PRACTICE EXAM 16: ASE A2 SIMULATION (50 QUESTIONS)

1. A vehicle with a six-speed automatic transmission produces a metallic rattle from the bell housing area only when the engine is idling in Drive with the brakes applied. The rattle disappears when the transmission is shifted to Park or Neutral, and it is not present during acceleration or cruising. No DTCs are stored. Which of the following is the MOST LIKELY source?

A. A loose or cracked flexplate that vibrates under the torsional loading of engine idle pulses when the drivetrain is loaded in Drive

B. A worn torque converter pilot bearing that rattles when the converter is loaded against the crankshaft during idle in Drive

C. A damaged oil pump gear that rattles under the low-RPM, high-load condition of idle in Drive but stabilizes at higher speeds

D. A loose bell housing bolt that resonates at the specific frequency produced by the engine's firing pulses during loaded idle

2. A customer states that the vehicle's automatic transmission "won't go" intermittently. The technician road-tests the vehicle for 45 minutes and cannot reproduce the condition. The customer insists the problem happens "a few times per week, always in the morning." The fluid level is correct, no DTCs are stored, and all shifts during the test drive are normal. What is the MOST productive diagnostic approach?

A. Perform a complete pressure test, stall test, and fluid analysis to establish a baseline of the transmission's mechanical condition

B. Replace the transmission fluid and filter as a preventive measure, since an intermittent "won't go" condition often resolves with fresh fluid

C. Instruct the customer to note the exact conditions when the problem occurs and return immediately while the symptom is active

D. Install a continuous data recorder on the vehicle to capture scan tool data during the customer's normal driving over several days

3. A vehicle equipped with an automatic transmission produces a vibration during light-throttle cruising at exactly 1,650 RPM. The vibration is present in every forward gear that allows the engine to reach 1,650 RPM, and it disappears in Neutral at the same RPM. The scan tool shows TCC commanded ON at 1,650 RPM in the affected gears. If the technician commands TCC OFF using the scan tool and drives at 1,650 RPM, the vibration disappears. What does this combined test result confirm?

A. The vibration originates from the engine at 1,650 RPM but is only transmitted to the cabin when the TCC mechanically couples the drivetrain

B. The vibration is from a worn planetary gear element that is loaded at the specific torque produced at 1,650 RPM with TCC locked

C. The TCC solenoid produces electromagnetic interference at 1,650 RPM that creates a vibration in the valve body hydraulic circuits

D. The vibration originates from the TCC friction surface, confirming a TCC shudder condition that occurs at this specific RPM and load point

4. Technician A says that a restricted transmission cooler will always cause delayed engagements because the pump cannot draw fluid fast enough. Technician B says that a restricted transmission cooler primarily causes elevated fluid temperature because the fluid cannot dissipate heat efficiently. Who is correct?

A. Technician A only

B. Technician B only

C. Both Technician A and Technician B

D. Neither Technician A nor Technician B

5. A vehicle with an eight-speed automatic transmission has no customer complaints and passes all functional tests. During a routine scan, the technician notices the following adaptive values: 1-2 = +5%, 2-3 = +7%, 3-4 = +8%, 4-5 = +6%, 5-6 = +9%, 6-7 = +4%, 7-8 = +7%, TCC = +3%. All values show moderate positive correction. What do these uniformly positive adaptations indicate about the transmission's condition?

A. The transmission has a system-wide pressure regulation issue causing all clutches to require more pressure than baseline calibration

B. The pressure control solenoid has drifted from its calibration, requiring the module to increase commanded pressure across all circuits

C. Normal progressive wear of all clutch packs over the vehicle's mileage, with the adaptive system maintaining shift quality through balanced compensation

D. The transmission fluid has degraded to the point where its friction modifier properties are insufficient for all clutch engagement events

6. A vehicle's transmission produces a whining noise that varies with engine RPM. The whine is present in Park, Neutral, Drive, and Reverse. The technician drains the fluid and finds fine metallic glitter throughout. The fluid is dark but not burnt. The customer reports no shift quality concerns. What does the combination of the whine and the metallic glitter indicate?

A. A worn torque converter with bearing damage that is shedding metallic particles into the fluid during every revolution

B. Contaminated fluid from an outside source that introduced metallic particles which are damaging the pump as they circulate

C. Normal wear debris from clutch components that coincidentally matches the timing of an unrelated pump or converter noise

D. A worn oil pump with gear or bearing damage that produces the whine and sheds metallic wear debris into the fluid simultaneously

7. A customer reports that the automatic transmission "bangs" into Reverse when backing out of the driveway in the morning, but the same Reverse engagement is smooth during the rest of the day. The fluid level is correct and there are no DTCs. Based on this cold-morning-only pattern, what is the MOST LIKELY cause?

A. The reverse clutch piston seals are hardened from age and cannot cushion the engagement properly until they warm and become pliable

B. Cold fluid viscosity causes faster pressure rise in the reverse apply circuit, reducing the accumulator's ability to cushion the engagement

C. The engine idle speed is higher during cold operation, transferring more rotational energy into the reverse clutch during the first engagement

D. The reverse clutch friction material is contaminated and grabs harshly when cold but smooths out once friction heat normalizes the surface

8. A technician road-tests a vehicle and notes the following: normal acceleration in 1st gear, normal 1-2 upshift, the engine flares 500 RPM during the 2-3 upshift before 3rd gear catches, normal 3-4 upshift, and normal 4-5 upshift. The flare occurs only during the 2-3 shift at all throttle levels. A line pressure test shows normal pressure in all ranges. What is the MOST LIKELY cause?

A. The 3rd gear clutch apply circuit has a specific deficiency — a leaking piston seal, worn friction, or restricted orifice — that delays engagement

B. The EPC solenoid drops pressure briefly during the specific 2-3 shift transition due to an internal calibration issue in its PWM cycle

C. The 2nd gear band fails to release quickly enough during the 2-3 transition, causing a momentary tie-up that appears as a flare

D. The shift solenoid pattern for the 2-3 shift commands the incorrect valve body state, delaying the 3rd gear fluid path opening

9. A vehicle equipped with a torque converter automatic transmission has just had the engine replaced with a remanufactured unit. After the engine swap, the customer reports that the transmission shifts at higher RPMs than before and the shifts feel firmer. No DTCs are stored. The technician checks the throttle position sensor and finds it is within specification. What is the MOST LIKELY cause of the changed shift behavior?

