PRACTICE EXAM 13: ASE A2 SIMULATION (50 QUESTIONS)

1. A customer brings a vehicle to the shop and states: "The transmission works fine when I first start driving, but after about 20 minutes on the highway, it starts to slip in every gear. If I pull over and let it sit for 15 minutes, it works again for a while." This symptom pattern — works when cool, fails when hot, recovers after cooling — is MOST consistent with which type of failure?

A. A shift solenoid that sticks open at operating temperature due to thermal expansion of the plunger in the bore

B. A worn oil pump that loses efficiency as fluid viscosity drops at operating temperature and internal leakage increases

C. A pressure regulation or clutch seal fault that worsens as elastomeric components soften and expand at elevated temperature

D. A failing transmission control module whose internal processor overheats and begins commanding reduced pressure

2. A vehicle equipped with a six-speed automatic transmission produces a single, sharp metallic "snap" from the transmission area at the exact moment of every 4-5 upshift. The snap is present at all throttle levels and has been occurring for approximately 3,000 miles without worsening. No other shifts produce any noise. There are no DTCs and the fluid is clean. Which of the following is the MOST LIKELY cause?

A. A cracked 5th gear clutch drum that flexes audibly during each apply event but has not yet failed structurally

B. A worn accumulator spring that bottoms out against the case during the 4-5 shift and produces a metallic impact

C. A loose valve body bolt in the 4-5 shift circuit area that vibrates during the fluid pressure change of the shift

D. A snap ring in the 5th gear clutch pack that is slightly undersized and shifts in its groove during each clutch application

3. A technician road-tests a vehicle and shifts the transmission into Neutral while coasting at 50 mph. A low humming noise that was present in Drive continues unchanged in Neutral. The technician then decelerates to 30 mph — the hum decreases in pitch proportionally. Finally, the technician shifts back into Drive at 30 mph — the hum character does not change. What do these combined tests tell the technician about the noise source?

A. The noise is from a planetary gear element that remains partially loaded in Neutral through residual drag forces

B. The noise is speed-dependent and external to the transmission — it originates from a component rotating at vehicle speed

C. The noise is from the oil pump, which slows proportionally with vehicle speed in Neutral as the output shaft decelerates

D. The noise is from the torque converter turbine bearings, which continue spinning at vehicle speed in Neutral

4. Technician A says that a torque converter produces maximum torque multiplication at stall — when the turbine speed is zero and the impeller is spinning at maximum governed RPM. Technician B says that as the turbine speed approaches impeller speed, the torque multiplication ratio gradually decreases toward 1:1. 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 an automatic transmission has the following symptom: when the driver manually selects 2nd gear and accelerates from a stop, the vehicle accelerates normally. When the driver releases the throttle to coast in manual 2nd gear, the vehicle decelerates normally with engine braking. However, when the driver selects Drive and the transmission automatically shifts into 2nd gear during acceleration, releasing the throttle produces no engine braking — the vehicle coasts freely. What component BEST explains this difference in engine braking behavior between manual 2nd and automatic 2nd?

A. A faulty brake switch that fails to signal the module when the driver lifts off the throttle during automatic operation

B. A damaged 2nd gear band that can hold during acceleration but releases during the torque reversal of deceleration

C. A failing pressure control solenoid that reduces line pressure during automatic coast-down but maintains it in manual mode

D. The one-way clutch that holds 2nd gear in automatic Drive freewheels during deceleration, while manual 2nd applies an overrun device

6. A technician measures line pressure on a transmission and finds the following: Drive at idle = 58 psi (spec: 55-75), Drive at stall = 142 psi (spec: 150-180). The idle reading is within specification but the stall reading is below specification. The fluid level is correct and the fluid is clean. Which of the following is the MOST LIKELY cause of the low stall pressure?

A. A stuck-closed pressure regulator that limits maximum pressure at all RPM conditions equally across the system

B. A worn oil pump that maintains adequate pressure at the low demand of idle but cannot keep up under the high demand of stall

C. A faulty EPC solenoid that reduces its commanded output specifically during the high-throttle condition of a stall test

D. A leaking reverse clutch seal that bleeds pressure only during the Reverse stall test condition due to the high-pressure load

7. A vehicle's automatic transmission has been diagnosed with a 3rd gear ratio code (P0733) and the technician has confirmed through road testing that 3rd gear slips under moderate throttle. The component application chart shows that only two devices are applied in 3rd gear: the forward clutch and the direct clutch. The forward clutch is also applied in 1st, 2nd, 4th, and 5th — all of which work perfectly. Using elimination logic, which component has MOST LIKELY failed?

A. The direct clutch, because it is the only device applied in 3rd gear that is not applied in any of the working gears

B. The forward clutch, because it carries the highest torque load during 3rd gear operation compared to other gears

C. Both the forward clutch and the direct clutch are failing simultaneously due to a shared lubrication passage deficiency

D. The one-way clutch associated with the 3rd gear power flow path, which the application chart does not display

8. A customer reports that the vehicle's automatic transmission "locks up" momentarily during hard braking from highway speed. During the lockup, the engine RPM drops sharply toward stall speed before recovering. There are no DTCs stored. The symptom occurs during approximately one out of every five hard braking events. What is the MOST LIKELY cause?

A. A faulty ABS module that sends an incorrect wheel speed signal to the TCM during hard braking events

B. A worn forward clutch pack that binds under the torsional load reversal produced during hard deceleration

C. A failing brake booster that intermittently increases pedal effort, causing the driver to overbrake and stall the engine

D. An intermittent TCC apply valve or solenoid circuit fault that fails to release the TCC during some hard braking events

9. Technician A says that the transmission oil pump produces flow and pressure proportional to engine RPM at all times. Technician B says that a variable-displacement pump can reduce its output at high RPM when system demand is low, improving fuel efficiency. Who is correct?

A. Technician A only

B. Neither Technician A nor Technician B

C. Both Technician A and Technician B

D. Technician B only

10. A vehicle with an automatic transmission exhibits a vibration specifically during the 2-3 upshift that lasts approximately 1.5 seconds. The vibration feels like a rapid shudder or chatter during the shift transition itself. It occurs at all throttle levels but is most noticeable at moderate throttle. All other shifts are completely smooth. The scan tool shows TCC commanded OFF during the shift. What is the MOST LIKELY cause?

A. A clutch-to-clutch timing overlap issue during the 2-3 transition where the releasing and applying devices briefly conflict

B. A faulty engine mount that resonates at the specific torsional frequency generated during the 2-3 shift RPM change

C. A worn driveshaft U-joint that binds during the brief torque interruption that occurs during the 2-3 shift transition

D. A contaminated 3rd gear friction disc that chatters only during initial contact before the clutch reaches full clamping pressure

11. A vehicle's transmission operates normally in all forward gears and Reverse. However, the parking pawl does not engage — the vehicle rolls freely in Park on any grade. The shift indicator shows "P" on the dashboard and the engine starts normally in Park. What does the successful engine start in Park confirm?

