

# PRACTICE EXAM 15: ASE A2 SIMULATION

## (50 QUESTIONS)

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1. A vehicle with an eight-speed automatic transmission has been driven through a deep puddle at moderate speed. Immediately afterward, the transmission begins shifting erratically — upshifts and downshifts occur at random intervals with no consistent pattern. Within 10 minutes, the erratic shifting stops and the transmission returns to normal. No DTCs are stored. Which of the following BEST explains this temporary symptom?

A. Water entered the transmission case through the vent tube and temporarily contaminated the fluid with moisture

B. The cold water splash against the hot transmission case caused the case to contract, temporarily binding internal valves

C. Water splashed onto the exhaust pipe and produced steam that was drawn into the engine intake, momentarily affecting throttle calculations

D. Water entered an external electrical connector or splashed onto a sensor, temporarily disrupting signal quality until the connection dried

2. A technician is road-testing a vehicle with a customer complaint of "the transmission slips in the morning." The vehicle has been sitting in the shop overnight. On the first drive from cold, the technician confirms a 3-second delayed engagement into Drive, followed by a soft 1-2 upshift. After 5 minutes of driving, all engagements and shifts are normal. The fluid level is correct. Which diagnostic principle should guide the technician's investigation?

A. The symptom is temperature-dependent — cold-specific symptoms point to seals, viscosity effects, or drain-back issues that resolve once fluid warms

B. The symptom indicates worn clutch packs that slip when cold friction material is stiff but grip once warmed by friction heat

C. The delayed engagement proves the oil pump is failing because it cannot build pressure quickly enough during cold cranking

D. The soft 1-2 shift confirms the adaptive system is starting from reset values each morning and must re-learn during each drive cycle

3. A customer reports that the automatic transmission "jerks" once when the vehicle first begins moving from a stop, but only when the vehicle has been parked for more than 4 hours. The jerk does not occur if the vehicle is driven again within 2 hours of the previous drive. There are no DTCs. Based on the time-dependent pattern, what is the MOST LIKELY mechanism?

A. The torque converter fully drains after 4 hours and produces a hydraulic shock when the pump first refills it during engagement

B. The parking pawl develops a set impression on the parking gear tooth after 4 hours that produces a snap when it releases

C. A clutch apply circuit gradually drains back through the valve body over 4 hours, and the sudden refill upon engagement produces the jerk

D. The engine mounts settle into a resting position after 4 hours that produces a mechanical snap when engine torque first loads them

4. Technician A says that a stall test RPM significantly ABOVE specification indicates the transmission clutches or bands are slipping and cannot resist the engine's torque. Technician B says that a stall test RPM significantly BELOW specification indicates the engine is not producing its rated power output. Who is correct?

A. Technician A only

B. Both Technician A and Technician B

C. Technician B only

D. Neither Technician A nor Technician B

5. A vehicle equipped with a six-speed automatic transmission exhibits the following pattern: the transmission operates normally during the first 45 minutes of driving. After 45 minutes, Reverse develops a delayed engagement of approximately 2 seconds. All forward gears continue to operate

normally. After the vehicle cools for 2 hours, the Reverse delay is gone. This cycle repeats consistently. What does the temperature-dependent, Reverse-specific delay indicate?

- A. The oil pump loses efficiency after 45 minutes of heat soak, reducing its output specifically to the high-demand Reverse circuit
- B. The pressure regulator valve shifts position at operating temperature, reducing maximum available pressure to the Reverse apply circuit
- C. The torque converter's reverse-direction fluid coupling becomes less efficient as the fluid thins at operating temperature
- D. A seal in the Reverse clutch apply circuit leaks at operating temperature as the elastomeric material softens and expands from heat

6. A vehicle's automatic transmission produces a grinding noise in Drive during acceleration but is silent during cruising and deceleration. The noise is also absent in Reverse, Park, and Neutral. When the technician shifts to Neutral while the vehicle is moving at the speed where the noise occurs, the noise immediately stops. What does this test result confirm?

- A. The noise is from the driveshaft or differential, since those components continue rotating in Neutral at the same speed
- B. The noise is from the torque converter, which unloads in Neutral and stops producing the grinding from its internal bearings
- C. The noise is from a transmission internal component that is loaded during forward acceleration but unloaded in Neutral
- D. The noise is from an engine accessory that reduces load when the transmission is shifted to Neutral during driving

7. A technician performs pressure tests on a transmission and finds the following: Drive at idle = 55 psi (spec 55-75), Drive at stall = 148 psi (spec 150-180), Reverse at idle = 84 psi (spec 85-110), Reverse at stall = 218 psi (spec 220-260). All four readings are at or just below the low end of their specifications. What does this consistent pattern of borderline-low readings indicate?

- A. A pump that is producing marginally low output across all conditions, consistent with progressive wear approaching the end of its service life
- B. A pressure regulator valve that is set slightly too far open, venting excessive fluid before full pressure can build in any range
- C. An EPC solenoid that is commanding slightly less pressure than the module intends due to increased internal resistance
- D. A clogged filter that is restricting pump intake volume equally across all operating conditions and reducing maximum output

8. A vehicle owner reports that the transmission "clunks" every time the brake pedal is pressed firmly while cruising at highway speed. The clunk is felt through the floor and occurs once per brake application. No clunk occurs during gentle braking. There are no DTCs. Which of the following is the MOST LIKELY cause?

- A. A worn brake booster that produces a mechanical impact when the diaphragm reaches full assist under heavy pedal pressure
- B. The TCC releasing under heavy braking, with a worn TCC friction surface producing a single clunk instead of a smooth release
- C. A loose exhaust heat shield that vibrates when the engine decelerates rapidly under heavy brake application during cruising
- D. The torque management system commanding a sudden downshift simultaneously with the heavy braking, producing a gear engagement clunk

9. A vehicle equipped with an automatic transmission and adaptive cruise control has the following customer complaint: when the adaptive cruise control commands a deceleration to maintain following distance, the transmission produces a harsh downshift. The same downshift performed manually by the driver using the brake pedal is smooth. What MOST LIKELY accounts for the difference?

- A. The adaptive cruise control system uses a separate transmission control pathway that bypasses the normal shift cushioning logic

B. The brake pedal sends a signal that activates the shift accumulator circuit, while the adaptive cruise signal does not trigger this path

C. The adaptive cruise control commands both a throttle reduction and a downshift simultaneously, while the driver separates these inputs

D. The adaptive cruise control's deceleration command produces a faster, higher-pressure downshift request than the driver's gradual brake application

10. Technician A says that a transmission with a Ravigneaux compound planetary gear set uses two sun gears of different sizes sharing a common ring gear and planet carrier. Technician B says that a Simpson compound planetary gear set uses two simple planetary gear sets sharing a common sun gear. 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

11. A vehicle's automatic transmission has the following symptom: the vehicle moves forward in both Drive AND Reverse. When the driver selects Reverse, the vehicle creeps forward slowly instead of backing up. All forward gears operate normally. The fluid is clean and at the correct level. Which of the following is the MOST LIKELY cause?

