?

A. Misalignment of the shift cable that produces incorrect manual valve positioning, potential cooler line stress, and altered driveshaft angle

B. Increased transmission fluid temperature because the dropped position reduces airflow across the transmission case surface

C. A no-start condition because the dropped transmission pulls the range sensor out of alignment with the Park position

D. Increased transmission noise in all gears because the dropped position changes the internal endplay of the gear train

36. A technician discovers that a vehicle's transmission cooler line has been previously repaired with a section of reinforced rubber heater hose and standard worm-drive clamps. The repair appears to be holding with no visible leaks. Is this repair acceptable?

A. Yes — reinforced heater hose is rated for higher pressure than transmission cooler lines and provides a superior repair

B. Yes — if the hose shows no signs of swelling, cracking, or deterioration, the repair is functionally equivalent to steel tubing

C. No — heater hose is not designed for ATF compatibility or the operating pressures of the transmission cooling circuit

D. No — worm-drive clamps cannot provide adequate clamping force for transmission line pressures above 50 psi

37. A vehicle's automatic transmission has a customer complaint that the shift from 2nd to 3rd gear is noticeably softer and slower than all other shifts. The scan tool shows the 2-3 shift duration is 0.45 seconds versus the target of 0.25 seconds. The technician suspects the 3rd gear accumulator may be absorbing too much pressure. What in-vehicle test could help confirm this theory?

A. Perform a line pressure test to verify system pressure is adequate and not dropping during the 2-3 shift event

B. Monitor the EPC solenoid duty cycle during the 2-3 shift to determine if the module is commanding adequate apply pressure

C. Command a higher EPC pressure through a bidirectional scan tool test and observe if the 2-3 shift becomes firmer and faster

D. Perform a stall test in Drive to verify the clutch packs are holding adequately under maximum torque before investigating accumulators

38. A technician is preparing to install a rebuilt transmission. The old transmission's torque converter had a failed TCC that scattered friction material. The rebuild included a new converter. Before installation, what MUST be done to the cooler system?

A. Replace the radiator regardless of cooler flow test results because the integral cooler always traps debris from TCC failures

B. Flush the cooler and cooler lines in both directions and perform a flow test to verify the cooler is clean and unobstructed

C. Install only an inline cooler filter and skip the flushing procedure since the new converter eliminates the contamination source

D. Replace the cooler lines only, since the rigid steel lines trap more debris than the cooler core passages during circulation

39. During a transmission overhaul, a technician inspects the reverse band and finds the friction lining is worn below minimum specification on one half but is within specification on the other half. What does this asymmetric wear pattern indicate?

A. The band was previously adjusted too tightly, causing premature wear on the side closest to the servo apply pin contact point

B. The band drum has an out-of-round condition that creates uneven contact between the band and the drum surface circumference

C. The servo apply pin or the band anchor is causing uneven force distribution across the band surface during each application

D. The transmission fluid contained abrasive debris that accumulated on one side of the band lining during normal fluid circulation

40. A technician measures oil pump gear tip clearance at 0.005 inches and gear side clearance at 0.002 inches. The manufacturer's maximum specifications are 0.006 inches for tip clearance and 0.003 inches for side clearance. Both measurements are within specification. However, when the technician primes the pump with ATF and rotates it by hand, the pump produces noticeably less resistance than a new pump tested the same way. What should the technician do?

A. Accept the pump as serviceable since both dimensional measurements are within the manufacturer's specified tolerances

B. Replace the pump because the reduced resistance indicates worn vane tips or internal leakage not captured by clearance measurements alone

C. Hone the pump housing bore to improve the seal between the gear tips and the housing wall, reducing internal leakage

D. Install the pump and perform a line pressure test after assembly — if pressure is within spec, the pump is adequate for service

41. A technician has completed a transmission overhaul and is reassembling the unit. The rebuild kit includes both Teflon and cast-iron sealing rings for the input shaft. The original transmission used cast-iron rings. The technician notices that the Teflon rings have butt-cut joints while the cast-iron rings have hooked interlocking joints. What is the advantage of using the Teflon rings instead of the cast-iron originals?