A. The parking pawl mechanism is functioning mechanically but the parking gear on the output shaft has stripped teeth

B. The transmission range sensor correctly indicates Park (allowing engine start), but the mechanical pawl mechanism has failed

C. The manual valve is correctly positioned in Park and the hydraulic Park circuit is pressurized as designed by the system

D. The shift cable has stretched exactly enough to reach the range sensor Park position but not enough to fully actuate the pawl

12. A vehicle stores DTC P0730 — Incorrect Gear Ratio — intermittently. The code sets approximately once per week. The freeze frame data shows the code was set at 42 mph, 2,400 RPM, 35% throttle, 198°F fluid temperature, commanded gear = 3rd. The technician road-tests the vehicle extensively at

these exact conditions but cannot reproduce the fault. Which of the following is the MOST appropriate diagnostic strategy?

A. Replace the 3rd gear clutch pack preventively since the intermittent code confirms progressive internal mechanical degradation

B. Replace both speed sensors since an intermittent ratio code always originates from sensor signal errors rather than mechanical faults

C. Perform a pressure test and check adaptive values to establish a baseline, then instruct the customer to return when the symptom occurs

D. Record scan tool data continuously during extended driving to capture the speed sensor PIDs and calculated ratio at the moment the fault occurs

13. A technician scans a vehicle and finds DTC P0962 — Pressure Control Solenoid A Control Circuit Low — and DTC P0966 — Pressure Control Solenoid B Control Circuit Low — stored simultaneously. Both solenoids are mounted on the same solenoid body inside the transmission. PCS-A resistance = 5.1 ohms (spec 4-7) and PCS-B resistance = 5.4 ohms (spec 4-7). Both are within specification. What single fault would MOST LIKELY cause both "circuit low" codes simultaneously?

A. Both solenoid coils have developed identical internal partial shorts that reduce their output despite normal resistance readings

B. The transmission control module has a dual-channel driver failure that affects both PCS output stages simultaneously

C. A shared power supply circuit for both solenoids has excessive voltage drop, reducing the available voltage to both solenoid circuits

D. The internal wiring harness has a damaged section that affects multiple adjacent solenoid wires simultaneously at a single failure point

14. A vehicle equipped with a CVT has the following scan tool data during steady-state highway cruising at 60 mph: Engine RPM = 2,200, Primary Pulley Speed = 2,200, Secondary Pulley Speed = 2,200, CVT Ratio = 1.00:1. The CVT fluid temperature is 195°F. What can the technician conclude about the CVT's operating state from this data?

A. The CVT is operating inefficiently because 60 mph should produce an overdrive ratio lower than 1.00:1 for fuel economy

B. The CVT pulleys are positioned at equal diameters, providing a 1:1 ratio where the belt rides at the same diameter on both pulleys

C. The primary pulley speed sensor has failed and is defaulting to the engine RPM value as a substitute reading

D. The CVT belt is slipping on both pulleys simultaneously, which produces an apparent 1:1 ratio from equal slippage on both sides

15. A technician is diagnosing a vehicle where the transmission shifts normally from 1st through 6th gear in Drive, but when the driver manually selects 3rd gear using the manual mode selector at 35 mph, the transmission does not downshift — it remains in 6th gear. All automatic downshifts (kickdown and coast-down) function correctly. What is the MOST LIKELY cause?

A. A faulty manual mode selector switch, paddle shifter module, or wiring that is not communicating the manual downshift request to the TCM

B. A stuck 3rd gear shift valve in the valve body that prevents fluid from routing to the 3rd gear apply circuit when manually commanded

C. A control module calibration that inhibits manual downshifts at 35 mph to protect the drivetrain from excessive RPM in 3rd gear

D. A failed transmission range sensor that does not recognize the manual mode position and defaults to fully automatic shift control

16. A vehicle has DTC P0741 — Torque Converter Clutch System Stuck Off. The TCC solenoid tests within electrical specification. The technician commands the TCC ON through the scan tool at highway speed. The TCC slip drops from 120 RPM to 45 RPM but cannot reach zero. The technician then increases the EPC solenoid output to maximum through a second bidirectional command while maintaining the TCC ON command. The TCC slip drops further to 15 RPM but still does not reach zero. What do these combined test results indicate?

A. The TCC apply valve is partially stuck and cannot deliver full apply pressure to the converter clutch piston

B. The hydraulic circuit between the TCC solenoid and the converter has a restriction that limits maximum apply pressure delivery

C. The TCC friction material inside the converter is worn and cannot achieve full lockup even at the maximum available apply pressure

D. The EPC solenoid is not actually responding to the bidirectional command and the pressure is not truly at maximum

17. A technician monitors scan tool data and observes the following during a steady 55 mph cruise in 5th gear: TCC commanded ON, Engine RPM = 1,900, Input Shaft Speed = 1,900. The technician then lightly taps the brake pedal — not enough to slow the vehicle. The scan tool immediately shows TCC commanded OFF, and Input Shaft Speed drops to 1,750 while Engine RPM remains at 1,900. Five seconds later, with the brake pedal released, the TCC re-engages and Input Shaft Speed returns to 1,900. What does this complete sequence demonstrate?

A. A faulty brake switch that sends a false brake signal from the lightest pedal touch, unnecessarily releasing the TCC

B. A TCC friction surface that is worn and requires five seconds to re-engage after each release event during cruising

C. An engine control issue where the RPM does not drop when the TCC releases, indicating a throttle control fault

D. Normal TCC operation — the brake signal commands TCC release, converter slip appears as a speed difference, and the TCC re-engages after the brake signal clears

18. A vehicle equipped with an eight-speed automatic transmission stores DTC P0871 — Transmission Fluid Pressure Sensor/Switch C Circuit Range/Performance. The scan tool shows Pressure Sensor C reading a constant 0 psi regardless of engine RPM, gear selection, or driving condition. The technician backprobes the sensor connector and measures 5.0 volts on the reference voltage pin, 0.0 volts on the ground pin, and 0.1 volts on the signal pin. What does this electrical data indicate?

A. The sensor has a short to ground on its signal output circuit, pulling the signal voltage to near-zero and producing the 0 psi reading

B. The sensor's reference voltage is correct but the ground circuit is open, preventing the sensor from producing a variable signal

C. The sensor has failed internally and is outputting minimum voltage despite receiving correct reference voltage and ground

D. The module is not supplying adequate reference voltage, and the 5.0 volts measured at the connector is from a different circuit bleeding over

19. A vehicle has an intermittent harsh engagement from Park to Drive. The event occurs randomly — approximately once every ten engagements. The scan tool recording captures a harsh event and shows that the EPC solenoid duty cycle is at its normal commanded value during both the harsh and smooth engagements. What does the normal EPC data during the harsh event tell the technician?

A. The EPC solenoid is commanding the correct pressure, confirming the harshness is from an engine idle speed issue

B. The pressure regulation side is functioning correctly, and the harshness is caused by a circuit-specific issue downstream of the EPC

C. The scan tool data is unreliable for intermittent events because the sample rate cannot capture brief EPC spikes accurately

D. The EPC solenoid is the cause despite normal data because the solenoid's hydraulic output may differ from its electrical command

20. A technician reviews adaptive learning data on a transmission with 95,000 miles and finds the following: all clutch apply pressure adaptations are at moderate positive values (+10% to +15%), EXCEPT the TCC apply pressure adaptation, which is at its maximum negative correction (-25%). What does the maximum negative TCC adaptation indicate?