A. The manual valve is not reaching the Reverse detent position — the shift linkage or cable is preventing full travel to the Reverse range

B. The reverse clutch has completely failed and the vehicle is being propelled forward by the forward clutch circuit that remains applied

C. A faulty transmission range sensor that reports Neutral or Drive to the module when the shift lever is in the Reverse position

D. The low-reverse holding device has failed, and the planetary gear set freewheels into a forward output direction in the Reverse range

12. A vehicle stores DTC P0715 — Input/Turbine Speed Sensor Circuit Malfunction. The transmission operates in limp mode, locked in 3rd gear. The technician measures the input speed sensor resistance at 650 ohms (specification: 500-800 ohms). The wiring from the sensor to the TCM connector measures 1.2 ohms total resistance with no opens or shorts. Based on these test results, what should the technician do NEXT?

A. Replace the TCM since the sensor and wiring are within specification and the code must originate from the module's input circuit

B. Clear the code, road test, and monitor the live data PID for the input speed sensor to verify the sensor produces a valid signal during driving

C. Replace the input speed sensor since the resistance is in the upper portion of the specification range and the sensor is degrading

D. Inspect the reluctor ring for damaged or missing teeth that would cause a valid sensor and circuit to produce an invalid signal pattern

13. A technician monitors scan tool data during a road test at 55 mph in 5th gear with TCC ON. Engine RPM = 1,850, Input Shaft Speed = 1,850. The technician notices that the TCC Slip PID reads -5 RPM. What does a NEGATIVE TCC slip value mean?

A. The TCC is over-clamped and is creating a mechanical preload that pulls the turbine faster than the impeller rotation speed

B. The input shaft is rotating slightly faster than the engine crankshaft, which is within normal measurement tolerance for a fully locked TCC

C. The TCC has failed in the locked position and the negative slip indicates the clutch is generating a braking force on the drivetrain

D. The engine RPM sensor and the input speed sensor have a calibration offset that produces a negative difference during full TCC lockup

14. A vehicle equipped with a ten-speed automatic transmission has DTCs P0731 (Gear 1 Incorrect Ratio) and P0736 (Reverse Incorrect Ratio) stored simultaneously. All other gears display correct ratios. The technician reviews the component application chart and finds that 1st gear and Reverse share a

common holding device — the low-reverse clutch — that is not applied in any other gear. What is the MOST LIKELY diagnosis?

- A. Both the 1st gear and Reverse clutch packs have worn simultaneously because they share a common fluid supply passage
- B. The transmission range sensor is producing incorrect voltage readings specifically at the 1st gear and Reverse positions
- C. The low-reverse clutch has failed, preventing it from holding the reaction member in both 1st gear and Reverse
- D. A faulty output speed sensor produces erratic signals at the low speeds typical of 1st gear and Reverse operation

15. A vehicle has DTC P0744 — Torque Converter Clutch Circuit Intermittent. The scan tool recording shows that during steady-state 60 mph cruise in 6th gear with TCC ON, the TCC slip PID intermittently spikes from 0 RPM to 80 RPM for approximately 0.5 seconds, then returns to 0 RPM. These spikes occur randomly — sometimes every 30 seconds, sometimes every 5 minutes. What is the MOST LIKELY cause?

- A. An intermittent electrical fault in the TCC solenoid circuit that briefly interrupts current flow, momentarily releasing the TCC before it re-engages
- B. Normal TCC slip variation that occurs during minor road grade changes and wind gusts that alter the engine loading at cruise speed
- C. A worn TCC friction surface that periodically loses grip at a specific hot spot on the friction disc once per converter revolution
- D. A failing transmission fluid pump that intermittently drops pressure below the TCC holding threshold during sustained cruise operation

16. A technician is diagnosing a vehicle where the transmission range sensor (TRS) voltage in Neutral reads 2.8V. The specification for Neutral is  $2.5V \pm 0.1V$  (acceptable range: 2.4-2.6V). The TRS voltage in Park reads 4.0V (specification:  $4.0V \pm 0.1V$  — within range). What symptom might the out-of-specification Neutral voltage cause?

- A. The engine will not start in Neutral because the module interprets the 2.8V signal as an invalid position between Neutral and Drive
- B. The module may interpret the 2.8V signal as a Drive position instead of Neutral, potentially causing the transmission to engage a forward gear
- C. No symptoms will occur because the module uses the Park/Neutral safety switch separately from the TRS for starter interlock function
- D. The transmission will enter limp mode any time Neutral is selected because the voltage exceeds the module's acceptable tolerance window

17. A vehicle equipped with a CVT stores DTC P2004 — Intake Manifold Runner Control Stuck Open — in the ECM. The transmission shifts normally. However, the customer reports that the CVT "revs higher than normal" during acceleration. What is the connection between the engine code and the CVT behavior?

- A. The stuck intake runner reduces engine torque, and the ECM broadcasts reduced torque data on the CAN bus
- B. The stuck intake runner causes the engine to run lean at high RPM, which the CVT interprets as a belt slip condition
- C. The intake manifold fault has no connection to the CVT — the higher RPM during acceleration is a separate CVT concern
- D. The reduced engine torque from the stuck intake runner causes the CVT to hold a higher ratio longer to compensate for the lost power

18. A vehicle has DTC P0868 — Transmission Fluid Pressure Low — and DTC P0882 — TCM Power Input Signal Low. The battery was recently replaced. The transmission shifts harshly in all gears. What is the relationship between these two codes and the battery replacement?

- A. The new battery has a higher cold cranking amp rating that produces excessive voltage spikes during startup, damaging the TCM circuits
- B. The battery cables were not properly tightened during installation, creating high-resistance connections that reduce voltage to the TCM

C. The battery replacement reset all adaptive values, and the harsh shifting is from the module starting from default pressure commands

D. The low TCM power input from a poor battery connection reduces the module's ability to accurately control the EPC solenoid, causing both high pressure and false low-pressure readings

19. A technician monitors scan tool data on a vehicle with an automatic transmission. During a WOT acceleration run from a stop, the data shows the following in 1st gear: Engine RPM = 5,500, Input Shaft Speed = 4,200. What does this 1,300 RPM difference indicate about the torque converter?

A. Normal converter slip during WOT acceleration — the turbine lags behind the impeller because fluid coupling cannot achieve 100% efficiency under high torque

B. Excessive converter slip indicating the TCC should be engaged during WOT 1st gear acceleration to reduce the 1,300 RPM loss

C. A seized stator that is preventing normal torque multiplication, causing the turbine to spin much slower than the impeller

D. A failing oil pump that cannot fill the converter adequately during WOT, causing the impeller to outrun the turbine significantly

20. A vehicle has DTC P0962 — Pressure Control Solenoid A Control Circuit Low — stored as a history code. The transmission currently operates normally with no shift complaints. The technician tests PCS-A: resistance = 5.0 ohms (spec 4-7), circuit voltage drop = 0.2V power side and 0.15V ground side (spec < 0.5V each). All measurements pass. What is the MOST appropriate diagnostic approach?