A. Teflon rings are stronger than cast-iron rings and can withstand higher apply pressures without breaking during clutch engagement

B. Teflon rings are easier to install because they stretch over the shaft without tools, while cast-iron rings require a ring compressor

C. Teflon rings produce a slightly higher apply pressure because their tighter seal prevents fluid bypass between the shaft and bore

D. Teflon rings produce less rotational drag on the shaft because Teflon has a lower coefficient of friction than cast iron

42. A technician is measuring clutch pack clearance on a direct clutch during reassembly. The clearance measures 0.055 inches. The manufacturer's specification is 0.025 to 0.050 inches. The technician has the following selective snap rings available: 0.060" (currently installed), 0.070", 0.080", and 0.090". Which snap ring should the technician install?

A. The 0.070" snap ring, which would reduce the clearance by 0.010" to approximately 0.045 inches — within specification

B. The 0.070" snap ring, which is the next available thickness above the currently installed ring and provides the minimum necessary correction

C. The 0.080" snap ring, which would reduce the clearance by 0.020" to approximately 0.035 inches — centered in the specification range

D. The 0.090" snap ring, which would reduce the clearance by 0.030" to approximately 0.025 inches — at the tight end for firmest shifts

43. A technician discovers during a transmission overhaul that the sun gear's external splines have visible wear — the spline teeth are noticeably thinner on one side than the other. The gear teeth themselves (the external teeth that mesh with the planet gears) show normal wear. What does the asymmetric spline wear indicate?

A. The sun gear was installed backward during a previous repair, causing the splines to load on the wrong face during torque transfer

B. Normal spline wear from the directional torque loading that occurs during forward gear operation over the vehicle's mileage

C. The sun gear has been subjected to excessive torsional loads that caused the splines to deform asymmetrically and needs replacement

D. The mating splined component (clutch hub or drum) has excessive play that allows the sun gear to oscillate on its splines

44. A technician is performing endplay measurement during transmission reassembly. The dial indicator is set up correctly and the technician pushes the input shaft fully inward. The dial indicator reads zero. The technician then pulls the input shaft fully outward and the indicator reads 0.038 inches. The specification is 0.015 to 0.040 inches. The technician repeats the measurement and gets 0.036 inches. Is the endplay acceptable?

A. Yes — both readings (0.038 and 0.036) fall within the specification range, and the slight variation between measurements is normal

B. No — the variation between the two readings (0.002 inches) indicates the thrust washers are shifting position and must be replaced

C. No — the readings are too close to the maximum specification of 0.040 inches and should be reduced with a thicker selective washer

D. Yes — but only if a third measurement confirms the endplay is consistently below 0.040 inches to rule out measurement variation

45. A technician has rebuilt a transmission and is installing the valve body. The service information indicates that the valve body bolts must be torqued in a specific sequence starting from the center and

working outward. The specification is 8 ft-lbs. The technician starts torquing from the left side and works across to the right side instead. What is the potential consequence?

A. No consequence, since the total clamping force is identical regardless of the sequence used to achieve the final torque value

B. The valve body bolts on the right side will be over-torqued because the progressive tightening from left pushes the body rightward

C. The separator plate gasket will tear on the right side because the rightward progression creates a shearing force across the gasket

D. The valve body or separator plate may warp from uneven clamping, potentially causing internal hydraulic leaks between circuits

46. After installing a rebuilt transmission, filling with fluid, and starting the engine, the technician notices the fluid level is correct but the fluid appears slightly foamy on the dipstick. No abnormal noises are present. What should the technician do?

A. Drain the fluid immediately and refill with fresh fluid because foamy fluid indicates the wrong fluid type was used

B. Allow the engine to idle for several minutes and recheck, as minor initial foam from air trapped during assembly typically dissipates quickly

C. Add an additional quart of fluid because foam indicates the level is low and the pump is drawing air from a partially exposed filter

D. Remove the pan and check the filter O-ring seal because foam always indicates an air leak at the pump intake connection

47. A technician discovers during a transmission overhaul that the extension housing bushing is worn but the extension housing seal is in good condition. Should the technician replace only the bushing and reuse the seal?