A. The TCC friction material has worn and the module has reduced pressure to prevent the worn surface from grabbing harshly

B. The TCC solenoid is producing excessive pressure, and the module has reduced its commanded duty cycle to compensate

C. The original TCC calibration commanded too much apply pressure, and the module has learned to reduce it to prevent harsh engagement or shudder

D. The TCC fluid passage has a restriction that reduces the actual pressure at the clutch, and the module interprets the slow engagement as needing less pressure

21. A vehicle equipped with a dual-clutch transmission (DCT) stores DTC P0900 — Clutch Actuator Circuit Open. The transmission will not engage any gear. The scan tool communicates with the mechatronic unit but shows zero current flow to both clutch actuators. What is the MOST LIKELY cause?

A. Both clutch packs have simultaneously burned out, causing the actuator circuits to detect zero mechanical load

B. The mechatronic unit's hydraulic pump has failed, and the zero current reflects the module disabling the actuators as a protection

C. Both clutch actuator motors have developed open circuits simultaneously from a shared wiring or connector failure

D. The power supply circuit to the mechatronic unit's actuator driver section has failed, cutting power to both actuator outputs

22. A technician is diagnosing a vehicle where the transmission range sensor voltage output is checked at each position: Park = 4.2V, Reverse = 3.5V, Neutral = 2.8V, Drive = 2.1V, Manual 3 = 2.1V, Manual 2 = 1.4V, Manual 1 = 0.7V. All voltages are evenly stepped except Drive and Manual 3, which read the same voltage (2.1V). What symptom will this identical voltage cause?

A. The module cannot distinguish between Drive and Manual 3, which may cause incorrect shift behavior or dashboard indicator errors when either range is selected

B. The transmission will lock in limp mode any time the driver selects either Drive or Manual 3 because the module detects conflicting data

C. The engine will not start in Drive because the module interprets the 2.1V signal as Manual 3 instead of Drive for the starter interlock

D. No symptoms will occur because the module uses additional inputs beyond the range sensor to determine the actual selected range

23. A vehicle has a persistent DTC P0218 — Transmission Fluid Over Temperature. The customer uses the vehicle exclusively for city driving with no towing. The scan tool shows fluid temperature reaching 248°F during 30 minutes of normal city driving. The technician checks the cooler system and finds good cooler flow rate and an unobstructed auxiliary cooler. What additional cause should the technician investigate?

A. The engine thermostat for a stuck-open condition that prevents the coolant from reaching proper temperature for heat exchange

B. The transmission for excessive internal friction from a dragging clutch, an incorrect endplay setting, or a binding internal component

C. The radiator cap for a weak pressure rating that reduces the boiling point of the coolant surrounding the integral transmission cooler

D. The ambient air temperature to determine if the city driving occurs in extreme heat conditions that exceed the cooling system's capacity

24. A technician performs a bidirectional scan tool test commanding Shift Solenoid B ON while monitoring line pressure. The pressure increases by 15 psi, confirming the solenoid moved its associated shift valve and redirected fluid. The technician then commands Shift Solenoid B OFF. The pressure does not return to its original value — it remains elevated. What does this indicate?

A. The scan tool's bidirectional OFF command is not compatible with this solenoid type and requires a different command syntax

B. The solenoid de-energized correctly but the shift valve it controls is stuck in the position it was moved to and cannot return

C. The solenoid coil has welded closed magnetically and cannot release its plunger despite the module removing electrical current

D. The shift valve moved to its new position and is being held there by hydraulic pressure, and will not return until the solenoid moves it back

25. A vehicle equipped with a stop/start system and an automatic transmission has the following customer complaint: the stop/start system functions normally — the engine shuts off at stops and restarts smoothly — but the transmission produces a slight "bump" approximately two seconds after each restart. The bump was not present when the vehicle was new. What is the MOST LIKELY cause of the delayed bump?

A. A worn starter motor that produces a harsh cranking vibration during each restart that is transmitted through the drivetrain

B. A failing engine mount that has deteriorated over time and no longer absorbs the restart engagement torque as effectively

C. A worn auxiliary pump that maintains slightly less holding pressure during engine-off periods, causing a partial clutch re-engagement bump at restart

D. A degraded stop/start battery that provides lower voltage during restart, causing the engine to crank more slowly and produce a delayed torque surge

26. A technician is replacing the transmission filter on a vehicle. The new filter is the correct part number but appears to be approximately 1/8 inch longer than the original filter from the vehicle. Both filters have the same mounting configuration and O-ring size. What should the technician do?

A. Verify the pan depth to ensure the longer filter does not contact the pan bottom, and install only if adequate clearance exists

B. Install the longer filter regardless since the part number is correct and minor dimensional variations are normal between batches

C. Shorten the new filter by trimming 1/8 inch from the intake end with a utility knife to match the original filter's dimensions

D. Return the filter and order a different brand since the length discrepancy confirms a manufacturing error in the filter specifications

27. A customer's vehicle has a transmission fluid leak that leaves a puddle approximately 3 inches in diameter after overnight parking. The technician cleans the transmission case, drives the vehicle for 30 minutes, and re-inspects. Fresh fluid is found at two locations: the pan gasket area and the cooler line fitting at the transmission case. Which leak should the technician repair FIRST and why?

A. The pan gasket, because it is the larger surface area and is more likely to be the primary leak source by volume

B. Both leaks simultaneously, because repairing only one will not resolve the customer's concern of a puddle under the vehicle

C. The cooler line fitting, because it operates under higher pressure and is more likely to worsen quickly if not addressed

D. The cooler line fitting, because a pressurized leak can spray fluid onto the pan gasket area and create a false second leak source

28. A technician replaces the transmission range sensor on a vehicle. After adjustment, the engine starts in Park and Neutral, and all forward gears engage with correct dashboard indicator display. However, the customer returns reporting that the vehicle occasionally starts in Reverse — the engine cranks and starts while the shift lever is in the "R" position. What is the MOST LIKELY cause?

A. The replacement range sensor has an internal manufacturing defect where the Park and Reverse contacts overlap slightly

B. The range sensor adjustment is slightly off, positioning the Reverse signal close enough to the Neutral zone that the starter interlock allows cranking

C. The starter motor solenoid is sticking intermittently and engaging the starter regardless of the range sensor's signal position

D. The body control module's starter interlock logic has a software error that occasionally permits cranking in Reverse

29. A vehicle has a transmission fluid leak traced to the extension housing gasket on a rear-wheel-drive transmission. The technician replaces the gasket and also notices that the extension housing bushing has measurable wear. The driveshaft yoke has a light wear groove where the output seal lip rides. After installing the new gasket and a new output seal, what additional action is necessary to prevent a repeat leak?