A. Replace PCS-A preventively since history codes indicate the solenoid is in the early stages of intermittent failure

B. Clear the code, road test the vehicle under varied conditions including rough roads and temperature extremes, and monitor for recurrence

C. Perform a bidirectional scan tool test to command PCS-A through its full duty cycle range while monitoring current and pressure response

D. Replace the TCM because all external circuit tests pass and the code must originate from the module's internal driver circuit

21. A vehicle equipped with a dual-clutch transmission (DCT) has DTC P0900 — Clutch Actuator Circuit Open. The technician discovers that the mechatronic unit's electrical connector has a backed-out pin at position 14. After reseating the pin and clearing the code, the technician road-tests the vehicle. The transmission shifts normally through all gears. Should the technician consider the repair complete?

A. Yes — the backed-out pin was the root cause, and the successful road test confirms the repair resolved the concern

B. No — the technician should investigate why the pin backed out and inspect the connector housing for damage, corrosion, or a failed lock tab

C. Yes — but only if the technician applies dielectric grease to the connector to prevent future pin migration from vibration

D. No — the mechatronic unit should be replaced as a precaution because backed-out pins indicate internal connector degradation

22. A vehicle has a persistent DTC P0741 — TCC System Stuck Off. The TCC solenoid, wiring, and connector all test within specification. The technician commands TCC ON through a bidirectional test and achieves full lockup (0 RPM slip) at highway speed. The TCC releases when commanded OFF. What does the successful bidirectional test tell the technician?

A. The TCC solenoid has an intermittent fault that passes static testing but fails during normal driving due to heat or vibration

B. The torque converter is functioning correctly since the TCC achieved full lockup, and the fault is in the control logic or input data

C. The solenoid, hydraulic circuit, and converter clutch are all mechanically capable of achieving lockup when commanded correctly

D. The valve body has no faults since the bidirectional test bypasses the valve body entirely and applies pressure directly to the converter

23. A technician reviews freeze frame data for DTC P0732 — Gear 2 Incorrect Ratio. The data shows: Vehicle Speed = 22 mph, Engine RPM = 4,800, Throttle Position = 95%, Fluid Temp = 205°F, Commanded Gear = 2nd. The expected engine RPM for 2nd gear at 22 mph in this vehicle is approximately 3,500 RPM. What does the significantly higher-than-expected engine RPM indicate?

- A. The engine is misfiring at WOT, producing uneven torque pulses that the module misinterprets as an incorrect gear ratio
- B. The output speed sensor is reading lower than actual at 22 mph, causing the module to calculate an artificially high RPM-to-speed ratio
- C. The throttle position sensor is reading higher than actual at 95%, causing the module to command a higher RPM before allowing the upshift
- D. The 2nd gear clutch was slipping during this WOT event — the engine was spinning faster than the input shaft because the clutch could not hold

24. A vehicle equipped with a hybrid automatic transmission has the following scan tool data during steady-state 40 mph cruise: Engine = OFF, Motor-Generator 2 Torque = 45 Nm, Battery SOC = 72%, Transmission Gear = Fixed Ratio. The vehicle is operating in full EV mode. What role does the transmission play during pure EV operation in this power-split hybrid design?

- A. The transmission provides a fixed reduction gear ratio between the drive motor and the wheels, since no ratio changes are needed in EV mode
- B. The transmission actively varies its ratio to optimize the electric motor's efficiency at different vehicle speeds during EV operation
- C. The transmission is completely disengaged during EV mode and provides no mechanical connection between the motor and the wheels
- D. The transmission locks all planetary elements together to create a direct 1:1 connection between the motor and the differential

25. A technician is diagnosing a vehicle where the transmission produces a brief vibration during every TCC lockup event. The vibration lasts approximately one second and feels like a mild shudder. A fluid service with the correct manufacturer-specified fluid was performed 500 miles ago. The shudder persists after the fluid service. What should the technician recommend NEXT?

- A. A second fluid service to further dilute any remaining old fluid that may still contain degraded friction modifiers in the system

- B. An additive treatment specifically designed to modify the TCC friction characteristics without requiring converter replacement
- C. Torque converter replacement, since a persistent TCC shudder after a fluid service indicates worn friction material inside the converter
- D. A control module reflash to update the TCC engagement calibration to a strategy that applies the TCC more aggressively to overcome shudder

26. A technician is performing a transmission fluid exchange on a vehicle using a flush machine connected to the cooler lines. During the exchange, the technician notices that the old fluid exiting the transmission is significantly darker than expected and has a distinct burnt odor. The new fluid flowing into the transmission is the correct specification. What concern should the technician have about completing the exchange?

- A. The flush machine may damage the transmission because the pressurized flow can dislodge debris that clogs valve body passages
- B. The burnt fluid indicates internal damage has already occurred, and completing the exchange will not prevent further deterioration
- C. The new fluid's fresh friction modifiers may wash varnish from valve body components, causing valves to stick in new positions
- D. The fresh fluid may reveal a pre-existing clutch wear condition that was being masked by the old fluid's degraded friction properties

27. A customer reports that the transmission shift lever is very stiff to move from Park on cold mornings but loosens after the vehicle warms up for 5 minutes. All gear engagements are normal once the lever moves. There are no DTCs. What should the technician investigate?

- A. The shift interlock solenoid, cable, and linkage for components that stiffen from cold temperature, moisture, or inadequate lubrication
- B. The parking pawl mechanism inside the transmission for a binding condition that is worse when the metal contracts in cold temperatures

C. The transmission fluid viscosity for a cold pour point that is too high, creating excessive resistance in the manual valve circuit

D. The brake pedal switch for a cold-related fault that delays the interlock release signal and makes the lever feel stiff in Park

28. A vehicle has a transmission fluid leak that the technician traces to the dipstick tube seal at the transmission case. After replacing the O-ring at the base of the dipstick tube, the technician verifies no leak at idle. During the road test, the leak returns. What is the MOST LIKELY cause of the recurrence?

A. The dipstick tube was not fully seated in the case bore during reinstallation and shifts under driving vibration and pressure

B. The dipstick tube itself has a hairline crack above the seal that opens under the internal case pressure generated during driving

C. The replacement O-ring is the wrong size — slightly smaller in cross-section than the original — and cannot hold driving pressure

D. The transmission vent is clogged, and driving generates internal pressure that forces fluid past the marginal dipstick tube seal

29. A technician is replacing the output speed sensor on a transmission. After installing the new sensor, the technician discovers that the sensor protrudes approximately 1/8 inch further into the case than the original sensor. What is the potential consequence of the sensor protruding too far?