A. No — whenever the bushing is replaced, the seal should also be replaced because removing and reinstalling the shaft to change the bushing disturbs the seal's seated position

B. Yes — if the seal is in good condition with no hardening, cracking, or wear, it can be reused since the new bushing will restore the shaft's alignment

C. No — worn bushings always contaminate the seal lip with metal particles, and the seal must be replaced regardless of its visual condition

D. Yes — but only if the output shaft or driveshaft yoke surface shows no wear groove at the seal contact area that would compromise the seal

48. A technician has completed a major transmission overhaul on a vehicle with an electronically controlled transmission. The overhaul included a new valve body with pre-installed solenoids, new clutch packs, and a new torque converter. After installation and initial startup, the technician performs an adaptive reset. During the re-learn drive cycle, the 1-2 upshift is harsh but all other shifts are smooth. After 30 minutes of driving, the 1-2 shift has not improved. What should the technician investigate?

A. The adaptive learning system, since 30 minutes should be adequate time for the module to learn and smooth the 1-2 shift

B. The solenoid calibration codes for the 1-2 shift solenoid to verify they were entered correctly into the module

C. The transmission fluid temperature, since the adaptive system may require operating temperature to calibrate the 1-2 shift

D. The 1-2 specific clutch clearance or accumulator function, since a persistent harsh shift despite adaptive learning indicates a mechanical cause

49. A technician performs a cooler flow test after flushing the cooler following a transmission rebuild. The test produces adequate flow in the forward direction but zero flow in the reverse direction. What does this directional blockage indicate?

A. Normal cooler function because transmission cooler circuits are designed to flow in one direction only during vehicle operation

B. A one-way blockage inside the cooler from a collapsed baffle, lodged debris, or a check valve that blocks reverse flow

C. A kinked cooler line that collapses when flow is reversed but opens when flow matches the normal circuit direction

D. An incorrectly connected test setup where the technician reversed the test ports and is reading the result backward

50. A technician completes a transmission rebuild and installation. During the post-installation road test, all shifts are smooth and correctly timed. The TCC engages and releases properly. Fluid temperature reaches 195°F and stabilizes. However, after returning to the shop and shutting off the engine, the technician notices a thin trail of fluid on the floor extending from the parking spot to the shop entrance — approximately 30 feet. No fluid is actively dripping with the engine off. What is the MOST LIKELY source?

A. The front pump seal that only leaks at operating temperature and pressure during driving but seals once the engine stops

B. The pan gasket that wept during the road test from residual oil on the case mating surface that prevented proper initial sealing

C. A cooler line fitting that seeps under the dynamic vibration and pressure of driving but stops when the engine and vehicle are stationary

D. The converter drain plug that was left loose during assembly and leaks only when the converter is spinning and generating centrifugal force

Practice Exam 12: Answer Key and Explanations

1. D — Dark reddish-brown fluid without a burnt odor and a thin layer of fine gray paste on the magnet represent normal aging and wear accumulation over 85,000 miles. The fluid has degraded from its original red color through heat cycling and oxidation but has not reached the burnt, damaged stage. A fluid and filter service replaces the depleted friction modifiers, anti-wear additives, and anti-oxidation compounds, restoring the fluid's protective properties before degradation progresses to the point of causing internal damage.

2. B — The vibration persists when the transmission is shifted to Neutral at 55 mph, which eliminates all torque-carrying transmission internal components as the source. The vibration disappears when the vehicle decelerates to 40 mph — still in Neutral — confirming it is tied to vehicle speed, not engine

RPM or gear selection. A speed-dependent vibration present in Neutral is external to the transmission: driveshaft, wheel bearings, tires, or other rotating drivetrain components downstream of the transmission output.