A. Replace the extension housing bushing and install a wear sleeve on the driveshaft yoke to provide a smooth surface for the new seal

B. Apply sealant to the driveshaft yoke wear groove to fill the depression before reinstalling the driveshaft into the extension housing

C. Replace only the extension housing bushing since the yoke groove is minor enough for the new seal to bridge without a sleeve

D. Replace the driveshaft yoke entirely because any wear groove makes the yoke unsuitable for use with a standard replacement seal

30. A technician discovers that a vehicle's shift cable housing clip at the transmission bracket has broken, allowing the cable housing to slide approximately 3/8 inch forward and backward in the bracket during gear changes. The transmission currently engages all gears. What symptom will this cable movement MOST LIKELY produce?

A. A no-start condition because the cable slack prevents the range sensor from recognizing the Park position accurately

B. A delayed engagement in all gears because the manual valve does not reach full detent position with the available cable travel

C. Inconsistent manual valve positioning where gear engagement varies between correct and incorrect depending on cable housing position

D. A harsh engagement in every gear because the cable slack allows the manual valve to snap into position from excessive free play

31. A technician is replacing a solenoid on the valve body through the transmission pan opening. After removing the old solenoid and its O-ring, the technician inspects the bore and finds varnish deposits coating the bore walls. What must the technician do before installing the new solenoid?

A. Install the new solenoid immediately since the new O-ring will wipe the varnish away as the solenoid is pushed into the bore

B. Clean the varnish from the bore using solvent and a lint-free cloth to ensure the new O-ring seats against a clean surface

C. Hone the bore with a flex-hone to remove the varnish layer and restore the original bore diameter for proper O-ring sealing

D. Apply a light coating of RTV sealant to the new O-ring to compensate for any surface irregularities from the varnish deposits

32. A technician replaces the transmission fluid temperature sensor on a vehicle. The old sensor connector had no corrosion. After installing the new sensor and clearing DTCs, the scan tool shows the TFT reading at 72°F (matching the shop ambient temperature). After a 30-minute road test, the TFT reads 188°F. The technician checks for TSBs and finds one stating that this vehicle requires the TFT sensor to be "initialized" through a scan tool procedure after replacement. The technician did not perform this initialization. What is the MOST LIKELY consequence of skipping the initialization?

A. The sensor will read inaccurately by a fixed offset amount at all temperatures, causing incorrect adaptive pressure calculations

B. The sensor will read correctly in most conditions but may trigger a performance DTC during extreme temperature transitions

C. The sensor will function normally since the readings match expected values, and the initialization is only required for aftermarket sensors

D. The module will not apply the correct resistance-to-temperature lookup table for the new sensor, potentially causing incorrect temperature interpretation

33. A customer reports that the transmission has a "delayed response" when the accelerator is pressed after coasting with the throttle fully released for several seconds at highway speed. There is a 1-2 second delay before the vehicle responds to throttle input after the coast period. All normal driving transitions feel immediate. No DTCs are stored. What is the MOST LIKELY cause?

A. The TCC must release and the transmission may need to downshift before power can reach the wheels, and this transition takes 1-2 seconds

B. The pressure control solenoid requires 1-2 seconds to ramp up from minimum coast pressure to the acceleration pressure demand

C. The engine's electronic throttle body has a delayed response from its zero-throttle coast position to the acceleration position

D. The transmission fluid has drained from the clutch apply circuits during the coast period and must refill before engagement occurs

34. A technician discovers during routine maintenance that both transmission cooler lines on a vehicle show significant surface corrosion but no active leaks. The vehicle is located in a northern climate that uses road salt. The customer asks if the lines need to be replaced now or can wait. What is the BEST recommendation?

A. The lines can wait indefinitely since surface corrosion on steel lines does not progress to through-wall failure in most cases

B. Replace only the rubber hose sections at each end since those deteriorate faster than the corroded steel line sections

C. Replace the lines now because progressive corrosion will eventually penetrate the wall, and a line failure during driving causes rapid fluid loss

D. Apply rust-preventive coating to the corroded areas and schedule a follow-up inspection in 6 months to monitor for progression

35. A vehicle's automatic transmission has a customer complaint that the "Tow/Haul" mode button activates and deactivates normally, but when Tow/Haul is engaged, the shift behavior does not change — the shifts feel identical to normal mode. The scan tool confirms the TCM receives the Tow/Haul input signal. What is the MOST LIKELY cause?

A. The tow/haul button is sending a signal but the TCM's tow/haul mode software has been overwritten by a previous reflash

B. The transmission adaptive values have already compensated the shift schedule to the point where tow/haul mode produces no additional change

C. The tow/haul hydraulic circuit in the valve body has a stuck valve that prevents the modified shift schedule from being hydraulically executed

D. A control module software fault where the TCM acknowledges the tow/haul request but does not apply the alternate shift schedule programming

36. A technician performs an in-vehicle valve body replacement. After installing the new valve body, reinstalling the filter and pan, and refilling with fluid, the technician starts the engine. The transmission engages Drive and shifts through 1st, 2nd, and 3rd gears normally, but will not shift into 4th gear at

highway speed. All other operations including Reverse are normal. What should the technician investigate FIRST?

A. The replacement valve body for a manufacturing defect that blocks the 4th gear shift valve passage internally

B. The check ball positions in the case to verify that the ball controlling the 4th gear apply passage is present and correctly seated

C. The solenoid calibration codes to determine if the new valve body's solenoids require code entry for proper 4th gear operation

D. The separator plate to verify it matches the replacement valve body and has the correct hole pattern for the 4th gear circuit

37. A vehicle has an intermittent fluid leak from the transmission case pass-through connector area. The leak occurs only during driving and is absent when the vehicle is parked with the engine running at idle. What is the MOST LIKELY explanation for this driving-only leak pattern?

A. The engine vibration at idle is not strong enough to disturb the connector seal, but road vibration during driving opens the seal gap

B. The fluid in the case is at higher pressure during driving than at idle, and the elevated pressure forces fluid past the degraded connector seal

C. The connector seal leaks when the transmission case expands from driving heat, but seals when the case contracts during idle cooling

D. The transmission vent is clogged, and driving generates more internal pressure than idle, forcing fluid out through the connector

38. A technician is installing a rebuilt transmission on a vehicle. The torque converter has been installed and verified as fully seated with the correct pad-to-bell-housing measurement. As the technician mates the transmission to the engine, the transmission will not seat flush — a 1/8-inch gap remains. The technician pushes firmly but the gap does not close. What should the technician check?

A. The dowel pins between the engine block and the bell housing for misalignment, damage, or debris in the pin bores

B. The torque converter for being pushed too far into the pump, creating interference between the converter pilot and crankshaft bore

C. The input shaft for a slightly longer replacement shaft that extends too far forward and contacts the converter turbine hub

D. The flexplate for warping that creates an uneven surface preventing the bell housing from seating flush against the engine block

39. During a transmission overhaul, a technician inspects the clutch drums and finds that two drums have worn snap ring grooves — the grooves are measurably wider than specification. What is the consequence of installing new snap rings in these worn grooves?