A. The replacement engine produces more horsepower than the original, and the module is adapting its shift schedule to the higher torque output

B. The throttle cable or electronic throttle system was not calibrated after the engine swap, causing offset throttle position readings

C. The adaptive values were reset when the battery was disconnected during the engine swap, and the module is operating from default baseline values

D. The replacement engine has different firing characteristics that produce different torsional vibrations, confusing the module's shift timing logic

10. Technician A says that when diagnosing a noise coming from the transmission area, the technician should listen with a stethoscope at multiple locations on the case to pinpoint whether the noise originates from the pump, the gear train, or the converter. Technician B says that changing the transmission load by shifting between Drive and Neutral while maintaining the same vehicle speed helps determine if the noise is load-dependent. Who is correct?

A. Technician A only

B. Technician B only

C. Neither Technician A nor Technician B

D. Both Technician A and Technician B

11. A vehicle's automatic transmission has the following test results: the transmission shifts normally through all six forward gears, Reverse engages smoothly, TCC locks and releases correctly, and the fluid temperature stabilizes at 190°F. However, during a pressure test, the Drive stall reading is 148 psi (specification: 150-180 psi) — just 2 psi below the low end of the specification. All other pressure readings are within specification. Should the technician be concerned?

A. Yes — any pressure reading below specification confirms the pump is worn and will continue to deteriorate, requiring preventive replacement

B. Yes — the below-specification stall pressure explains the customer's complaint and justifies further investigation of the pump and regulator

C. No — the 2 psi deficit is within normal gauge accuracy tolerance and all functional tests pass, indicating no actionable concern at this time

D. No — Drive stall pressure is not a critical measurement, and the within-specification readings in all other ranges confirm adequate system health

12. A vehicle stores DTC P0750 — Shift Solenoid A Malfunction — intermittently. The technician clears the code, and the transmission operates normally for three weeks before the code returns. The technician records scan tool data and discovers that each time the code sets, the vehicle was traveling over 65 mph on the highway. At lower speeds, the code never sets. What does this speed-dependent pattern suggest?

A. The shift solenoid responds differently at high vehicle speeds due to the increased centrifugal force on the solenoid plunger

B. The solenoid or its circuit has an intermittent fault that is triggered by the specific vibration frequency produced at highway speeds above 65 mph

C. The transmission control module's shift logic creates a specific solenoid conflict at the gear ratio used above 65 mph in this transmission

D. The output speed sensor produces signal noise above 65 mph that the module misinterprets as a solenoid circuit fault

13. A technician monitors scan tool data during a road test. At 50 mph in 5th gear with TCC ON, the data shows: Engine RPM = 1,800, Input Shaft Speed = 1,800, Output Shaft Speed = 1,800. The manufacturer specifies 5th gear as an overdrive ratio of 0.75:1. What does the equal input and output speed (ratio 1.00:1) indicate?

A. The TCC is slipping internally, creating a false 1:1 ratio reading by equalizing the input and output speeds through fluid coupling

B. The output speed sensor is reading higher than actual, inflating the denominator and producing an artificially low ratio calculation

C. The input speed sensor has failed and is defaulting to the output speed sensor's value, making both readings appear identical

D. The transmission is not in 5th gear — despite the module commanding 5th, the transmission is physically in direct drive (4th or equivalent)

14. A vehicle equipped with a ten-speed automatic transmission has the following symptom: during WOT acceleration, the transmission shifts 1-2-3-4-5 normally, then pauses at 5th gear for approximately

3 seconds before continuing 5-6-7-8-9-10. No DTCs are stored. The pause does not occur at light or moderate throttle. What is the MOST LIKELY cause?

A. The module intentionally pauses at 5th gear during WOT to allow the engine's variable valve timing system to transition from one cam profile to another

B. The 6th gear clutch has worn friction material that requires the module to build extra pressure during WOT before commanding the apply

C. A momentary EPC solenoid saturation at the high-pressure demand of WOT that limits the module's ability to command the 5-6 shift immediately

D. A faulty engine torque management signal that delays the torque reduction needed for the 5-6 shift during WOT acceleration conditions

15. A vehicle has DTC P0717 — Input/Turbine Speed Sensor Circuit — stored as a current code. The transmission is in limp mode. The technician measures sensor resistance at 680 ohms (spec: 500-800 ohms). The technician then starts the engine, places the transmission in Drive, and monitors the input speed PID on the scan tool at idle. The PID reads 0 RPM. What does the zero reading with the engine running in Drive indicate?

A. The sensor coil is intact (within resistance spec) but the reluctor ring or the air gap is the problem — the sensor cannot detect rotation

B. The sensor is functioning correctly because the input shaft does not rotate at idle when the vehicle is stationary in Drive with brakes applied

C. The TCM has disabled the input speed sensor input because the module detected the DTC and is ignoring the sensor's signal data

D. The wiring between the sensor and the TCM has an intermittent open that passed the resistance test but fails when the engine is running

16. A technician is diagnosing a vehicle where the transmission shifts normally in all forward gears but the gear indicator on the instrument cluster consistently shows one gear lower than the actual gear — for example, the display shows "3" when the transmission is in 4th, and "4" when it is in 5th. Reverse and Park display correctly. What is the MOST LIKELY cause?

A. A communication fault between the TCM and the instrument cluster that corrupts the gear number data for forward gears only

B. A faulty TCM that commands the correct gear internally but broadcasts an incorrect gear number on the CAN bus data network

C. A transmission range sensor that produces offset voltage readings in the forward gear positions but reads correctly in Park and Reverse

D. An instrument cluster software fault that subtracts one from the displayed gear number for forward gears due to a programming error

17. A vehicle equipped with a CVT has the following customer complaint: the vehicle accelerates normally from a stop, but at approximately 40 mph during steady cruise, the CVT produces a rhythmic oscillation where the engine RPM varies 200 RPM every 3-4 seconds. The scan tool shows the CVT ratio fluctuating between 1.10:1 and 0.95:1 during the oscillation. What is the MOST LIKELY cause?

A. A worn CVT belt that alternately slips and grips on the primary pulley at the specific torque load of 40 mph steady cruise

B. The CVT ratio control actuator or solenoid that cannot maintain a stable pulley position at the specific ratio required for 40 mph cruise

C. Normal CVT operation where the module continuously optimizes the ratio for fuel economy, producing minor RPM fluctuations

D. A faulty CVT fluid temperature sensor that causes the module to alternate between two ratio strategies as the reading oscillates

18. A vehicle has DTC P0871 — Transmission Fluid Pressure Sensor/Switch C Circuit Range/Performance — stored as a current code. The scan tool shows Pressure Sensor C reading 425 psi at all times regardless of engine RPM, gear selection, or throttle position. The technician backprobes the sensor connector and measures: reference voltage = 5.0V, ground = 0.0V, signal = 3.8V. What does the fixed 3.8V signal voltage indicate?