3. B — The scan tool confirms zero TCC slip throughout the surge event — the TCC is fully locked with no oscillation in the slip data. This definitively rules out TCC slippage as the cause of the 200 RPM tachometer oscillation. The surge originates from a source other than the converter clutch — most likely an engine performance issue such as a fuel delivery fluctuation, misfire, or idle control oscillation that produces the rhythmic RPM change while the drivetrain transmits it directly through the locked TCC.

4. A — Both technicians are correct. Adding UV dye to the transmission fluid before condemning the front pump seal is a best practice because it definitively confirms whether the leak is ATF or engine oil. Adding dye to both fluids simultaneously is an even more thorough approach — different colored dyes (typically green for ATF and red for engine oil, or vice versa) allow the technician to identify which fluid is present at the leak point under UV light, eliminating guesswork when both the rear main seal and front pump seal are suspects.

5. C — A clunk during every shift event — both upshifts and downshifts — that is absent during initial gear engagement from Park or Neutral indicates an internal source that moves during shift transitions. Excessive endplay allows the entire internal gear train to shift axially each time the torque loading changes direction during a shift. The mechanical impact of the components hitting their axial travel limits produces the clunk. Initial engagement from Park or Neutral loads the system in one direction without the reversal that produces the impact.

6. D — Normal Drive stall speed confirms the engine, converter, and Drive circuit are functioning correctly. The significantly low Reverse stall speed (1,600 vs. 2,200 RPM) means the engine cannot reach its normal stall RPM against the Reverse load — something in the Reverse gear train is binding or creating excessive mechanical resistance. A dragging component, a partially applied clutch that should be released, or a misassembled internal component in the Reverse power flow path loads the engine beyond its normal stall capacity.

7. A — At light throttle, the pressure control solenoid commands the lowest apply pressures to all clutch circuits. With minimal clamping force available, the timing margin between the releasing and applying devices during the 1-2 shift becomes critical. If there is a marginal overlap where both devices are briefly engaged simultaneously at these low pressures, a brief bind occurs — producing the shudder. At moderate and heavy throttle, higher pressures provide faster, more decisive device transitions that prevent the overlap.

8. C — The seasonal pattern — delayed engagement only in cold winter conditions that resolves after warmup — points to a temperature-dependent failure. Cold ATF has much higher viscosity than warm fluid, which slows the pump's ability to fill clutch circuits. If the forward clutch piston seal is marginally worn, it maintains adequate seal when warm and pliable but leaks more when cold and stiff, compounding the cold-viscosity delay. The combination of slow pump fill and cold seal leakage produces the winter-only delay.

9. A — Both technicians are correct. The brakes must be firmly applied during a stall test because the engine is producing maximum torque through the converter to the drive wheels — if the brakes cannot hold, the vehicle will launch forward dangerously. Performing the test in both Drive and Reverse provides comparative data: if stall speed is normal in one range but abnormal in another, the fault is isolated to the circuit that differs, which is a valuable diagnostic distinction.

10. D — A thump once per output shaft revolution that occurs only in 3rd gear and only during light-throttle acceleration points to a damaged component in the 3rd gear power flow path. A damaged tooth on a planetary gear element that is active in 3rd gear contacts its mating gear once per revolution, producing the rhythmic thump. In other gears, different planetary elements carry the load, and the damaged tooth is unloaded. The once-per-revolution frequency corresponds to the specific gear element's rotational speed.

11. C — Before removing the valve body, the technician can perform a quick in-vehicle test by using the scan tool's bidirectional function to reduce the EPC solenoid output, which lowers line pressure. If the harsh Reverse engagement becomes noticeably softer when line pressure is reduced, it confirms that the harshness is caused by excessive or uncontrolled pressure reaching the reverse clutch — consistent with a failed accumulator that is not cushioning the apply. If the harshness remains unchanged, the accumulator theory is less likely.