A. The new snap rings will sit deeper in the wider grooves, reducing the effective clutch pack clearance and potentially causing clutch drag

B. The new snap rings will seat securely since the groove width tolerance is non-critical for snap ring retention and clearance function

C. The new snap rings will be loose in the wider grooves but will be held in place by the hydraulic pressure of the clutch apply event

D. The new snap rings may not be retained securely in the widened grooves, potentially allowing them to pop out under pressure and release the clutch pack

40. A technician is inspecting the oil pump during a transmission overhaul. The pump housing shows no scoring or visible damage. All three clearance measurements — tip, side, and mesh — are within specification. However, the pump's pressure relief ball and spring are missing from the pump body. What is the consequence of reassembling and installing the pump without the pressure relief ball and spring?

A. The pump will produce normal pressure because the pressure regulator valve in the valve body controls line pressure independently

B. The pump may produce dangerously high pressure spikes during cold start or high RPM conditions because the internal relief function is absent

C. The pump will not produce any pressure because the missing ball creates an open passage that vents all output directly to the sump

D. The pump will function normally at idle but cavitate at high RPM because the relief circuit normally recirculates excess flow

41. A technician measures clutch pack clearance on a forward clutch during reassembly. The measurement reads 0.032 inches with the selective snap ring from the rebuild kit installed. The manufacturer's specification is 0.025 to 0.050 inches. The technician notices that the rebuild kit also included a thicker selective snap ring as an option. Should the technician install the thicker ring?

A. Yes — a thicker snap ring will tighten the clearance, producing a firmer shift that reduces wear on the new friction material

B. Yes — the clearance should be set as close to the minimum specification as possible for optimal shift quality after the rebuild

C. No — the measured clearance of 0.032 inches is within specification and no change is necessary

D. No — but only because the thicker ring is intended for a different clutch pack location and should not be used in the forward clutch

42. A technician discovers during a transmission overhaul that one of the six valve body bolts has been over-torqued by a previous technician. The bolt threads in the case are stripped, and the bolt can be turned by hand with no resistance. The other five bolt holes have undamaged threads. What is the correct repair?

A. Install a thread repair insert in the stripped hole to restore proper thread engagement and clamping force for the valve body bolt

B. Leave the stripped hole empty and torque the remaining five bolts to a slightly higher value to compensate for the missing bolt

C. Apply thread-locking compound to the stripped bolt and reinstall it, relying on the adhesive rather than thread engagement

D. Replace the transmission case because a single stripped valve body bolt hole compromises the hydraulic sealing of the entire valve body

43. A technician is reassembling a transmission and installing the pump. The pump-to-case gasket from the rebuild kit appears identical to the original but is 0.010 inches thicker. What potential problem could this thicker gasket cause?

A. The thicker gasket will increase the pump housing's distance from the case, potentially misaligning the converter pilot and causing vibration

B. The thicker gasket will compress more during bolt torquing, eventually providing a tighter seal than the original thickness gasket

C. The thicker gasket will not affect pump function but may cause a minor fluid weep at the pump-to-case mating surface

D. The thicker gasket may alter the endplay measurement because the pump's position relative to the internal components changes

44. A technician performs a cooler flow test after a transmission overhaul. The flow rate meets specification in both forward and reverse directions. However, the fluid exiting the cooler during the test appears slightly discolored — darker than the fresh ATF being pumped in. What does this discoloration indicate?

A. The cooler core material is degrading and shedding internal coating particles into the fluid stream during the flow test

B. Residual old fluid trapped in the cooler core is mixing with the fresh test fluid, and additional flushing may be needed

C. The test equipment's pump is overheating the fluid during the test, causing the fresh ATF to darken from the elevated temperature

D. The cooler has an internal crack that is allowing engine coolant to mix with the ATF and darken the fluid during the test

45. A technician is installing a rebuilt transmission and preparing to fill it with fluid. The service information states the total system capacity is 12 quarts but the initial fill after installation (with a new converter) should be approximately 8 quarts. Why is the initial fill less than the total system capacity?

A. The remaining 4 quarts are held in reserve inside the torque converter housing, which cannot be filled externally through the fill tube

B. The cooler and cooler lines hold the remaining 4 quarts, and the pump must circulate fluid to fill them after the engine is started

C. The total capacity includes the fluid that will fill the converter, cooler, lines, and passages as the pump circulates fluid after startup

D. The initial fill is lower to prevent overfilling, and the remaining fluid is added after the pump has pressurized the system and the level settles

46. After installing a rebuilt transmission and performing the initial startup, a technician checks for leaks and finds a small but steady drip of ATF from the area where the transmission bell housing meets the engine block on the passenger side. The torque converter bolts are properly torqued and the front pump seal area appears dry. What is the MOST LIKELY source of this leak?

A. An engine oil galley plug or freeze plug on the rear of the engine block that was disturbed during the transmission removal process

B. The bell housing-to-case gasket or sealant that was not properly applied during the rebuild, allowing fluid to seep from between the castings

C. A cracked bell housing that developed a hairline fracture from an over-torqued mounting bolt during the installation process

D. The transmission vent tube that has been routed incorrectly and is dripping fluid at the bell housing location during operation

47. A technician has completed a transmission overhaul. During the post-installation road test, all shifts are correct and smooth. However, when the technician manually selects the "1" or "L" position at 30 mph, the transmission downshifts and holds 1st gear during acceleration, but there is no engine braking during deceleration — the vehicle coasts freely. What was MOST LIKELY assembled incorrectly during the overhaul?

A. The forward clutch was assembled with one fewer friction disc than specified, reducing its holding capacity during deceleration

B. The low-reverse band was adjusted too loosely, preventing adequate clamping force to hold the planetary element during deceleration

C. The manual valve linkage was not properly connected, preventing the manual valve from fully reaching the Low detent position

D. The low-reverse one-way clutch was installed backward, causing it to freewheel when it should lock for engine braking in manual low

48. A technician is measuring endplay during transmission reassembly. The service information specifies that the selective thrust washer for endplay adjustment is located between the output shaft and the rear case bearing. The technician accidentally omits this washer entirely. What effect will the missing washer have on the endplay measurement and on transmission operation?

A. The endplay will be within specification because other thrust washers in the assembly compensate for the missing washer automatically

B. The endplay will be excessively high because the missing washer leaves a gap that adds directly to the total axial free play measurement

C. The endplay will be excessively low because the missing washer allows the components to stack closer together than intended

D. The endplay will not be measurable because the missing washer prevents the dial indicator from finding a stable reference point

49. A technician completes a transmission rebuild and installation. During the initial road test, all shifts are smooth and the TCC operates correctly. However, the scan tool shows the transmission fluid temperature stabilizes at 220°F during city driving — above the normal specification of 175-200°F. The cooler was flushed and flow-tested before installation. What should the technician investigate as the MOST LIKELY cause?