A. The sensor will produce a stronger signal than the original because it is closer to the reluctor ring, which may cause false over-speed readings

B. The sensor will produce normal readings but the O-ring seal will not compress properly due to the protrusion limiting full housing contact

C. The sensor will have no effect on operation because the reluctor ring clearance has a wide tolerance that accommodates this variation

D. The sensor may contact the reluctor ring or rotating component, causing physical damage to the sensor, the ring, or both during operation

30. A customer reports that the vehicle's cruise control works normally on flat highways but disengages every time the vehicle crests a hill. There are no DTCs in any module. The transmission shifts normally during manual driving over the same hills. What is the MOST LIKELY cause?

A. The momentary unloading of the drivetrain as the vehicle crests the hill produces a brief output speed signal anomaly that causes the cruise module to disengage

B. The transmission downshifts at the crest of the hill to maintain speed, and the shift event triggers the cruise control's speed-change disengagement threshold

C. The engine RPM drops momentarily as the load decreases at the crest, triggering the cruise control's low-RPM safety disengagement

D. The throttle position changes rapidly at the crest as the cruise system adjusts for the grade change, exceeding the cruise module's throttle rate limit

31. A technician is replacing the transmission pan gasket. The vehicle's service information specifies a reusable rubber gasket that seats in a groove molded into the pan. After cleaning both the pan and the case mating surface, the technician installs the gasket and torques the bolts to specification. Three days later, the customer returns with a pan gasket leak at one corner. What is the MOST LIKELY cause?

A. The torque specification was adequate but the technician did not follow the correct crisscross tightening sequence for the pan bolts

B. The rubber gasket was not replaced with a new one — the technician reused the original gasket that had taken a permanent compression set

C. The reusable rubber gasket is the correct type for this vehicle, and the leak is caused by a warped pan that does not seal evenly at the corner

D. The case mating surface has residual sealant from a previous repair that is preventing the reusable rubber gasket from seating in the corner

32. A technician discovers during a routine inspection that the transmission cooler line hose clamps are original spring-type clamps. One clamp appears to have lost tension — the ears are nearly touching and the hose is slightly loose at the fitting. What should the technician do?

- A. Replace the weak spring clamp with a new clamp of the correct type and size, verifying the hose seats properly on the fitting
- B. Leave the clamp as-is since spring clamps are self-adjusting and will regain tension once the engine heats the hose material
- C. Supplement the weak spring clamp with an additional worm-drive clamp to provide backup clamping force at the same location
- D. Replace all spring clamps on both cooler lines with worm-drive clamps since spring clamps are not adequate for cooler line service

33. A vehicle equipped with an automatic transmission has a customer complaint that the transmission makes a "whirring" noise during the first 30 seconds after a cold start. The noise fades as the engine warms up and is completely gone after one minute. The noise is present in Park and all other ranges. What is the MOST LIKELY source?

- A. The torque converter turbine bearings that are dry after overnight sitting and require 30 seconds to develop a lubricating film
- B. The input shaft bushings that are dry after overnight sitting and produce friction noise until the pump circulates lubricating fluid
- C. An engine accessory belt that is stiff from cold temperature and produces a whirring noise until the rubber warms and becomes pliable
- D. The oil pump cavitating as it draws cold, viscous fluid through the filter and passages during the initial 30 seconds of cold operation

34. A vehicle's automatic transmission produces a "thump" from underneath the vehicle every time the driver makes a sharp U-turn at low speed. The thump occurs during both left and right U-turns and is not present during gentle turns or straight-line driving. No DTCs are stored. What should the technician investigate?

- A. The transmission mount for excessive play that allows the case to shift position during the high lateral force of a sharp U-turn

- B. The differential or CV joints on a front-wheel-drive vehicle that load up and release during the extreme steering angle of a U-turn
- C. The torque converter for an internal component that shifts under the lateral G-force produced during sharp low-speed turning
- D. The parking pawl mechanism for residual engagement that contacts the parking gear during the output shaft speed change of a U-turn

35. A technician replaces the transmission range sensor. After adjustment and verification of all gear positions, the technician discovers that the reverse lights illuminate when Drive is selected and turn off when Reverse is selected — the reverse light operation is exactly backward. What is the MOST LIKELY cause?

- A. The replacement range sensor has the reverse light switch contacts wired internally in the opposite orientation from the original sensor
- B. The range sensor adjustment is 180 degrees off, causing the sensor to report Drive when Reverse is selected and vice versa
- C. The backup light wiring was inadvertently crossed during the sensor replacement, connecting the power and ground in reverse
- D. The body control module requires a sensor recalibration procedure that inverts the backup light logic until the initialization is complete

36. A technician is performing an in-vehicle valve body service. After dropping the pan, the technician notices that the gasket between the valve body and the separator plate is significantly deteriorated — portions of the gasket have disintegrated and are missing. What is the potential consequence of this gasket failure on transmission operation?

- A. The missing gasket material causes fluid contamination that clogs the filter and reduces pump intake flow volume
- B. The disintegrated gasket pieces have likely migrated into valve body passages, potentially sticking valves and blocking orifices

C. The missing gasket sections create internal fluid cross-leaks between adjacent hydraulic circuits, causing pressure loss and incorrect fluid routing

D. The deteriorated gasket has no operational consequence because the separator plate provides the primary seal between circuits

37. A customer states that the transmission "acts up" only when towing a heavy trailer up long grades. The transmission downshifts frequently and the fluid temperature reaches 250°F. No issues occur during unloaded driving. The vehicle does not have an auxiliary cooler. What is the MOST appropriate recommendation?

A. Replace the transmission cooler with a larger unit to handle the increased heat load generated during towing operations

B. Install an auxiliary transmission fluid cooler and educate the customer on proper towing practices including downshifting to reduce heat

C. Replace the transmission fluid with a high-temperature synthetic formulation that withstands 300°F without degradation

D. Reprogram the transmission control module with a towing-specific calibration that holds lower gears to reduce shift cycling

38. A technician is installing a rebuilt transmission and must install the torque converter. The technician pushes the converter onto the input shaft and feels the first click. The converter does not rotate freely. The technician then rotates the converter slightly while pushing inward and feels a second click. The converter now rotates freely. Is the converter fully seated?

A. Yes — two clicks confirm engagement of both the input shaft splines and the pump drive, and free rotation confirms proper seating

B. No — most converters require a minimum of three engagement points: pump drive, stator support shaft, and input shaft splines

C. Yes — but only if the converter pad-to-bell-housing measurement confirms the correct depth relative to the mounting surface

D. No — the free rotation after two clicks indicates the stator support shaft is not engaged and the converter will damage the pump

39. During a transmission overhaul, a technician discovers that one friction disc in a clutch pack has the friction material bonded to only one side of the steel core — the other side is bare steel. The disc was the first disc in the stack against the pressure plate. What type of disc is this?