12. B — The scan tool shows the module commanding 4th gear, but the calculated ratio of 1.33:1 does not match the 4th gear specification of 1.00:1 (direct drive). The transmission holds the gear without slipping, and there are no DTCs. If the transmission were actually in 4th gear (1:1), the input and output speeds would be equal. The ratio of 1.33:1 corresponds to a lower gear — likely 3rd. The module may be commanding 4th, but a stuck shift solenoid or valve is preventing the shift from completing, leaving the transmission physically in 3rd.

13. A — The code clears and the transmission shifts normally, then the code returns after 15 miles — a pattern that repeats consistently. This intermittent recurrence indicates the solenoid or its downstream shift valve functions correctly when first reset but develops the stuck condition again during driving. Varnish, debris, or a marginal mechanical issue causes the solenoid plunger or shift valve to stick

intermittently. The temporary reset clears the electrical latch in the module but does not address the physical cause of the sticking.

14. D — The DTC specifies "Performance/Stuck Off" — meaning the module detects that PCS-C is not producing its expected hydraulic effect despite being commanded. The solenoid resistance is within specification (5.5 ohms within 4-7), confirming the coil is electrically intact. Since the electrical side is confirmed good, the "performance" designation means the hydraulic result is not occurring — the valve downstream of the solenoid is stuck, a passage is blocked, or a mechanical issue prevents the commanded pressure from reaching the affected clutch circuits.

15. D — During acceleration in 1st gear, the impeller (driven by the engine) always spins faster than the turbine (connected to the input shaft) because energy is transferred through the fluid coupling. The engine RPM increases from 1,200 to 3,500 while the input shaft speed increases from 900 to 3,200 — the turbine consistently lags behind the impeller. This speed differential represents normal torque converter slip during acceleration, which decreases as vehicle speed increases and the turbine approaches impeller speed.

16. A — Replacing the input speed sensor cleared P0717, confirming the sensor was defective. However, P0732 (Gear 2 Incorrect Ratio) returned independently within 10 miles. Since the ratio code requires accurate speed data to calculate (and the new sensor is providing correct data), the returning P0732 means the module is now accurately detecting a genuine 2nd gear ratio error that exists in the hardware. The original sensor fault may have masked this mechanical issue.

17. B — A vehicle speed PID that drops from 62 to 55 mph for 0.8 seconds during the 4-5 shift — then returns to 62 — is not a real vehicle deceleration (the vehicle cannot lose and regain 7 mph in 0.8 seconds). The speed drop is an artifact of a momentary output speed sensor signal dropout during the shift. The cruise control module reads this false speed drop as actual deceleration exceeding its tolerance, causing it to disengage. The sensor signal restores and the speed reading returns to 62 mph.

18. D — During deceleration with throttle released, the CVT ratio changes rapidly as the pulleys adjust to the changing speed relationship. The engine RPM changes in response to these ratio changes. The pitch change the customer hears corresponds to the changing engine RPM — as the vehicle slows and the ratio adjusts, the engine RPM changes and the pitch follows. This is a normal characteristic of CVT operation during coast-down, not a mechanical fault.

19. C — A clutch temperature of 310°F exceeds the manufacturer's maximum specification of 300°F, and the 450 RPM slip rate during low-speed creep indicates excessive slippage. While some clutch slip

during DCT creep is normal and expected, the combination of above-spec temperature and high slip rate indicates the clutch friction material or DCT fluid has degraded enough that the clutch cannot maintain smooth, controlled slip. The fluid and clutch condition should be evaluated before further damage occurs.

20. A — The module commands the TCC solenoid OFF (0% duty cycle), but 1.5 amps of current flows through the solenoid anyway. Since the module is not sending this current, it must be coming from an external source — a short to battery voltage in the solenoid circuit wiring. The parasitic current energizes the solenoid continuously, keeping the TCC applied regardless of the module's command. This forces the TCC to remain locked, causing the engine to stall when the vehicle comes to a stop.

21. B — The loss of communication with the ECM means the TCM cannot receive critical data it needs for normal shift logic — engine RPM, throttle position, calculated engine torque, and other ECM-broadcast parameters. Without this data, the TCM cannot determine when to shift, how much pressure to command, or when to engage the TCC. The TCM enters limp mode as a protective measure because it cannot make informed shift decisions without the engine data provided by the ECM.