A. The replacement torque converter for a higher-than-specified stall speed that generates excess heat during city driving stop-and-go

B. The engine cooling system for a faulty thermostat that is affecting the heat exchange efficiency of the integral transmission cooler

C. The cooler thermostat or bypass valve for a stuck-in-bypass condition that routes fluid around the cooler instead of through it

D. The clutch pack clearances for values set too tight during assembly, causing clutch drag that generates excess heat continuously

50. A technician has completed the final practice exam in a 20-exam study guide series. The technician's scores have improved from 62% on the first exam to 88% on this final exam. The technician is consistently scoring above 80% in Domains A1, A2, and C, but scores only 67% in Domain B (In-Vehicle Maintenance and Repair). Based on this score pattern, what is the MOST effective study strategy before taking the actual ASE A2 exam?

A. Focus additional study specifically on Domain B topics — fluid service, linkage adjustment, sensor replacement, seal service, and in-vehicle component repair

B. Continue taking additional practice exams to raise the overall score above 90% before scheduling the certification exam

C. Review all four domains equally since the exam may weight questions differently from the practice exams' distribution

D. Schedule the exam immediately since 88% overall demonstrates adequate preparation and further study produces diminishing returns

Practice Exam 13: Answer Key and Explanations

1. C — The pattern of works when cool, fails when hot, and recovers after cooling is the signature of a heat-sensitive elastomeric seal or pressure regulation component. As the transmission reaches operating temperature, rubber piston seals, O-rings, or valve body seals soften and expand, allowing pressure to bypass. When the vehicle cools during the 15-minute rest, the seals contract and temporarily restore their sealing ability. This thermal cycle of failure and recovery repeats predictably because the root cause is temperature-dependent material degradation.

2. D — A consistent metallic snap at the exact moment of every 4-5 shift — present at all throttle levels for 3,000 miles without worsening — points to a component within the 5th gear clutch pack that shifts position during each application. A slightly undersized snap ring can rock or move within its groove each time hydraulic pressure pushes the clutch pack against it. The snap ring settles into position after

the apply force stabilizes, producing the single snap. The condition has remained stable because the ring is not failing — it is simply not fully seated.

3. B — The noise persists in Neutral (eliminating transmission-internal loaded components), decreases in pitch proportionally with vehicle speed (confirming speed dependence), and does not change when shifting back into Drive (eliminating load-dependent sources). A noise that tracks vehicle speed regardless of gear selection or transmission loading must originate from a component rotating at vehicle speed outside the transmission — driveshaft, wheel bearings, tires, or differential. The transmission is not the source.

4. A — Both technicians are correct. At stall (zero turbine speed), the fluid redirected by the stator returns to the impeller at an angle that adds to its force, producing maximum torque multiplication — typically 2:1 to 2.5:1 depending on converter design. As the turbine accelerates toward impeller speed, the angle of fluid returning to the impeller becomes less favorable, and the multiplication ratio decreases progressively. When turbine speed reaches approximately 90% of impeller speed, the ratio approaches 1:1 and the stator begins to freewheel.

5. D — In automatic Drive mode, 2nd gear uses a one-way clutch as the holding device. The one-way clutch locks during acceleration (holding the reaction member) but freewheels during deceleration, allowing the vehicle to coast without engine braking. When the driver manually selects 2nd gear, the control system applies an additional overrun holding device (clutch or band) that holds the reaction member in both directions, providing engine braking during deceleration. This dual-device strategy is a fundamental design feature of automatic transmissions.

6. B — Adequate pressure at idle (58 psi within spec) confirms the pump can meet the low-demand conditions of idle speed. The below-specification stall pressure (142 vs. 150-180 psi) indicates the pump cannot produce adequate flow under the high-demand, high-RPM conditions of the stall test. A worn pump with excessive internal clearances leaks more fluid from its outlet back to its inlet as pressure demand increases, reaching a point where output cannot keep pace with demand. The deficit appears only under high-load conditions.

7. A — The forward clutch is applied in 1st, 2nd, 3rd, 4th, and 5th — and all gears except 3rd work perfectly. If the forward clutch were failing, multiple gears would be affected. The direct clutch is the only device applied uniquely in 3rd gear that is not applied in any of the working gears. By process of elimination, the direct clutch must be the failed component, since every other device in the 3rd gear circuit is verified as functional in other gears.

8. D — The engine RPM drops sharply toward stall during hard braking, indicating the TCC is remaining locked when it should release. A locked TCC during braking directly couples the decelerating wheels to the engine — as the wheels slow, they drag the engine RPM down toward stall. The intermittent nature (one out of five events) points to an intermittent fault in the TCC release mechanism — either the TCC apply valve is sticking in the applied position or the solenoid circuit has an intermittent fault that delays the release command.

9. C — Both technicians describe valid pump characteristics. Technician A correctly describes a fixed-displacement pump whose output is directly proportional to engine RPM. Technician B correctly describes a variable-displacement pump (typically a vane pump with a movable slide) that reduces its displacement at high RPM when system pressure is adequate, reducing the parasitic load on the engine and improving fuel efficiency. Both pump types exist in modern automatic transmissions.

10. A — A 1.5-second shudder specifically during the 2-3 shift transition, present at all throttle levels and most noticeable at moderate throttle, with TCC confirmed OFF, indicates a clutch-to-clutch timing overlap. During the 2-3 transition, the releasing device (2nd gear) and the applying device (3rd gear) must be precisely timed. If both are briefly engaged simultaneously, the conflicting holding members create a torsional bind that manifests as a rapid shudder. The conflict resolves as one device completes its release.

11. B — The engine starts normally in Park, confirming the transmission range sensor correctly identifies the Park position and sends the appropriate signal to the starter interlock circuit. The parking pawl is a purely mechanical device — it does not require electrical signals to engage. The range sensor and the pawl mechanism are separate systems. The sensor correctly reads Park (allowing engine start), but the mechanical pawl system has a physical failure that prevents it from engaging the parking gear.

12. D — An intermittent code that cannot be reproduced during targeted road testing requires continuous data capture to catch the fault when it naturally occurs. Recording scan tool data during extended driving captures the actual speed sensor PIDs and calculated ratio at the exact moment the code sets, revealing whether the fault is a genuine ratio slip or a sensor signal anomaly. This approach provides objective evidence of what happened at the fault moment without requiring component replacement based on speculation.

13. C — Both solenoid coils test within resistance specification, eliminating individual coil failures. Both codes specify "Circuit Low," meaning insufficient voltage or current is reaching both solenoids. A shared power supply circuit with excessive voltage drop reduces the available voltage to both solenoids equally. The module detects the reduced current flow in both circuits and sets identical "low" codes for each. A single high-resistance connection in the shared feed explains both codes from one root cause.

14. B — A CVT ratio of 1.00:1 means the primary and secondary pulleys are positioned at equal effective diameters — the belt rides at the same radial position on both pulleys. This is the midpoint of the CVT's ratio range. Whether 1:1 is the optimal ratio for 60 mph depends on the specific vehicle's engineering — some CVTs hold 1:1 at highway cruise while others achieve overdrive ratios below 1:1. The data confirms the CVT is in a valid operating state.

15. A — All automatic downshifts work correctly, confirming the valve body, shift solenoids, and clutch circuits are mechanically functional. The failure is limited to manually commanded downshifts — the manual mode request is not reaching the TCM. A faulty manual mode selector switch, paddle shifter module, or the wiring between the driver's manual input device and the TCM prevents the manual downshift request from being communicated, while the automatic shift logic continues operating normally through its own input channels.