A. A selective friction disc used at the pressure plate position where only one friction surface contacts the first steel separator plate

B. A manufacturing defect — all friction discs should have material bonded to both sides, and this disc must be replaced

C. A pressure plate liner that is installed between the apply piston and the first separator plate to reduce piston-to-plate noise

D. A heat shield disc designed to insulate the pressure plate from the heat generated by the clutch pack during engagement

40. A technician is measuring oil pump gear mesh clearance during a transmission overhaul. The feeler gauge reads 0.007 inches. The manufacturer's maximum specification is 0.006 inches. The pump gears show no visible scoring. What is the correct action?

A. Reassemble the pump since the 0.001-inch excess clearance is within normal measurement tolerance and the gears are undamaged

B. Hone the pump housing bore to a larger diameter and install the existing gears at a tighter mesh for improved sealing

C. Replace the pump gears or the entire pump assembly because the mesh clearance exceeds the manufacturer's maximum specification

D. Install the pump and perform a line pressure test after assembly to determine if the excess clearance produces measurable pressure loss

41. A technician is assembling a clutch pack and installs the friction discs and steel separator plates in the correct alternating sequence. After installing the selective snap ring, the technician measures clutch pack clearance and reads 0.022 inches. The specification is 0.025 to 0.050 inches. The technician realizes the clearance is below specification. What should the technician check BEFORE changing the snap ring?

A. That the correct number of friction discs and steel plates were installed — an extra plate would reduce clearance below specification

B. That the selective snap ring from the rebuild kit is the correct thickness for this specific clutch, not a thicker ring from another clutch

C. That the friction discs were properly soaked in ATF before installation, since dry discs are thicker than saturated discs

D. That the clutch drum bore is not worn oversized, which would allow the piston to sit deeper and artificially reduce the measured clearance

42. A technician discovers during a transmission overhaul that the case has a damaged thread in the pump mounting bolt hole — the first three threads are stripped, but the remaining threads deeper in the hole are intact. The technician has a bolt that is 5mm longer than the standard bolt. Should the technician use the longer bolt to engage the undamaged deeper threads?

A. Yes — the longer bolt will bypass the damaged threads and engage the intact threads, providing adequate clamping force

B. Yes — but only if the technician adds a washer under the bolt head to compensate for the additional length at the surface

C. No — the bolt head will sit higher than flush due to the longer shank, reducing clamping pressure on the pump housing

D. No — the longer bolt may bottom out in the bore or protrude into an internal passage, potentially causing interference or damage

43. A technician is performing endplay measurement during transmission reassembly. The selective thrust washer is located between the pump and the front clutch drum. The technician installs a washer

and measures endplay at 0.028 inches (specification: 0.020-0.040). The technician has a washer available that is 0.005 inches thicker. Should the technician install the thicker washer?

- A. No — the current endplay of 0.028 inches is within specification and changing the washer is unnecessary
- B. Yes — reducing the endplay to 0.023 inches provides a tighter fit that improves shift quality and reduces wear
- C. Yes — the thicker washer should always be used to bring the endplay as close to the minimum specification as possible
- D. No — but the technician should document the reading and recommend an early re-inspection at the first follow-up service

44. A technician installs a rebuilt transmission and connects the shift cable. After adjustment, the engine starts in Park and Neutral. All gears engage correctly and the dashboard indicator matches the selector position. However, when the driver rapidly shifts from Reverse to Drive without pausing in Neutral, a harsh "bang" is heard from the drivetrain. Shifting slowly through Neutral between Reverse and Drive produces a smooth transition. What is the MOST LIKELY cause?

- A. The shift cable adjustment allows full detent travel in each position but the transition speed through Neutral is too fast for the accumulators
- B. The engine idle speed is too high, and the rapid range change from Reverse to Drive produces a harsh torque reversal through the drivetrain
- C. Normal drivetrain lash that takes up harshly when the torque direction reverses rapidly from reverse to forward through the loose components
- D. The parking pawl mechanism partially engages when the manual valve passes through the Park position during the rapid Reverse-to-Drive transition

45. After installing a rebuilt transmission and performing the initial fluid fill, the technician starts the engine. The transmission immediately engages Reverse even though the shift lever is in Park. The engine does not stall. What is the MOST LIKELY cause?

- A. The torque converter was installed backward, reversing the direction of fluid flow and causing the transmission to engage Reverse
- B. The shift cable was connected to the wrong position on the manual shaft lever, offsetting all gear selections by one or more detent positions
- C. The manual valve is stuck in the Reverse position from assembly contamination that prevents it from moving to the Park detent
- D. The rebuilt transmission has an internal assembly error where the reverse clutch piston was installed without its return spring

46. A technician performs a cooler flow test after flushing the cooler following a transmission overhaul. The flow test shows one quart in 18 seconds forward and one quart in 19 seconds reverse. The specification minimum is one quart in 25 seconds. Both flow rates significantly exceed specification. Should the technician install the cooler?

- A. No — flow rates that significantly exceed specification indicate the cooler has lost internal baffling and cannot provide adequate cooling
- B. No — the excess flow will cause the transmission to run too cold during normal operation, requiring an inline restrictor
- C. Yes — but only after verifying the cooler thermostat is functional, since high flow rates can mask a stuck-open bypass valve
- D. Yes — the flow rates exceed the minimum specification in both directions, confirming the cooler is clean and fully functional

47. A technician has completed a transmission rebuild and installation. During the initial road test, all shifts are smooth. However, the technician notices the fluid temperature stabilizes at 165°F during city driving. The normal specification is 175-200°F. What is the MOST LIKELY cause of the below-normal operating temperature?

- A. The cooler thermostat or bypass valve is stuck in the full-cooling position, routing all fluid through the cooler instead of partially bypassing it

B. The rebuilt transmission has tighter internal clearances that reduce friction heat generation below the level of the worn original transmission

C. The replacement torque converter has a lower stall speed than the original, reducing the heat generated during low-speed converter slip

D. The transmission fluid level is slightly overfilled, providing additional thermal mass that absorbs more heat before the temperature rises

48. A technician is reassembling a transmission valve body after cleaning and inspection. One spool valve slides freely in its bore with minimal resistance. A second spool valve of the same diameter requires noticeable finger pressure to slide through its bore, even after lubrication with clean ATF. What should the technician do with the second valve?

A. Install the tight valve since new valve bodies have tighter tolerances that loosen during the initial break-in period of fluid circulation

B. Apply a light abrasive compound to the valve and lap it in its bore until it moves freely, then clean all residue before assembly

C. Identify the source of the resistance — check for burrs, casting flash, debris, or a bore defect — and correct the issue before installation

D. Swap the two valves between their bores since both are the same diameter and the tighter bore may accept the other valve more freely

49. A technician completes a major transmission overhaul. During the post-installation road test, all shifts are correct and smooth, TCC operation is normal, and fluid temperature is within specification. However, the technician notices a faint, rhythmic clicking noise from the transmission area that is proportional to output shaft speed. The noise was not present during the pre-overhaul road test. What should the technician do?