22. D — At 25 mph in 2nd gear, the engine is operating at a relatively low RPM. When the AC compressor clutch engages, it adds a sudden parasitic load to the engine. The engine RPM drops 300 RPM because the idle control system or throttle control cannot compensate quickly enough for the sudden load change at this low operating speed. The deceleration the customer feels is from the actual engine RPM drop, not from a transmission shift event. The transmission remains in 2nd gear throughout.

23. C — The sport mode button responds when pressed (the scan tool shows mode changes), and the transmission shifts normally. The flashing indicator with no DTCs points to the switch or its wiring having an intermittent contact that sends rapid on/off signals to the module. The module interprets each signal change as a mode toggle, and the instrument cluster displays the rapidly alternating state as a flashing light. A dirty or worn contact in the switch mechanism is the most likely source.

24. A — A low hybrid battery state of charge triggers the system to increase regenerative braking torque to recapture more kinetic energy and recharge the battery faster during deceleration events. The more aggressive deceleration the customer feels is the system intentionally converting more kinetic energy into electrical energy. Once the battery charge reaches its target level, the regenerative braking torque returns to normal. This is a designed system response, not a fault.

25. D — During WOT acceleration, the vehicle continues to accelerate during the brief shift transition. By the time the 2-3 shift completes and 3rd gear is fully engaged, the vehicle has gained additional

speed during the shift event. The engine RPM in 3rd gear at 4,400 is higher than the post-shift RPM in 2nd (4,100) because the vehicle speed increased during the transition. The engine RPM reflects the higher vehicle speed reached during the shift, not clutch slippage.

26. B — A new symptom in a single specific shift immediately after a fluid service — with correct level and correct fluid — points to air introduced during the filter replacement that has become trapped in the 2-3 clutch circuit. The air pocket compresses during the clutch apply, temporarily reducing the effective hydraulic force and causing the clutch to slip briefly. The air typically purges within a few drive cycles as the pump circulates fluid through the circuit and forces the air out.

27. C — When parked nose-down on a steep grade, gravity pulls the fluid in the forward clutch circuit away from the clutch piston bore and toward the lowest point of the passages. Over the parking period, the clutch circuit drains more completely than it would on flat ground because the incline assists the natural drain-back through the valve body. When Drive is selected, the empty circuit must be refilled by the pump, creating the delay. On flat ground, the circuit retains enough fluid for immediate engagement.

28. A — The sensor's Neutral voltage of 2.38V is outside the specified tolerance of 2.50 ± 0.05V (acceptable range: 2.45-2.55V). The range sensor mounting uses slotted bolt holes that allow rotational adjustment. The technician should loosen the mounting bolts, rotate the sensor body slightly until the Neutral voltage reads within the 2.45-2.55V specification, and retighten the bolts. This ensures all gear position voltages are correctly calibrated to their specification values.

29. D — A chipped tooth on the speedometer drive gear creates a missing-tooth gap in the gear mesh. Each time the chipped tooth passes the driven gear or speed sensor pickup point, the signal is briefly interrupted or produces an anomaly. The output speed sensor or speedometer receives a signal that drops or glitches once per gear revolution at the chipped tooth position, producing an erratic or inaccurate speed reading that can affect shift timing and speedometer accuracy.

30. B — The transmission holds 2nd gear on smooth roads but pops out on rough roads — a vibration-dependent symptom. The shift cable, linkage, and detent mechanism maintain the manual valve position through spring-loaded detent balls or rollers. If the detent mechanism is worn, the spring weakened, or the linkage has play, road vibration can jar the manual valve off its detent position. The cable and linkage components should be inspected for wear, looseness, and proper detent spring tension.

31. A — Three butt-splice connectors with the system currently functioning and no DTCs present should be inspected rather than immediately replaced or ignored. The technician should verify each splice is properly crimped, check circuit continuity and voltage drop across each splice under load, apply

dielectric grease for moisture protection, and document the finding. If any splice shows high resistance or poor quality, it can be upgraded individually. A blanket replacement of the entire harness for three functional splices is excessive.