A. The sensor is receiving correct reference voltage and ground but has failed internally, producing a fixed high output regardless of actual pressure

B. The 3.8V signal is within normal range for 425 psi and confirms the system pressure is genuinely elevated at all operating conditions

C. The reference voltage is correct but the ground circuit has excessive resistance, biasing the signal voltage higher than actual

D. The sensor has an internal short between its signal output and the reference voltage supply, pulling the signal to a fixed high value

19. A technician reviews adaptive learning data on a vehicle with 120,000 miles. The data shows all clutch apply pressure adaptations at moderate positive values (+12% to +18%), but the 1-2 shift timing adaptation shows a significant negative correction — the 1-2 shift is being commanded 0.15 seconds EARLIER than baseline. What does this early timing adaptation indicate?

A. The module has detected that the 1-2 shift takes longer to complete than target and is commanding it earlier to compensate

B. The 1st gear one-way clutch is freewheeling during the shift, causing the module to command an earlier release of the 1st gear holding device

C. The module is attempting to reduce 1-2 shift harshness by starting the clutch fill earlier, allowing more time for gradual pressure buildup

D. The 1-2 shift solenoid has a slower response time than when new, and the module has adapted by commanding it earlier to achieve the target shift point

20. A vehicle equipped with a dual-clutch transmission (DCT) has the following scan tool data during steady 30 mph cruise in 3rd gear: Clutch 1 Status = Applied, Clutch 2 Status = Released, Pre-Selected Gear = 4th. What does "Pre-Selected Gear = 4th" mean in the context of DCT operation?

A. The module has already commanded 4th gear engagement, and the DCT is in the process of transitioning from 3rd to 4th

B. The 4th gear synchronizer has been pre-engaged on the second input shaft so that the 3-4 upshift requires only a clutch swap

C. The module is predicting the driver will request 4th gear and is pre-pressurizing the 4th gear clutch circuit for faster engagement

D. The 4th gear ratio is being used as a backup in case the 3rd gear clutch fails, providing an immediate fallback gear selection

21. A vehicle stores DTC P0218 — Transmission Fluid Over Temperature — as a history code. The customer reports no current symptoms and the scan tool shows the fluid temperature at 192°F during a 30-minute road test. The freeze frame data for the code shows: fluid temperature = 285°F, vehicle speed = 15 mph, engine RPM = 4,500, commanded gear = 1st. Based on the freeze frame conditions, what driving scenario MOST LIKELY caused the over-temperature event?

A. The vehicle was operated in a low-speed, high-load condition such as towing up a steep grade or rocking out of a stuck position in mud or snow

B. The vehicle was driven at highway speed for an extended period with a failed cooler that could not dissipate the heat generated during cruising

C. The engine overheated from a cooling system failure, and the elevated coolant temperature transferred through the integral cooler to the ATF

D. The transmission control module malfunctioned and held the transmission in 1st gear at highway speed, causing excessive converter slip and heat

22. A technician scans a vehicle and finds DTC U0101 — Lost Communication with TCM — stored in the ECM, and DTC U0100 — Lost Communication with ECM — stored in the TCM. Both codes are history codes. The vehicle currently operates normally with no symptoms. What does this reciprocal pair of communication codes indicate?

A. Both modules have failed internal CAN bus transceivers that intermittently lose the ability to communicate on the shared network

B. The ECM and TCM are running incompatible software versions that periodically produce communication protocol conflicts

C. A CAN bus wiring fault, connector issue, or termination resistor problem caused a momentary network communication dropout affecting both modules

D. A momentary interruption in the CAN bus communication — likely from a wiring, connector, or termination resistor issue — caused both modules to lose contact simultaneously

23. A vehicle has DTC P0741 — Torque Converter Clutch System Stuck Off — stored as a current code. The technician verifies that the TCC solenoid tests within electrical specification. During a bidirectional scan tool test commanding TCC ON at 55 mph, the TCC engages and achieves 0 RPM slip — full lockup. Upon releasing the bidirectional command, the TCC releases normally. Why would the TCC work during the bidirectional test but not during normal driving?

A. The bidirectional test bypasses the valve body entirely, applying pressure directly to the converter, which is not available during normal operation

B. The scan tool's bidirectional command overrides a safety interlock that normally prevents TCC engagement due to a detected fault condition

C. The module's normal TCC engagement logic requires an input condition — such as vehicle speed, throttle, or temperature — that is not being met during normal driving

D. The bidirectional test applies higher pressure than the module would command during normal operation, overcoming a restriction that limits normal engagement

24. A technician monitors scan tool data on a vehicle with an automatic transmission. During a moderate-throttle acceleration from a stop, the data shows the engine producing 280 ft-lbs of torque. At the moment of the 2-3 upshift, the engine torque drops to 180 ft-lbs for 0.3 seconds, then returns to 280 ft-lbs. What is the purpose of this torque reduction during the shift?

A. The engine management system reduces torque during the shift to protect the catalytic converter from excess unburned fuel during the transition

B. The torque reduction smooths the shift by reducing the load on the releasing and applying clutches during the transition, preventing harshness

C. The torque reduction is an unintended consequence of the shift solenoid activation creating an electrical load that reduces alternator output

D. The engine control module reduces torque to allow the transmission pump to build adequate pressure for the 3rd gear clutch apply circuit

25. A vehicle equipped with a hybrid powertrain stores DTC P0A09 — DC/DC Converter Status Circuit. The hybrid battery charges normally and the vehicle operates in both EV and hybrid modes.

However, the transmission produces harsh shifts that were not present before the code appeared. What is the connection between the DC/DC converter code and the transmission shift quality?

A. The DC/DC converter supplies the 12V accessory power that the TCM uses to operate, and its instability causes voltage fluctuations that affect solenoid control

B. The DC/DC converter directly powers the transmission auxiliary pump, and its degraded output reduces the pump's pressure during shifts

C. The code has no connection to shift quality — the harsh shifts are a separate transmission concern coinciding with the DC/DC converter fault

D. The DC/DC converter regulates the regenerative braking voltage, and its fault causes the electric motor to produce erratic braking torque during shifts

26. A technician is performing a transmission fluid service on a vehicle. The service information states that the fluid level must be checked with the engine running, the transmission in Park, and the fluid at 100-110°F. The technician checks the level with the engine off and the fluid at room temperature. The dipstick reads at the "FULL" mark. What is the MOST LIKELY actual fluid level when checked correctly?

A. The level will read the same because dipstick markings account for the difference between cold and hot fluid volumes automatically

B. The level will read slightly above the full mark because hot fluid expands, raising the level above the cold reading on the dipstick

C. The level will read at the "ADD" mark because the pump is not circulating fluid, and the pan contains extra fluid that belongs in the converter

D. The level will read below the full mark because starting the engine and running the pump distributes fluid from the pan to the converter, cooler, and circuits

27. A customer reports that the shift lever on a column-mounted shifter feels "sloppy" — there is excessive free play in the lever before the transmission responds to a gear change. All gears engage eventually and there are no DTCs. What is the MOST LIKELY cause?