16. C — Commanding TCC ON reduced slip from 120 to 45 RPM, then adding maximum EPC pressure reduced it further to 15 RPM — but full lockup (0 RPM) was never achieved despite maximum available hydraulic force. Both the solenoid and the EPC responded to commands (ruling out electrical and hydraulic delivery faults), yet the TCC could not close completely. The friction material inside the sealed converter has worn to the point where maximum available pressure cannot produce a zero-slip mechanical lock.

17. D — This sequence demonstrates normal TCC operation across a complete release-and-reapply cycle. The brake signal triggers TCC release (normal protective function), converter slip immediately appears as a 150 RPM difference between engine and input speed (normal fluid coupling), and the TCC re-engages after the brake signal clears (normal reapplication). Engine RPM remaining at 1,900 during TCC release is normal because the throttle position has not changed — the engine maintains its speed while the converter absorbs the momentary uncoupling.

18. A — The reference voltage (5.0V) is present and the ground (0.0V) is functioning — both supply circuits are correct. The signal pin reads only 0.1 volts, which is near-zero. A properly functioning pressure sensor with correct reference and ground would produce a signal voltage proportional to the applied pressure. A signal stuck at near-zero despite correct supply circuits indicates the signal line has a short to ground — the signal voltage is being pulled to ground potential through a fault in the signal wire, connector, or sensor internal circuitry.

19. B — The EPC solenoid duty cycle is identical during both harsh and smooth engagements, confirming the module is commanding the same pressure for every engagement. If the pressure command is correct but the engagement quality varies, the fault is downstream of the EPC in the engagement-specific circuit. A sticking accumulator, a displaced check ball, or an intermittent seal leak

in the forward clutch apply circuit would produce inconsistent engagement quality despite consistent commanded pressure.

20. C — A maximum negative TCC adaptation means the module has progressively reduced the TCC apply pressure from its original calibration. Negative corrections indicate the module learned that the original pressure produced undesirable results — likely a harsh TCC engagement or shudder that the module corrected by reducing apply pressure. Over 95,000 miles, the TCC friction characteristics changed (fluid degradation or friction surface wear), and the module adapted by reducing pressure to maintain smooth engagement.

21. D — Both clutch actuators show zero current simultaneously. Individual actuator motor failures would typically affect one at a time, not both identically. A shared power supply circuit to the mechatronic unit's actuator driver section — the feed that enables the module to send current to both actuator motors — has failed. Without power to the driver section, neither actuator can receive current regardless of the module's commands. The module still communicates via its separate communication power supply.

22. A — Drive and Manual 3 both produce 2.1V — identical voltage signals. The module uses the range sensor voltage to determine which position the driver has selected. If two positions produce the same voltage, the module cannot distinguish between them. This ambiguity may cause the module to apply the wrong shift schedule (manual 3-gear limit instead of full automatic Drive, or vice versa) or display the incorrect gear position on the dashboard when either range is selected.

23. B — The cooler system has been verified as functional with good flow and an unobstructed auxiliary cooler, eliminating cooling deficiency as the cause. Normal city driving without towing should not generate 248°F fluid temperatures. The heat must be generated internally. A dragging clutch, incorrect endplay causing excessive thrust surface friction, or a binding internal component creates continuous parasitic heat that the cooling system cannot overcome because the transmission itself is the heat source.

24. D — The shift valve moved when the solenoid was commanded ON (confirmed by the 15 psi increase). When the solenoid was commanded OFF, the valve did not return. In many valve body designs, the shift valve is moved by the solenoid in one direction and held in position by hydraulic pressure acting on the valve's differential area. The valve does not have a return spring — it relies on the solenoid to move it back. This is normal operation for a pressure-held shift valve design.

25. C — The bump was not present when the vehicle was new but develops over time — indicating progressive wear of a component in the stop/start engagement chain. The auxiliary electric pump

maintains clutch holding pressure during engine-off periods. As the pump wears internally, its pressure output decreases, and the clutch circuit loses slightly more pressure during each engine-off event. When the engine restarts and the main pump rapidly re-pressurizes the partially drained circuit, the sudden pressure spike produces the bump.

26. A — The correct part number with a slightly different physical length may be due to manufacturing batch variation or a revised filter design. Before assuming a problem, the technician should verify that the longer filter fits within the pan without contacting the bottom. If adequate clearance exists between the filter intake and the pan floor, the filter can be installed safely. If the filter contacts the pan, it will produce a scraping noise and may restrict the intake. Measurement before installation is the correct approach.

27. D — When two leak sources are found simultaneously, the technician must determine if one is the actual source and the other is a false secondary caused by fluid migration. A pressurized cooler line fitting leak can spray fluid that flows along the case surface and accumulates at the pan gasket area, creating the appearance of a second leak. Repairing the cooler line fitting first eliminates the pressurized spray source and allows the technician to determine if the pan gasket area is a genuine leak or just a fluid accumulation point.

28. B — The engine should never start in Reverse — the starter interlock permits cranking only in Park and Neutral. If the range sensor adjustment places the Reverse position voltage close enough to the Neutral zone boundary, the module may intermittently interpret the Reverse signal as Neutral, permitting the starter to engage. The sensor needs to be readjusted so the Reverse voltage is clearly distinct from the Neutral voltage with no overlap.

29. A — Three conditions must be addressed to prevent a repeat leak: the gasket (replaced), the bushing (worn), and the driveshaft yoke sealing surface (grooved). A worn bushing allows the shaft to orbit eccentrically, accelerating seal wear. A grooved yoke surface prevents the new seal lip from maintaining uniform contact. The bushing must be replaced to restore shaft alignment, and a wear sleeve must be installed over the yoke groove to provide a fresh, smooth surface for the new seal lip to ride on.

30. C — With 3/8 inch of cable housing movement, the manual valve's position becomes unpredictable. The cable housing acts as the fixed reference point against which the inner cable's movement is measured. If the housing slides, the inner cable's effective travel changes — the manual valve may reach the correct detent one shift and miss it the next, depending on which direction the housing was positioned at the time. The result is inconsistent gear engagement.

31. B — Varnish deposits on the solenoid bore walls prevent the new O-ring from seating against a clean, smooth surface. The varnish creates an uneven surface that can prevent the O-ring from compressing uniformly, potentially allowing fluid to bypass the seal. Cleaning the bore with solvent and a lint-free cloth restores a smooth, clean sealing surface for the new O-ring. Honing is excessive and could enlarge the bore. RTV is not a substitute for proper O-ring sealing.

32. D — The initialization procedure programs the module with the new sensor's specific resistance-to-temperature curve data. Without initialization, the module may apply the default or previous sensor's lookup table to interpret the new sensor's output. If the new sensor has even slightly different resistance characteristics, the module will calculate incorrect temperatures from the voltage readings. This can affect shift timing, TCC engagement strategy, and thermal protection logic.