A. Drive the vehicle for an additional 50 miles to determine if the noise is a temporary break-in sound that will diminish with use

B. Return to the shop and investigate the noise immediately, since any new noise after a rebuild indicates a potential assembly error

C. Document the noise and advise the customer to return if it worsens, since faint clicking noises are common after overhauls

D. Check the fluid level and add fluid if needed, since a slightly low level can produce a faint clicking sound from pump cavitation

50. A technician has rebuilt and installed a transmission. The customer asks what the most important indicator of the rebuild's long-term success will be. What is the BEST answer?

A. The stall test RPM matching manufacturer specification at each follow-up service visit over the next 50,000 miles

B. The adaptive learning values remaining near factory default without significant positive or negative corrections over time

C. The shift quality remaining consistent and smooth, with the fluid maintaining its correct color and the temperature staying within normal range

D. The cooler flow test results remaining above specification at each service interval, confirming the cooling system is protecting the rebuilt unit

## Practice Exam 15: Answer Key and Explanations

1. D — Water splashing onto external electrical connectors, sensors, or wiring during a deep puddle crossing temporarily disrupts signal quality by creating short circuits, ground paths, or signal attenuation through moisture on the connector surfaces. The module receives erratic sensor inputs and commands erratic shifts in response. As the engine compartment heat dries the moisture within 10 minutes, the connections restore and normal operation returns. No DTCs are stored because the disruption was too brief to complete the diagnostic monitor cycle.

2. A — Cold-specific symptoms that resolve after warmup are the diagnostic hallmark of temperature-dependent failures. Cold fluid has higher viscosity, which slows pump fill rates and clutch circuit charging. Cold elastomeric seals are stiffer and less pliable, which reduces their ability to conform to bore walls and seal against pressure. Cold metal components have tighter clearances that may bind or restrict valve movement. Once the fluid and components reach operating temperature, all of these conditions normalize.

3. C — The 4-hour threshold is the key diagnostic clue. Over extended parking periods, the forward clutch circuit slowly drains back through the valve body passages under the force of the clutch return spring. After 4 hours, the circuit has drained enough that the first engagement must rapidly refill the empty bore. The sudden rush of fluid against the clutch piston produces the jerk. Within 2 hours, the circuit has not fully drained, so sufficient residual fluid remains for a smooth engagement.

4. B — Both technicians are correct. A stall speed above specification means the engine can spin faster than it should against the converter load — the transmission's clutches or bands are not providing adequate resistance, allowing the engine to over-rev. A stall speed below specification means the engine cannot reach the expected RPM against the normal converter load — the engine is weak, possibly from restricted intake, fuel delivery problems, or ignition faults that limit its power output.

5. D — The symptom is Reverse-specific (all forward gears work normally), temperature-dependent (appears after 45 minutes, resolves after cooling), and produces a delayed engagement (the clutch circuit takes time to pressurize). A reverse clutch piston seal that maintains adequate sealing when cold but softens and allows pressure bypass at operating temperature explains all three characteristics. The heat causes the elastomeric seal to expand beyond its designed interference fit, opening a leak path.

6. C — The grinding occurs only during forward acceleration in Drive and stops immediately when Neutral is selected at the same vehicle speed. In Neutral, the engine is disconnected from the gear train — all internal transmission components are unloaded even though the output shaft continues spinning at road speed. The noise disappearing in Neutral confirms it originates from a component that is loaded during forward power transmission but unloaded when the drivetrain is disconnected.

7. A — All four readings — Drive idle, Drive stall, Reverse idle, and Reverse stall — are consistently at or just below the low end of their respective specifications. This uniform pattern of borderline-low readings across all conditions indicates a single source that affects every pressure measurement equally. A pump with progressive wear that has increased its internal clearances slightly produces marginally reduced output across all operating conditions, approaching the end of its effective service life.

8. B — The clunk occurs once per firm brake application at highway speed, which is the condition when the TCC is locked. When the brake pedal is pressed firmly, the module commands TCC release. A worn TCC friction surface that cannot release cleanly — it momentarily grabs before fully releasing — produces a single mechanical clunk. The clunk is absent during gentle braking because the TCC release at light brake input occurs at a lower pressure differential that the worn surface handles without the grab-release impact.

9. D — The adaptive cruise control's computer commands deceleration by simultaneously reducing throttle and requesting a transmission downshift through the CAN bus. This electronic command arrives as a sudden, calculated request that produces a faster pressure buildup than a human driver's gradual brake application. The driver naturally separates the braking and downshift inputs with subtle timing differences, allowing the accumulator circuit to cushion the shift. The cruise system's faster, simultaneous command overwhelms the cushioning.

10. C — Both technicians are correct. A Ravigneaux compound planetary set uses two different-sized sun gears (a small sun and a large sun) that share a common ring gear and a common planet carrier with two sets of pinion gears — short pinions meshing with one sun and long pinions meshing with the other. A Simpson compound planetary set uses two simple planetary gear sets connected by a common sun gear, with separate ring gears and carriers. Both descriptions accurately represent their respective gear set architectures.

11. A — The vehicle moves forward in both Drive and Reverse — which means the manual valve is not reaching the Reverse detent to route fluid to the reverse clutch circuit. If the linkage or cable cannot move the manual valve far enough to enter the Reverse position, the valve remains in or near the Neutral/Drive area, and the forward clutch stays applied by residual pressure or default valve body routing. The vehicle creeps forward under the forward clutch's residual engagement regardless of the driver's lever position.

12. D — The sensor resistance and wiring both test within specification, confirming the electrical circuit is intact. However, a sensor and circuit that test good statically can still produce an invalid signal if the reluctor ring has damaged, missing, or irregularly spaced teeth. The sensor generates its signal from the changing magnetic field as each tooth passes — a missing or damaged tooth produces a signal anomaly that the module interprets as a circuit malfunction, setting the code despite normal electrical measurements.

13. B — A TCC slip value of -5 RPM indicates the input shaft speed (1,850) is 5 RPM less than the engine RPM calculation, producing a slight negative number. During full TCC lockup, the input shaft and crankshaft are mechanically coupled and rotate at the same speed. The -5 RPM difference is within the normal measurement tolerance of the two independent speed sensors — minor calibration differences between the engine RPM sensor and the input speed sensor produce this small apparent discrepancy that has no operational significance.

14. C — The component application chart identifies the low-reverse clutch as the only device applied in both 1st gear and Reverse that is not applied in any other gear. A single component failure explains both ratio codes simultaneously. If the low-reverse clutch cannot hold its reaction member, neither 1st gear

nor Reverse can maintain the correct ratio because both depend on this one device to provide the holding function. All other gears use different apply devices that remain functional.