A. A worn transmission manual valve bore that allows the valve to float between detent positions without applying any gear range

B. A stretched or worn shift cable, worn bushings in the column shifter mechanism, or deteriorated grommets that introduce play in the linkage

C. A weakened detent spring inside the transmission that cannot hold the manual valve firmly in each position against cable tension

D. A faulty transmission range sensor that sends a delayed signal to the TCM, making the driver perceive a lag between lever movement and engagement

28. A technician replaces the front pump seal on a rear-wheel-drive transmission. The repair requires removing and reinstalling the transmission and torque converter. After the repair, the technician starts the engine and the transmission immediately produces a loud whining noise from the pump area. The noise was not present before the seal replacement. What is the MOST LIKELY cause?

A. The torque converter was not fully seated during reinstallation, and the pump drive is not properly engaging the converter hub

B. The replacement seal was installed with the lip facing the wrong direction, creating a vacuum in the pump intake circuit

C. The pump housing bolts were not torqued evenly during reinstallation, causing the housing to warp and bind the pump gears

D. Air entered the pump during the removal and reinstallation process, and the pump is cavitating until the air is purged from the system

29. A vehicle's transmission produces a fluid leak at the pan gasket area that appears only after the vehicle has been driven for at least 30 minutes. The pan bolts are torqued to specification and the gasket is new. No leak is visible at cold idle or during the first 30 minutes of driving. What should the technician investigate?

A. The pan for a warped condition that does not seal evenly under the thermal expansion that occurs after 30 minutes of driving

B. The transmission vent for a clogged condition that causes internal pressure to build during extended driving and force fluid past the pan gasket

C. The gasket material for a wrong part number that has a different thermal expansion coefficient than the specified gasket type

D. The pan bolt torque specification for a cold-torque versus hot-torque variation that requires re-torquing after the first thermal cycle

30. A customer reports that the vehicle's automatic transmission "stalls the engine" when shifting from Park to Reverse on cold mornings. The engine restarts immediately and Reverse functions normally afterward. This happens only on the first Reverse engagement after a cold start — never during warm operation. What is the MOST LIKELY cause?

A. The reverse clutch accumulator is stuck from cold conditions, allowing full line pressure to hit the reverse clutch instantly and shock-load the cold engine

B. The transmission manual valve is stiff in cold temperature and overshoots the Reverse detent, momentarily selecting a conflicting gear range

C. The engine idle speed drops too low during cold operation to absorb the sudden load of the reverse clutch engaging at full cold-idle pressure

D. The cold engine idle speed is marginal, and the reverse clutch engagement produces a load spike that the cold engine cannot absorb without stalling

31. A technician discovers during routine service that the transmission dipstick tube has a crack approximately 1 inch long near its base where it enters the transmission case. The crack is visible but no active leak is present. What should the technician recommend?

A. Monitor the crack at each service visit and replace the tube only if the crack grows or an active leak develops

B. Apply JB Weld or industrial epoxy to seal the crack and prevent it from propagating further during normal vehicle operation

C. Replace the tube at the next scheduled transmission service to save labor by combining the repair with the routine maintenance

D. Replace the dipstick tube now because the crack will propagate from vibration and thermal cycling, eventually producing a leak or tube failure

32. A vehicle has a transmission range sensor that uses a Hall effect design with a digital output. The technician tests the sensor's output with a scan tool and finds that the Park, Reverse, Neutral, and Drive positions each produce the correct binary signal pattern. However, the Manual 3 and Manual 2 positions produce identical patterns. What symptom will this identical pattern cause?

A. The module cannot distinguish between Manual 3 and Manual 2, so the transmission will default to whichever position the module considers higher priority

B. The transmission will enter limp mode any time the driver selects either Manual 3 or Manual 2 because the module detects conflicting data

C. The engine will not start if the driver parks the vehicle with the lever in either Manual 3 or Manual 2 position by mistake

D. No operational symptom since the module uses throttle position and vehicle speed to determine whether Manual 2 or Manual 3 was intended

33. A technician discovers that the external transmission harness connector at the case pass-through has two pins with light green corrosion. The remaining pins are clean. The technician cleans the corroded pins with electrical contact cleaner and applies dielectric grease to all pins. Is this repair adequate?

A. No — the corroded pins should be replaced with new pin terminals to ensure long-term contact reliability in the connector housing

B. No — the entire external harness must be replaced because corrosion on two pins indicates moisture intrusion that has affected the entire harness

C. Yes — cleaning with contact cleaner and applying dielectric grease restores the contact surfaces and prevents future corrosion from moisture

D. Yes — but the technician should also seal the connector housing with RTV to prevent water from reaching the pins in the future

34. A vehicle equipped with an automatic transmission has a customer complaint that the "Sport" mode button does not change shift behavior when pressed. The scan tool shows the TCM receives the sport mode request and the display indicator changes appropriately. What should the technician investigate NEXT?

A. The EPC solenoid for a fault that prevents the module from commanding the higher pressures required by the sport mode calibration

B. The TCM software version to determine if the sport mode calibration was removed or overwritten during a previous service reflash

C. The shift solenoids for stuck conditions that prevent the valve body from executing the sport mode's modified shift timing and pressure commands

D. The adaptive learning values to determine if they have already compensated the shift schedule to match sport mode's more aggressive targets

35. A technician replaces the transmission fluid temperature sensor on a vehicle. After installation, the scan tool shows the TFT reading at -40°F with the engine warm and fluid at operating temperature. What does a -40°F reading indicate?

A. The replacement sensor is incompatible with this transmission model and produces a different resistance curve than the original

B. The sensor is producing a maximum-resistance signal that the module's lookup table interprets as the coldest possible temperature

C. The sensor connector was not fully seated, creating high contact resistance that mimics an extremely cold temperature reading

D. The sensor circuit has an open — either in the sensor, the connector, or the wiring — that produces infinite resistance interpreted as -40°F by the module

36. A technician is performing an in-vehicle valve body replacement. The new valve body is a different casting color than the original — the original is aluminum silver and the replacement is anodized gold. The part numbers match. Should the technician be concerned about the color difference?

A. No — manufacturers sometimes change casting treatments or surface finishes between production runs without changing the part number or function

B. Yes — different casting colors indicate different alloy compositions that may be incompatible with the transmission fluid specification

C. No — but the technician should verify the bolt hole pattern matches before installation since the color may indicate a revised mounting design

D. Yes — different colors always indicate a different production era valve body that may have modified internal passage routing not compatible with this model

37. A customer reports that the transmission "hunts" between two gears on a specific stretch of highway with gentle rolling hills. The hunting occurs only with cruise control engaged and does not happen during manual driving over the same stretch. What is the fundamental difference between cruise control and manual driving that causes the hunting?