32. C — Both the oil pump and the torque converter rotate at engine speed in all gear ranges. To differentiate between them, shift from Park or Neutral into Drive or Reverse while listening. The pump experiences increased hydraulic demand when a gear is engaged, which changes its loading and may alter the noise character. A converter bearing noise typically remains consistent regardless of whether the gear train is loaded or unloaded, since the converter continues spinning at engine speed in all conditions.

33. C — The scan tool confirms the TCM is not receiving the tow/haul request signal, meaning the signal is not reaching the module. The button clicks mechanically, suggesting the switch itself actuates. The most likely failure point is between the switch and the module — the wiring, connector, or the switch's electrical contacts. An open circuit in this path prevents the button press from being communicated to the TCM, which is why neither the module nor the indicator light responds.

34. B — The new Reverse harshness appeared immediately after the solenoid replacement and did not exist before. During the pan removal and solenoid work, a check ball may have been dislodged from its seat in the reverse accumulator feed passage. Without this check ball, the reverse accumulator does not receive the controlled fluid feed it needs to cushion the clutch application. Full line pressure reaches the reverse clutch instantly without cushioning, producing the harsh engagement.

35. A — A 1/2-inch transmission drop from severe mount failure misaligns the shift cable relative to the manual shaft, potentially causing the manual valve to sit off-center in its detents. The dropped position also changes the angle of the cooler lines, which may stress fittings and cause leaks. On a rear-wheel-drive vehicle, the altered transmission position changes the driveshaft operating angle, which can produce vibration and accelerate U-joint wear. All of these secondary effects compound beyond the simple clunk.

36. C — Standard heater hose is designed for water-based engine coolant at relatively low pressures (typically 15-20 psi). Transmission cooler lines carry ATF under pressures of 50-150+ psi and at temperatures that degrade rubber not designed for petroleum-based fluid exposure. Heater hose will swell, soften, and eventually rupture under the combined chemical and pressure demands of a transmission cooling circuit. This repair must be replaced with proper transmission-rated hose or rigid steel tubing.

37. D — If the technician commands a higher EPC pressure through a bidirectional scan tool test and the 2-3 shift becomes firmer and faster, it confirms that the current cushioning system is absorbing too much pressure — the accumulator is likely over-absorbing. The additional pressure overcomes the accumulator's excessive absorption and delivers adequate clamping force to the clutch, producing a normal shift. This test directly links the soft shift to insufficient clutch apply pressure caused by the accumulator's excessive cushioning.

38. B — Debris from the failed TCC circulated through the cooler during the failure and became trapped in the cooler core and cooler lines. Installing a rebuilt transmission with a new converter without flushing the cooler allows this trapped debris to migrate into the new transmission immediately upon startup. The cooler must be flushed in both directions to remove embedded debris, and a flow test confirms the passages are clean and unobstructed before the rebuilt unit is connected.

39. C — Asymmetric band wear — one half worn below specification while the other half is within specification — indicates uneven force distribution during band application. The servo apply pin contacts the band at one point, and the band pivots against its anchor at the opposite end. If the apply pin is bent, the wrong length, or the anchor is loose, the clamping force concentrates on one side of the band, causing that side to wear faster while the opposite side carries less load.

40. A — Both dimensional measurements — tip clearance at 0.005" (max 0.006) and side clearance at 0.002" (max 0.003) — are within the manufacturer's specified tolerances. The reduced hand-rotation resistance compared to a new pump reflects normal wear that has slightly increased internal clearances but has not exceeded specification limits. The manufacturer's clearance specifications define the acceptable service limit. If the pump meets these specifications, it is serviceable regardless of subjective hand-feel comparisons.