15. A — The TCC slip spikes randomly from 0 to 80 RPM for 0.5 seconds, then returns to 0 — the TCC briefly releases and re-engages during steady-state cruise. The randomness and brief duration are characteristic of an intermittent electrical fault. A loose connector pin, corroded terminal, or wire with marginal insulation in the TCC solenoid circuit briefly interrupts current flow, causing the solenoid to de-energize momentarily. The TCC releases during the interruption and re-engages when the connection restores.

16. B — The Neutral voltage of 2.8V exceeds the specification maximum of 2.6V for Neutral. On a sliding-scale range sensor, voltage values between positions can overlap with adjacent ranges. A 2.8V reading in Neutral may fall within the voltage window that the module interprets as Drive, causing the module to command a forward gear engagement when the driver expects Neutral. This can create a dangerous condition where the vehicle lurches forward when Neutral is selected.

17. D — A stuck-open intake manifold runner reduces engine volumetric efficiency and torque output, particularly in the mid-range RPM band. The ECM broadcasts the reduced engine torque on the CAN bus. The CVT control module receives this data and adjusts its ratio strategy — holding a lower (higher-multiplication) ratio longer during acceleration to compensate for the reduced engine torque. The customer perceives this as the engine "revving higher than normal" because the CVT delays the ratio sweep to maintain acceptable acceleration.

18. C — Disconnecting the battery during replacement reset all adaptive learning values to factory default. The harsh shifting in all gears is the module operating from conservative default pressure values that may not match this specific transmission's wear condition. The P0882 (TCM Power Input Low) may have set during the battery disconnect event, and P0868 (Pressure Low) may reflect the module's inability to accurately command pressure from the reset baseline. Clearing codes and performing a re-learn drive cycle should be the first step.

19. A — During WOT acceleration in 1st gear, the engine produces maximum torque and the converter operates in its torque multiplication phase. The impeller (driven by the engine at 5,500 RPM) drives the turbine (connected to the input shaft at 4,200 RPM) through fluid coupling. The 1,300 RPM difference represents normal converter slip — the turbine can never match impeller speed during heavy acceleration because energy transfer through fluid is inherently less than 100% efficient. This slip decreases as vehicle speed increases.

20. B — All static tests pass — resistance, power-side voltage drop, and ground-side voltage drop are within specification. The code is a history code with no current symptoms. The most productive approach is to clear the code, road-test the vehicle under conditions most likely to provoke the fault (rough roads for vibration-induced connection faults, temperature extremes for thermal faults), and monitor for recurrence. This approach identifies whether the fault is an active concern or a one-time event.

21. B — Simply reseating the pin and verifying normal operation addresses the immediate symptom but not the root cause. Pins back out of connectors for specific reasons — a broken or worn lock tab, damaged connector housing, corrosion that pushed the pin out of its retention pocket, or a mating connector that does not engage deeply enough. If the cause is not identified and corrected, the pin will back out again. The connector must be inspected for the underlying failure mechanism.

22. C — The bidirectional test proved the TCC solenoid responds to commands, the hydraulic circuit delivers pressure to the converter, and the TCC friction material achieves full lockup at 0 RPM slip. All three elements of the TCC system — electrical, hydraulic, and mechanical — are confirmed functional when properly commanded. The code P0741 (Stuck Off) may be caused by incorrect input data (throttle position, vehicle speed, or temperature) that prevents the module from commanding TCC engagement during normal driving conditions.

23. D — The expected RPM for 2nd gear at 22 mph is approximately 3,500 RPM, but the actual reading is 4,800 RPM at 95% throttle. The 1,300 RPM excess means the engine was spinning faster than the gear ratio should allow at that vehicle speed. This is the definition of clutch slippage — the input side (engine through converter) is spinning faster than the output side (wheels through the gear train) because the 2nd gear clutch cannot hold the full WOT torque load. The clutch slips until it can develop sufficient grip.

24. A — In many hybrid power-split designs, when operating in full EV mode with the engine off, the transmission provides a fixed reduction gear ratio between the electric drive motor and the wheels. The planetary gear set locks into a single ratio that reduces the motor's high RPM to the appropriate wheel speed. No ratio changes are needed because the electric motor's flat torque curve provides adequate performance across the EV speed range without the variable ratios required for an internal combustion engine.

25. C — A persistent TCC shudder that does not resolve after a fluid service with the correct manufacturer-specified fluid indicates the problem is mechanical, not chemical. The TCC friction material inside the sealed converter has worn, glazed, or heat-damaged to the point where fresh friction modifiers cannot restore smooth engagement. The converter must be replaced to install a new TCC

friction surface. Additive treatments may provide temporary improvement but do not address the worn friction material.

26. D — Dark, burnt fluid indicates the existing clutch friction material has been operating under thermal stress. Old, degraded fluid with depleted friction modifiers may have developed a higher static friction coefficient that allows marginally worn clutches to hold. When fresh fluid with correctly formulated friction modifiers replaces the degraded fluid, the friction coefficient changes — a clutch that was barely holding with the old fluid's characteristics may slip with the new fluid's different friction properties, revealing pre-existing wear.

27. A — Stiffness specifically when moving the lever from Park on cold mornings — with normal operation once warm — points to a temperature-sensitive mechanical component in the shift selector mechanism. The shift interlock solenoid, cable housing, linkage pivot points, and bracket bushings can all stiffen when cold from congealed lubricant, moisture freezing, or temperature-related material contraction. These components loosen as heat from engine operation warms the area.

28. D — The new O-ring sealed at idle but leaked during driving. Driving generates higher internal case pressure than idle due to increased pump output and operating temperature. If the transmission vent is clogged, the elevated pressure during driving has no relief path and forces fluid past the weakest seal point — in this case, the dipstick tube O-ring. The vent must be inspected and cleared to allow normal pressure equalization during driving.

29. D — A sensor that protrudes 1/8 inch further into the case than the original is positioned closer to the rotating reluctor ring or other internal components. If the sensor extends too far, it may physically contact the reluctor ring or the rotating assembly during operation. This contact causes immediate mechanical damage — the sensor tip breaks, the reluctor ring teeth are damaged, or both — potentially scattering debris inside the transmission.

30. A — When a vehicle crests a hill, the drivetrain briefly unloads as the road transitions from uphill to downhill. This momentary unloading can cause a brief fluctuation in the output speed sensor signal — the wheels may briefly accelerate or the signal may glitch as the drivetrain lash takes up in the new direction. The cruise control module interprets this brief speed anomaly as a deviation exceeding its programmed tolerance and disengages as a safety measure.

31. C — A reusable rubber gasket seated in a pan groove, properly installed with correct bolt torque sequence, should not leak. A leak at one specific corner with all other areas sealing correctly indicates the pan is warped at that corner, preventing the pan flange from applying uniform compression to the

gasket. A warped pan creates a gap at the high point that the rubber gasket cannot fill. The pan must be straightened or replaced.