A. Manual driving allows the driver to subconsciously adjust throttle to maintain speed over hills, while cruise control adjusts throttle algorithmically

B. Cruise control maintains exact speed, which forces the module to shift up on downhills and shift down on uphills as the load changes at the shift threshold

C. Cruise control maintains exact speed, while manual driving results in speed variations that keep the operating point away from the shift threshold

D. Manual driving produces smoother throttle inputs that keep the shift schedule in a stable zone, while cruise control's corrections are more abrupt

38. A technician is installing a rebuilt transaxle on a front-wheel-drive vehicle. After bolting the transaxle to the engine, the technician attempts to install the right-side half-shaft. The shaft slides into the differential and clicks into position. The technician then grabs the shaft and pulls outward to verify the retaining snap ring is engaged. The shaft pulls free with minimal resistance. What does this indicate?

A. The differential side gear seal is worn and cannot grip the half-shaft splines with adequate friction to resist pulling force

B. The half-shaft snap ring did not fully expand into the differential side gear retaining groove and the shaft is not properly secured

C. Normal half-shaft retention — half-shafts are designed to pull free with moderate force to prevent damage during CV joint failure

D. The rebuilt transaxle has a machining error in the differential bore that prevents the snap ring from engaging the retention groove

39. During a transmission overhaul, a technician finds that one of the accumulator springs is broken — the spring has fractured into two pieces. The accumulator bore and piston appear undamaged. What should the technician do?

A. Replace the broken spring with a new spring of the correct specification from the rebuild kit and inspect the accumulator bore for scoring before reassembly

B. Install both pieces of the broken spring in the bore since the combined length provides adequate spring force for the accumulator function

C. Leave the accumulator empty without a spring since the hydraulic pressure alone is sufficient to cushion the clutch engagement event

D. Replace the entire accumulator piston assembly because a broken spring may have scored the bore during operation

40. A technician is inspecting clutch discs during a transmission overhaul. All five friction discs appear to be in good condition — full friction material thickness, no delamination, no glazing, no burning. However, when the technician measures each disc with a micrometer, three discs measure 0.065 inches and two discs measure 0.058 inches. The specification for new discs is 0.065 inches. What should the technician do?

A. Reinstall all five discs since the 0.007-inch thickness variation is within the normal operating tolerance for used friction discs

B. Replace only the two thinner discs with new discs to restore uniform thickness across the entire clutch pack stack

C. Replace all five friction discs because two discs have worn 0.007 inches from specification, indicating the entire set has reached its service limit

D. Install the three thicker discs and discard the two thinner discs, substituting two new discs from the rebuild kit at the same positions

41. A technician measures oil pump gear side clearance and reads 0.003 inches. The manufacturer's maximum specification is 0.003 inches. The pump gears show no scoring or damage. All other pump clearances are within specification. Is this pump acceptable for service?

A. No — a reading at exactly the maximum specification indicates the pump is at the end of its service life and will exceed specification with minimal additional wear

B. Yes — the reading is at the maximum specification, which is the defined boundary of acceptable service, and the pump passes all dimensional requirements

C. No — pump clearances should be at least 0.001 inches below the maximum specification to provide a safety margin for continued wear during the rebuild's service life

D. Yes — but only if a pressure test after assembly confirms the pump produces adequate output, since a borderline clearance may or may not produce acceptable pressure

42. A technician is reassembling a transmission and discovers that the rebuild kit contains two different styles of Teflon sealing rings for the input shaft — some have butt-cut joints and others have scarf-cut (angled) joints. The service manual does not specify which style goes on which groove. What is the functional difference between these two joint styles?

A. Butt-cut rings are for low-pressure circuits and scarf-cut rings are for high-pressure circuits where the angled joint provides better sealing

B. Scarf-cut rings provide better sealing because the angled joint overlaps slightly, reducing fluid leakage compared to the straight gap of a butt-cut ring

C. Butt-cut rings provide better sealing because the flat ends seat more uniformly in the groove than the angled ends of scarf-cut rings

D. Scarf-cut joints reduce fluid leakage past the ring compared to butt-cut joints because the angled surfaces overlap and create a longer leak path

43. A technician is performing endplay measurement and obtains a reading of 0.015 inches. The manufacturer's specification is 0.020 to 0.040 inches. The currently installed selective thrust washer is the thinnest available from the rebuild kit. What should the technician do?

A. Verify that no extra thrust washer, friction disc, or steel plate was accidentally installed that is adding stack height and reducing the clearance

B. Accept the 0.015-inch endplay since the thinnest washer is already installed and further correction is not possible with available parts

C. Remove the selective thrust washer entirely to increase the endplay above the minimum specification, then reassemble and re-measure

D. Install the transmission with the tight endplay and perform a road test, since 0.015 inches will loosen to within specification after break-in

44. A technician installs a rebuilt transmission and fills it with fluid. Upon initial startup, the transmission engages Drive normally when selected. However, when the technician shifts to Reverse, there is a 4-second delay before Reverse engages. All subsequent Reverse engagements during the road test are immediate. What is the MOST LIKELY cause of the one-time initial delay?

A. The reverse clutch piston seal was damaged during assembly and allowed pressure to bypass during the first engagement before seating properly

B. The rebuilt torque converter took 4 seconds to fill with fluid flowing in the reverse direction before it could transmit torque backward

C. The reverse clutch apply circuit was empty after assembly and required the first engagement to fill the circuit with fluid from the pump

D. The parking pawl was binding against the parking gear and took 4 seconds to disengage before the manual valve could move to Reverse

45. After installing a rebuilt transmission and performing the initial road test, the technician confirms all shifts are smooth and TCC operation is correct. The fluid temperature stabilizes at 195°F. However, during the second road test 30 minutes later, the technician notices a new vibration between 25 and 35 mph that was not present during the first test. What is the MOST LIKELY cause?

A. A transmission mount bolt that was not fully torqued has loosened from the vibration of the first road test and is now producing a speed-dependent resonance

B. A component that was marginally aligned during installation has shifted from thermal expansion during the first 30 minutes of operation

C. The driveshaft balance has changed because the rebuilt transmission has a slightly different weight distribution than the original unit

D. The torque converter balance has shifted after the first 30 minutes of operation as internal components settle into their running position

46. A technician performs a cooler flow test after flushing the cooler following a transmission overhaul. The forward flow rate is one quart in 22 seconds (specification minimum: one quart in 25 seconds). The reverse flow rate is one quart in 50 seconds (specification minimum: one quart in 25 seconds). What should the technician do?