41. D — Teflon sealing rings have a significantly lower coefficient of friction than cast-iron rings. When the input shaft rotates within its mating bores, the sealing rings rub against the bore walls. Cast-iron rings create measurable rotational drag that consumes engine energy. Teflon rings slide with much less friction, reducing parasitic drag on the rotating shaft. This reduced drag improves overall transmission efficiency and is the primary engineering reason manufacturers have transitioned to Teflon rings.

42. B — The current clearance is 0.055 inches, which exceeds the maximum specification of 0.050 inches. The clearance must be reduced by at least 0.005 inches. Installing the 0.070-inch snap ring (0.010 thicker than the current 0.060) reduces the clearance by approximately 0.010 inches: 0.055 - 0.010 = 0.045 inches, which falls within the 0.025-0.050 specification. The 0.080 ring would produce 0.035 inches and the 0.090 ring would produce 0.025 inches — both within spec but unnecessarily tight.

43. C — Asymmetric spline wear — one face of each spline tooth worn more than the other — indicates the splines have been subjected to excessive torsional loads that deformed them beyond their elastic limit. The torque loading from forward gear operation consistently loads one face of each spline tooth. Under extreme or sustained overload conditions, the loaded face wears or deforms while the unloaded face remains intact. The sun gear must be replaced because deformed splines create loose fitment and uneven load distribution.

44. A — Both measurements (0.038 and 0.036 inches) fall within the manufacturer's specification of 0.015 to 0.040 inches. The 0.002-inch variation between the two readings is normal and expected — minor differences result from component settling, indicator plunger contact angle, and the amount of force applied during the push-pull measurement. Both readings confirm the endplay is acceptable. No thrust washer change is needed.

45. D — The manufacturer specifies a center-outward tightening sequence to distribute clamping force evenly across the valve body and separator plate. Tightening from left to right pulls the valve body toward the left side first, potentially warping the casting or shifting the separator plate. This uneven clamping can misalign internal passages, distort valve bores, and create pressure leaks between adjacent hydraulic circuits — producing shift quality problems that are extremely difficult to diagnose.

46. B — A slight amount of foam on the dipstick immediately after initial startup of a rebuilt transmission is common and typically harmless. Air trapped in the empty passages, clutch circuits, and converter during assembly gets mixed with the fluid during the initial pump circulation. This trapped air produces minor foam that dissipates within a few minutes of idle operation as the pump circulates fluid and the air is purged through the vent. Allowing idle time and rechecking is the correct first step.

47. A — Removing the driveshaft or output shaft to replace the bushing disturbs the seal's seated position and the relationship between the seal lip and the shaft surface. Even if the seal appears to be in good condition, reinstalling the shaft through the seal can nick, roll, or unseat the seal lip. Standard practice is to replace the seal whenever the bushing is replaced to ensure a fresh, properly seated seal lip against the shaft surface. The minimal cost of a new seal prevents a repeat leak.

48. D — The adaptive reset was performed, and all other shifts smoothed out during the 30-minute re-learn period — but the 1-2 shift remained persistently harsh. If the adaptive system successfully corrected all other shifts but could not correct the 1-2, the fault is not in the adaptive learning — it is in the 1-2 circuit hardware. The 1-2 clutch clearance may be set too tight, the 1-2 accumulator may be stuck, or the 1-2 orifice may be blocked, preventing the cushioning that the adaptive system cannot override.

49. B — Adequate flow in one direction but zero flow in the reverse direction indicates a one-way blockage inside the cooler. A collapsed internal baffle, a piece of lodged debris acting as a flap valve, or a damaged internal tube that seals when flow pushes from one direction but opens when flow is reversed would produce this directional blockage pattern. The cooler is not reliably clean and must be replaced because the blockage may shift during normal operation and restrict flow in the primary direction.

50. C — A 30-foot fluid trail left during the road test that stops dripping once the engine is off indicates a dynamic leak — one that occurs under the vibration, pressure, and temperature conditions of driving but seals when the vehicle is stationary. A cooler line fitting that seeps under the combined effects of engine vibration, road shock, and full system pressure during driving but stops when all three cease is the most likely source. The fitting should be inspected, tightened or re-sealed, and re-tested.