32. A — A spring clamp that has lost tension — evidenced by the ears nearly touching — cannot provide adequate clamping force on the hose. This weak clamp allows the hose to creep off the fitting under the thermal cycling and pressure pulsations of normal operation. The clamp should be replaced with a new clamp of the correct type and size. Supplementing with a worm-drive clamp doubles the clamp profile and may damage the hose or interfere with adjacent components.

33. D — A whirring noise present in all ranges during the first 30 seconds after a cold start that fades as the engine warms is characteristic of pump cavitation. Cold, viscous ATF resists flowing through the filter and intake passages, partially starving the pump. The pump draws air along with the thick fluid, producing the cavitation whirr. As the fluid warms and thins, flow improves, the pump receives a full charge of fluid, and the cavitation noise disappears.

34. B — A thump during sharp U-turns in both directions at low speed — absent during gentle turns and straight driving — points to a component stressed by extreme steering angles. On front-wheel-drive vehicles, sharp U-turns produce maximum CV joint angles. A worn inner or outer CV joint that binds at its maximum operating angle loads up and releases with a thump as the joint moves through its extreme range. The thump occurs in both directions because both turns produce extreme angles.

35. B — The reverse lights operating exactly backward — illuminating in Drive and off in Reverse — indicates the range sensor position is rotated 180 degrees from correct. The sensor's internal contacts are positioned so that what should be the Reverse contact sits at the Drive position and vice versa. Despite gears engaging correctly (because the manual valve may still reach each detent), the electrical contacts report mirror-image positions for the backup light circuit.

36. C — The gasket between the valve body and separator plate seals individual hydraulic circuits from each other. Missing gasket material at any location creates a direct path for pressurized fluid to leak from one circuit to an adjacent circuit. This cross-leakage causes pressure loss in the leaking circuit and unintended pressure in the receiving circuit — which can produce slipping in one gear, harsh engagement in another, or simultaneous symptoms across multiple gear ranges.

37. B — The combination of frequent downshifting and 250°F fluid temperature during loaded towing confirms the cooling system is inadequate for the towing demand. An auxiliary cooler provides additional heat dissipation capacity specifically for towing conditions. Equally important is educating the customer on proper towing practices — manually selecting lower gears before long grades to

maintain engine braking and reduce the frequency of automatic downshift cycling that generates additional heat.

38. B — Most torque converters require three distinct engagement points: the pump drive (converter hub engaging the pump gears), the stator support shaft (converter stator engaging the stator support), and the input shaft splines (turbine hub engaging the input shaft). Two clicks indicate only two of three engagement points have been achieved. The converter may appear seated but one component remains unengaged, which will cause damage to the unengaged interface when the engine starts.

39. A — A friction disc with material bonded to only one side is a selective or directional disc specifically designed for the pressure plate position. In this position, only one face of the disc contacts the adjacent steel separator plate — the bare steel side faces the pressure plate piston and acts as a wear surface against the piston face. This is a deliberate design feature, not a defect. The technician should install it in the correct position per the service manual.

40. C — A gear mesh clearance of 0.007 inches exceeds the manufacturer's maximum specification of 0.006 inches. Excessive mesh clearance allows pressurized fluid to leak between the meshing gear teeth from the high-pressure outlet side to the low-pressure inlet side. This internal leakback reduces the pump's net pressure output. Despite no visible scoring, the dimensional wear has exceeded the specification limit and the pump must be replaced or rebuilt with new gears.

41. A — Before assuming the snap ring needs to be changed, the technician should verify the clutch pack was assembled with the correct number of components. An extra friction disc or steel separator plate — one more than specified — increases the stack height and reduces the measured clearance below specification. Counting the discs and plates against the service manual specification confirms whether the stack is correct or contains an extra component.

42. D — A bolt that is 5mm longer than standard may bottom out in the bore before the head can clamp the pump housing against the case. If the bolt bottoms out, it cannot provide clamping force regardless of how much torque is applied. Additionally, the longer bolt may protrude past the bottom of the threaded bore into an internal fluid passage, oil gallery, or mechanical clearance area, creating interference with internal components.

43. A — The current endplay of 0.028 inches falls within the manufacturer's specification of 0.020 to 0.040 inches. A measurement within specification requires no adjustment. Installing a thicker washer to target a lower value within the range is unnecessary — the specification defines the full acceptable

operating range, not a preferred midpoint or minimum. The current washer produces acceptable endplay, and the technician should proceed with reassembly.

44. B — When rapidly shifting from Reverse to Drive, the engine must absorb the torque reversal from full reverse load to full forward load in the brief time the manual valve passes through Neutral. If the engine idle speed is too high, the engine produces more torque during this transition than the accumulators and drivetrain compliance can absorb, producing a harsh bang. The higher idle RPM delivers more energy to the drivetrain during the rapid direction change.

45. B — The shift lever is in Park but the transmission engages Reverse — the manual valve is in the Reverse position instead of Park. If the shift cable was connected to the wrong attachment point on the manual shaft lever, all gear selections are offset by one or more positions. The cable pulls the manual valve to a position that does not correspond to the driver's lever selection. Reconnecting the cable to the correct attachment point and readjusting resolves the offset.

46. D — Both directional flow rates — 18 and 19 seconds per quart — significantly exceed the minimum specification of 25 seconds per quart (lower time equals faster flow). The cooler passes the flow test conclusively in both directions, confirming the cooler core and lines are clean and unobstructed. Flow rates above specification indicate better-than-minimum cooling capacity, which is beneficial. The cooler is approved for service.

47. A — A fluid temperature stabilizing at 165°F — below the 175-200°F specification — during city driving indicates the cooling system is removing heat faster than the transmission generates it. A cooler thermostat or bypass valve stuck in the full-cooling position routes all fluid through the cooler at all times, instead of partially bypassing the cooler to allow the fluid to reach optimal operating temperature. Cold ATF produces delayed shifts, reduced lubrication film thickness, and degraded friction modifier performance.

48. C — One valve slides freely while a second valve of the same diameter requires noticeable pressure even after lubrication. This disparity indicates a specific issue with the second valve's bore — a burr from manufacturing, casting flash left on the bore wall, debris lodged in the bore, or a bore dimensional defect. The technician must identify and correct the source of resistance. Installing a binding valve causes erratic hydraulic control that produces unpredictable shift behavior.

49. B — A new clicking noise proportional to output shaft speed that was not present before the overhaul indicates something was assembled incorrectly or a component is contacting a rotating element. Possible causes include a mispositioned thrust washer, a snap ring not fully seated in its

groove, a speed sensor protruding too far, or a parking gear contacting the pawl. Any new noise after a rebuild warrants immediate investigation to prevent progressive damage from a minor assembly error.

50. C — The most reliable indicator of a rebuild's long-term success is the transmission's daily performance: shifts should remain consistently smooth without progressive harshness or slipping, fluid should maintain its original red color without darkening toward brown (indicating thermal degradation), and operating temperature should stay within the normal 175-200°F range (indicating correct cooling and minimal internal friction). These three observable metrics together reflect the health of every internal component.