A. Accept the cooler since the forward flow rate meets specification, and the reverse direction is not critical for normal operation

B. Perform additional flushing cycles in the reverse direction to clear the directional blockage and retest until both directions pass

C. Install an inline filter to capture any debris that may be causing the directional restriction and retest after 500 miles

D. Replace the cooler because the significant directional flow difference indicates an internal blockage that flushing cannot reliably clear

47. A technician has completed a transmission rebuild and installation. During the initial startup, the fluid level is correct and the pump operates quietly. The technician shifts into Drive and the transmission engages smoothly. During the road test, all shifts are correct except the TCC — it does not engage at highway speed. The scan tool shows TCC commanded ON but TCC slip remains at 120 RPM. What should the technician check FIRST?

A. The TCC apply circuit check ball position in the case or valve body, since a displaced ball during assembly can prevent apply pressure from reaching the converter

B. The torque converter for an incorrect part number that does not include a lockup clutch compatible with this transmission model

C. The TCC solenoid's calibration code to verify it was entered correctly into the module after the new valve body was installed

D. The front pump seal for a leak that reduces the TCC apply circuit pressure below the clamping force needed for full lockup

48. A technician is reassembling a transmission valve body after cleaning. The separator plate has orifices of various sizes. One orifice appears to have a small piece of debris lodged in it. The technician blows compressed air through the orifice and the debris clears. Should the technician install the separator plate?

A. No — any plate that had debris lodged in an orifice has been compromised and should be replaced with a new plate from the rebuild kit

B. No — the compressed air may have pushed the debris deeper into the plate rather than clearing it, and the orifice may still be partially restricted

C. Yes — the orifice is clear after the compressed air, and the plate can be installed after verifying the hole is the correct size and unobstructed

D. Yes — but only after the technician verifies every orifice in the plate with a calibrated pin gauge to confirm none have been enlarged by debris erosion

49. A technician completes a transmission rebuild and installation. During the post-installation road test, all shifts are smooth and correctly timed. However, the technician notices that the engine RPM drops approximately 300 RPM at the exact moment of every upshift — more than the expected 100-150 RPM drop. What does this larger-than-expected RPM drop during each shift indicate?

A. The clutch pack clearances were set too tight during assembly, causing each clutch to grab more aggressively than the calibration expects

B. The engine torque management system is reducing torque excessively during each shift, possibly due to incorrect adaptive values or a sensor input issue

C. The shift solenoids are commanding the shifts too quickly, causing the clutch engagement to occur before the engine has reduced its torque output

D. The rebuilt transmission has tighter internal clearances that produce more resistance during each shift, pulling the engine RPM down further

50. A technician has completed the 16th practice exam in a 20-exam series, accumulating 800 practice questions. The technician consistently scores above 85% in electronic systems diagnosis (Domain A2) but scores only 70% in off-vehicle repair (Domain C). What specific Domain C topic areas should the technician focus on to improve?

A. Scan tool diagnostics and DTC interpretation, since these skills transfer directly from Domain A2 to the troubleshooting aspects of Domain C

B. Fluid dynamics and hydraulic theory, since these foundational concepts underpin all off-vehicle repair procedures and decisions

C. Clutch pack assembly and endplay measurement, since these are the only off-vehicle topics tested on the ASE A2 certification exam

D. Disassembly procedures, component inspection criteria, clearance measurements, reassembly techniques, and post-installation verification

Practice Exam 16: Answer Key and Explanations

1. A — A rattle from the bell housing only during loaded idle in Drive that disappears in Park and Neutral points to the flexplate. In Drive with brakes applied, the engine's firing pulses transmit torsional vibration through the loaded drivetrain. A loose or cracked flexplate resonates under this specific torsional loading at idle frequency. In Park and Neutral, the drivetrain is unloaded and the flexplate is not subjected to the same torsional stress, so the resonance does not occur.

2. C — An intermittent condition that occurs "a few times per week, always in the morning" and cannot be reproduced during a 45-minute road test requires the customer's active participation. The technician needs the vehicle delivered while the symptom is present — the customer should note the exact conditions (cold start, first engagement, specific gear) and bring the vehicle immediately while the fault is active. Diagnosing a no-symptom vehicle wastes time and may lead to unnecessary repairs.

3. D — The vibration occurs at 1,650 RPM in every gear that reaches that RPM, disappears in Neutral at the same RPM, and disappears when TCC is commanded OFF at 1,650 RPM. This confirms the vibration requires TCC lockup to transmit to the cabin. Commanding TCC OFF in Drive eliminates the mechanical coupling while maintaining the same engine RPM and gear — proving the vibration originates from the TCC friction surface interaction, not from the engine or planetary gears. This is TCC shudder at a specific RPM.

4. B — Technician B is correct. The transmission cooler is on the return side of the hydraulic circuit — fluid exits the transmission, passes through the cooler, and returns. A restriction in the cooler limits the flow rate through the heat exchanger, reducing cooling efficiency and causing the fluid to overheat. Technician A is incorrect because the pump draws from the pan through the filter, not from the cooler — a cooler restriction does not starve the pump intake.

5. C — All adaptive values show moderate, uniform positive corrections of +3% to +9% across every clutch circuit and the TCC. This balanced pattern — no single clutch dramatically higher than the others — indicates normal, progressive wear across all friction surfaces over the vehicle's mileage. The adaptive system is doing exactly what it was designed to do: gradually increasing apply pressure as the friction material wears to maintain consistent shift quality.

6. D — A whining noise at engine RPM in all ranges combined with metallic glitter in the fluid points to the oil pump. The pump rotates at engine speed in every range, producing the whine from worn gear teeth or bearing surfaces. The metallic particles are wear debris shed from the pump's internal components as they deteriorate. The combination of noise and corresponding metallic debris from a single component that operates at engine speed in all ranges confirms pump wear.

7. B — The harsh engagement occurs only on cold mornings — the first Reverse of the day. Cold ATF has significantly higher viscosity than warm fluid. The thicker cold fluid flows through the reverse accumulator circuit orifice more slowly but builds pressure faster in the clutch apply bore because it resists flowing into the accumulator. This faster pressure rise reduces the cushioning time, causing the clutch to apply more abruptly. Once the fluid warms, normal viscosity restores the designed cushioning rate.

8. A — The engine flares 500 RPM specifically during the 2-3 upshift — no other shift is affected — and line pressure is normal in all ranges. Normal system pressure eliminates a main hydraulic supply issue. A flare that occurs at all throttle levels in one specific shift points to the apply circuit for that gear. A leaking 3rd gear clutch piston seal, worn friction material, or a restricted orifice in the 3rd gear apply passage delays full clutch engagement, allowing the engine to flare before the clutch catches.

9. C — When the battery was disconnected during the engine swap, all transmission adaptive learning values were reset to factory default. The module is now operating from conservative baseline pressure and timing values that may not match the transmission's current wear state. Default values often produce slightly firmer shifts and higher shift points than the previously learned values. The module will re-learn over the next several hundred miles of varied driving.