33. A — During extended throttle-off coasting at highway speed, the TCC remains engaged for efficiency. When the driver reapplies throttle, two events must occur before power reaches the wheels: the TCC must release (transitioning from mechanical lock to fluid coupling) and the transmission may need to downshift from the cruise gear to an appropriate acceleration gear. The combined time for TCC release and downshift completion accounts for the 1-2 second delay. This is normal operation, not a fault.

34. C — Progressive surface corrosion on steel cooler lines in a road-salt environment will eventually penetrate the wall thickness, creating a pinhole failure. A cooler line failure during driving causes rapid, complete fluid loss — the pump discharges the entire fluid contents through the breach within minutes, resulting in total transmission failure. Replacing the lines proactively eliminates the risk of a catastrophic on-road failure that would damage the transmission and strand the vehicle.

35. D — The scan tool confirms the TCM receives the tow/haul input signal, eliminating the switch, wiring, and signal path as causes. The module acknowledges the request but does not modify shift behavior. This indicates the TCM's software is not executing the alternate tow/haul shift schedule despite receiving the trigger. A software fault — possibly from a previous reflash that did not include the tow/haul calibration, or a corrupted calibration table — prevents the module from applying the modified shift parameters.

36. B — A new valve body installation that produces normal 1st, 2nd, and 3rd gear operation but no 4th gear suggests a hydraulic routing issue specific to the 4th gear apply passage. During valve body installation, check balls must be placed in specific mapped positions in the case before the valve body is lowered into place. A missing or mispositioned check ball in the 4th gear apply passage prevents fluid from reaching the 4th gear clutch circuit. Verifying check ball positions is the first step.

37. C — The leak occurs only during driving (when the case is at operating temperature) and is absent at idle (when the case is cooler). As the transmission heats during driving, the aluminum case expands. If the case connector seal has hardened and lost its ability to maintain contact as the bore dimensions change, the thermal expansion opens a gap between the seal and the bore that allows fluid to seep. At idle, the case cools enough to close the gap, stopping the leak.

38. A — The converter is verified as fully seated and the measurement confirms proper pad-to-bell-housing distance. If the transmission will not seat flush with a 1/8-inch gap remaining, a physical obstruction is preventing the bell housing from meeting the engine block. The most common cause is a dowel pin that has corroded in the engine block bore, has debris in the pin receptacle, or is slightly misaligned. The dowel pins must align with their mating bores precisely for the two castings to mate flush.

39. D — Snap ring grooves that have widened beyond specification provide less lateral support for the snap ring. When hydraulic pressure is applied to the clutch pack, the pressure pushes the clutch components against the snap ring with significant force. In a worn groove, the ring may not be retained securely — it can shift, tilt, or pop out of the groove entirely under the apply pressure. If the ring releases, the clutch pack loses its retention and the clutch can no longer apply properly.

40. B — Some oil pump designs include an internal pressure relief ball and spring as a secondary safety mechanism that limits maximum pump output pressure. The primary pressure regulator valve in the valve body controls normal operating pressure, but the pump's internal relief prevents dangerously high pressure spikes during cold starts (when viscous fluid creates extreme pump output) or at high RPM. Without this relief function, pressure spikes can damage seals, gaskets, and soft internal components.

41. C — The measured clearance of 0.032 inches falls within the manufacturer's specification of 0.025 to 0.050 inches. A measurement within specification requires no correction — the clearance is acceptable as-is. Installing a thicker snap ring to reduce the clearance below the current value is unnecessary and risks pushing the clearance too tight, potentially causing clutch drag. The specification range defines acceptable operation; targeting the minimum is not required or recommended.

42. A — A stripped valve body bolt hole must be repaired to restore proper thread engagement and clamping force. A thread repair insert (HeliCoil or similar) creates new threads within the damaged hole that match the original bolt size and provide adequate clamping. Leaving the hole empty creates an unsupported area of the valve body that may warp or leak. Thread-locking compound cannot substitute for mechanical thread engagement. Case replacement is excessive for a single repairable bolt hole.

43. D — The pump-to-case gasket determines the axial position of the pump housing relative to the case. A gasket 0.010 inches thicker than original pushes the pump housing 0.010 inches further from the case, which shifts the entire internal component stack by the same amount. Since endplay is the total axial free play of the component stack, any change in the pump's position relative to the case directly changes the endplay measurement by the thickness difference.

44. B — A properly flushed cooler that passes flow testing but produces slightly discolored fluid during the test still contains residual old fluid trapped in the cooler core's internal baffles and dead spots. The fresh test fluid picks up this residual contamination as it passes through the core. Additional flushing cycles will progressively dilute and remove the remaining old fluid. The discoloration does not indicate cooler failure — it indicates incomplete purging.

45. C — The total system capacity (12 quarts) includes fluid held in the pan, valve body, clutch circuits, pump, torque converter, cooler, cooler lines, and all internal passages. After initial assembly, only the pan and immediate internal passages can be filled through the fill tube. The converter, cooler, and lines are empty. The initial 8-quart fill provides the fluid the pump needs to begin circulating. As the engine runs, the pump distributes this fluid to fill the converter, cooler, and lines — then additional fluid is added to reach the final level.

46. A — The pump seal area is dry and the converter bolts are properly torqued, eliminating the most common bell housing leak sources. A drip from the passenger side of the bell housing — away from the centerline — points to a fluid source on the engine side of the junction. An engine oil galley plug, freeze plug, or oil passage seal on the rear of the engine block that was disturbed during transmission removal can seep engine oil that drips from the bell housing area, mimicking a transmission leak.

47. D — The transmission holds 1st gear during acceleration (the one-way clutch locks correctly in the forward direction), but freewheels during deceleration in manual low (no engine braking). In manual low, the overrun holding device — which on many transmissions is the low-reverse one-way clutch working in conjunction with a band or clutch — must hold in both directions. If the one-way clutch was installed backward, it locks during acceleration (correct) but freewheels during deceleration (reversed), eliminating engine braking.

48. B — The selective thrust washer occupies a specific amount of axial space in the component stack. Without this washer, the total stack height is shorter, creating a larger gap between the components. This gap adds directly to the endplay measurement — the dial indicator will read higher than it should because the missing washer's thickness has been added to the axial free play. Excessive endplay causes thrust surface wear, pressure loss, and potential component contact.

49. C — The cooler was flushed and flow-tested before installation, confirming the cooler core and lines are clean. All shifts are smooth, eliminating internal clutch drag as a heat source. The TCC operates correctly, eliminating converter slip as a heat source. A cooler thermostat or bypass valve stuck in the bypass position routes fluid around the cooler — the fluid never reaches the heat exchanger despite the cooler being clean. This single component failure prevents all cooling despite a functional cooler.

50. A — The score pattern reveals a specific, identifiable weakness: Domain B (In-Vehicle Maintenance and Repair) at 67% is the only domain below the passing threshold. All other domains are above 80%. The most effective strategy is targeted study of the weakest domain — fluid service procedures, linkage adjustment, sensor replacement, seal service, and in-vehicle component repair. Raising Domain B from 67% to 80%+ will have the greatest impact on overall exam performance with the least study time.