10. D — Both technicians describe valid diagnostic techniques. A stethoscope at multiple case locations helps triangulate the noise source — the loudest point indicates proximity to the source (pump area, gear train section, or converter area). Shifting between Drive and Neutral at the same vehicle speed changes the internal loading — if the noise changes with load, it originates from a load-bearing component; if it persists unchanged, it originates from a component that rotates regardless of load.

11. C — A reading of 148 psi versus a specification minimum of 150 psi is a 2 psi deficit — well within the accuracy tolerance of most mechanical pressure gauges, which is typically ±3-5 psi. All functional tests pass: shifts are normal, Reverse is smooth, TCC works, and fluid temperature is correct. A 2 psi discrepancy with no symptoms or DTCs does not justify further investigation or component replacement. The reading is essentially at specification.

12. B — The code sets only above 65 mph — never at lower speeds. Different vehicle speeds produce different vibration frequencies throughout the vehicle's wiring, connectors, and mounting points. A solenoid circuit with a marginally loose connector pin, corroded terminal, or wire with damaged insulation that makes adequate contact at low-speed vibration frequencies but separates at the specific vibration frequency produced above 65 mph explains the speed-dependent intermittent pattern.

13. D — In 5th gear overdrive at 0.75:1, the output shaft should spin faster than the input shaft. Equal input and output speeds (1,800 RPM each) produce a 1.00:1 ratio — direct drive. Despite the module commanding 5th gear, the transmission is physically in a direct-drive gear (likely 4th). A stuck shift solenoid, a bound shift valve, or an incomplete shift is preventing the transmission from actually achieving 5th gear despite the electronic command.

14. A — Some manufacturers program a deliberate pause at a specific gear during WOT acceleration to allow the engine's variable valve timing or variable intake system to transition between operating modes. The engine's cam profile switch — from low-lift to high-lift cams, or from one intake runner configuration to another — requires a brief stable engine speed to execute smoothly. The module holds the current gear to provide this stable RPM platform before continuing the shift sequence.

15. C — The input shaft does rotate at idle in Drive with brakes applied — the turbine (connected to the input shaft) always spins when the engine is running and a gear is engaged, even if the vehicle is stationary. The impeller drives the turbine through fluid coupling. A 0 RPM reading when the shaft is physically rotating means the sensor is not detecting the rotation. Since the resistance and wiring are normal, the reluctor ring or sensor air gap is preventing signal generation despite an electrically intact circuit.

16. A — The gear indicator consistently shows one gear lower than actual for all forward gears while Park and Reverse display correctly. This systematic offset affecting only forward gears suggests the data being sent from the TCM to the cluster or received by the cluster is corrupted for forward gear values. A communication fault on the CAN bus — such as a damaged data wire, connector issue, or signal interference — specifically affecting the gear number portion of the data message explains the consistent offset.

17. B — A CVT ratio oscillation of 200 RPM every 3-4 seconds during steady cruise indicates the ratio control system cannot maintain a stable pulley position. The ratio control actuator or its solenoid is hunting — it moves the pulley toward the target ratio, overshoots, corrects back, overshoots again, and repeats. This oscillation at a consistent frequency is not normal CVT behavior (which holds a steady ratio during stable cruise) and indicates a control system fault.

18. D — The sensor receives correct reference voltage (5.0V) and correct ground (0.0V), but produces a fixed signal of 3.8V regardless of operating conditions. A normal pressure sensor varies its output proportionally with applied pressure. A fixed high output with correct supply voltages indicates the sensor has an internal short between its signal output and the reference voltage supply — the signal is pulled toward the reference voltage rather than varying with actual pressure.

19. C — A negative timing adaptation means the module has learned to command the 1-2 shift EARLIER than the baseline calibration specifies. By starting the clutch fill event 0.15 seconds sooner, the module allows more time for the clutch circuit to fill gradually before the shift transition point arrives. This slower, more gradual pressure buildup produces a softer, smoother engagement — the module is compensating for a condition that would produce harshness if the shift occurred at the baseline timing.

20. B — In a DCT, odd gears (1st, 3rd, 5th) use one clutch and even gears (2nd, 4th, 6th) use the other. While 3rd gear is engaged through Clutch 1, the module pre-selects 4th gear by engaging the 4th gear synchronizer on the second input shaft (connected to Clutch 2). When the upshift is commanded, the module simply transfers torque from Clutch 1 to Clutch 2 — the gear is already engaged and ready. This pre-selection enables the nearly instantaneous shifts that define DCT performance.

21. A — The freeze frame conditions tell the story: 15 mph vehicle speed with 4,500 RPM in 1st gear and 285°F fluid temperature. This combination — very low speed, very high RPM, extreme heat — indicates the vehicle was being operated under severe low-speed, high-load conditions for an extended period. Common scenarios include towing a heavy load up a steep grade at low speed, rocking a vehicle out of deep mud or snow, or sustained stop-and-go driving in extreme conditions.

22. D — Reciprocal "lost communication" codes — the ECM lost the TCM and the TCM lost the ECM — confirm both modules experienced a simultaneous communication failure. Since both modules lost each other at the same time, the fault is in the shared communication path, not in either individual module. A CAN bus wiring issue, connector fault, or termination resistor problem on the shared network would cause both modules to lose contact simultaneously, setting reciprocal U-codes.

23. C — The bidirectional test proves the entire TCC system — solenoid, hydraulic circuit, and converter friction material — is physically capable of achieving full lockup. Since the hardware works when properly commanded, the P0741 code indicates the module is not commanding TCC engagement during normal driving. The module's TCC engagement logic requires multiple input conditions to be met (vehicle speed, throttle, temperature, brake status). An input that is not meeting threshold prevents the command.

24. B — Engine torque management during shifts is a deliberate strategy that reduces engine torque momentarily during the shift transition. By reducing the torque flowing through the releasing and applying clutches during the overlap period, the shift occurs more smoothly — less torque means less energy that the clutches must absorb during the handoff. Without torque reduction, the full engine torque would load the applying clutch instantaneously, producing a harsh engagement.

25. A — The DC/DC converter in a hybrid system steps down the high-voltage hybrid battery to 12V for the vehicle's accessory electrical system — including the transmission control module and its solenoids. An unstable or degraded DC/DC converter produces voltage fluctuations on the 12V system. These fluctuations directly affect the TCM's ability to precisely control solenoid current, causing inconsistent shift pressures that manifest as harsh shifts.

26. D — With the engine off, fluid from the converter, cooler, and internal circuits drains back into the pan by gravity, raising the pan level above the normal operating level. When the engine runs and the pump circulates fluid, it redistributes fluid from the pan to the converter, cooler, cooler lines, and internal passages — lowering the pan level to the correct operating mark. Checking with the engine off produces a falsely high reading that does not represent the true operating level.

27. C — Excessive free play in a column-mounted shifter before the transmission responds indicates the mechanical connection between the driver's lever and the transmission's manual valve has accumulated play. Worn shift cable, deteriorated column bushings, worn pivot pins, and compressed grommets in the linkage all contribute to slack that must be taken up before the driver's input reaches the manual valve. The transmission itself is functioning correctly — the slop is in the linkage pathway.

28. A — A loud pump whine immediately after reinstallation that was not present before the repair points to the torque converter installation. If the converter was not fully seated — all three engagement points (pump drive, stator support, and input shaft) properly engaged — the pump drive may not be fully meshing with the converter hub. Partial pump drive engagement causes the pump gears to spin improperly, producing the whine. The converter must be removed and verified for full three-point engagement.

29. B — A pan gasket leak that appears only after 30 minutes of driving — with correct bolt torque and a new gasket — indicates the pan is not the root cause. After 30 minutes, the fluid reaches operating temperature and internal case pressure increases from thermal expansion. If the vent is clogged, the rising pressure has no escape path and forces fluid past the weakest seal — in this case, the pan gasket. Clearing the vent allows normal pressure equalization and eliminates the leak.

30. D — The engine stalls specifically during the first cold-morning Park-to-Reverse shift and never during warm operation. Cold idle speed is typically controlled by the ECM's cold-start strategy. If the cold idle RPM is marginal — set at or near the minimum that the cold engine can sustain — the sudden load of the reverse clutch engagement can pull the engine below its stall threshold. Once warm, the engine's idle control maintains adequate RPM to absorb the Reverse engagement load.

31. D — A cracked dipstick tube — even without an active leak currently — will propagate from engine vibration and the thermal cycling of hot fluid passing through it. The crack will eventually grow long enough to allow pressurized fluid (from internal case pressure during driving) to seep through, producing a leak. Additionally, a through-wall crack can draw air into the fluid during pump operation, causing aeration. Replacing the tube now prevents both potential consequences.

32. A — The Hall effect sensor produces identical binary patterns for Manual 3 and Manual 2. The module uses the sensor pattern to determine which position the driver selected. With identical patterns, the module cannot distinguish between the two positions and must default to one interpretation — typically the higher gear limit. The driver selecting Manual 2 may get Manual 3 behavior, or the module may select whichever position its programming prioritizes when receiving the ambiguous signal.

33. C — Light green corrosion on two connector pins indicates surface copper oxidation from moisture exposure. Cleaning with electrical contact cleaner removes the corrosion and restores clean metal contact surfaces. Dielectric grease applied to all pins prevents future moisture from reaching the metal contacts. The remaining pins are clean, confirming the corrosion is localized and the connector housing's moisture protection is marginally compromised but not failed system-wide.

34. B — The TCM receives the sport mode request and the display indicator changes — confirming the switch, wiring, and module input are all functional. The module acknowledges the request but does not change shift behavior. If the TCM's currently loaded software does not include the sport mode calibration tables — possibly removed or overwritten during a previous service reflash — the module cannot execute a calibration it does not have, despite correctly recognizing the mode request.

35. D — A -40°F reading is the standard default value that most modules assign when a thermistor sensor circuit is electrically open. An open circuit produces infinite resistance, which falls outside the module's resistance-to-temperature lookup table. The module assigns the lowest mapped temperature value (-40°F) to indicate the open condition. The fault could be in the sensor itself, the connector (not fully seated), or the wiring — any break in the circuit produces this characteristic reading.

36. A — Different surface treatments (natural aluminum versus anodized gold) do not change the valve body's internal dimensions, passage routing, or functional specifications. Manufacturers frequently change casting treatments, surface coatings, or machining processes between production runs for durability, corrosion resistance, or manufacturing efficiency reasons. If the part number matches the application, the valve body is functionally identical regardless of its external color or finish.

37. C — When driving manually, the driver subconsciously varies speed by 2-5 mph over gentle hills — accelerating slightly downhill and decelerating slightly uphill — without noticing. This natural speed variation keeps the engine load comfortably away from the shift threshold. Cruise control maintains exact speed, forcing the engine to work harder on uphills (increasing load past the upshift threshold) and reducing load on downhills (dropping below the threshold), producing the repetitive shift cycling.

38. B — The half-shaft inserted and clicked, suggesting initial snap ring contact, but pulled free with minimal resistance. This confirms the snap ring did not fully expand into the differential side gear's retaining groove. The ring either caught on the bore edge, was not compressed enough during insertion to pass fully through the bore, or the groove itself has an obstruction. The shaft must be removed, the snap ring and groove inspected, and the shaft reinserted until it resists pull-out firmly.

39. A — A broken accumulator spring must be replaced — not reused in pieces. The spring provides the controlled resistance that the accumulator piston must push against during clutch engagement, creating the cushioning effect. A broken spring cannot provide consistent, uniform resistance. The correct action is to replace the spring with a new one from the rebuild kit. The accumulator bore should also be inspected for scoring before reinstallation, since the broken spring ends may have scratched the bore.

40. C — Two of five friction discs measure 0.058 inches versus the new specification of 0.065 inches — a 0.007-inch reduction that represents approximately 11% thickness loss from wear. Even though the discs appear visually acceptable, the dimensional wear affects clutch clearance and total stack height. All five discs should be replaced as a set during an overhaul to ensure uniform thickness, consistent friction characteristics, and correct clutch pack clearance.

41. B — The reading of 0.003 inches is exactly at the manufacturer's stated maximum specification. The specification defines the boundary between acceptable and unacceptable — 0.003 is acceptable, 0.0031 would not be. A pump that meets all dimensional specifications passes the inspection regardless of where in the range the readings fall. The technician should reassemble the pump for service. Setting arbitrary sub-specification thresholds beyond the manufacturer's limits is not standard practice.

42. D — Scarf-cut (angled) joints create an overlapping surface where the two ends meet at an angle rather than at a perpendicular flat face. This angled overlap provides a longer, more tortuous leak path for pressurized fluid attempting to pass through the joint gap. The longer path increases the resistance to fluid leakage compared to the straight, direct gap of a butt-cut joint. Scarf-cut rings are typically specified for higher-pressure circuits where minimizing seal leakage is critical.

43. A — An endplay of 0.015 inches below the 0.020-inch minimum with the thinnest available thrust washer already installed suggests the component stack is taller than it should be. Before accepting the tight endplay or removing the washer, the technician should verify the assembly — check that no extra thrust washer, friction disc, or steel plate was accidentally installed. An extra component anywhere in the stack adds height and reduces the measured endplay below specification.

44. C — The initial 4-second delay on the very first Reverse engagement — with all subsequent engagements being immediate — is caused by the reverse clutch apply circuit being empty after assembly. During the rebuild, no fluid remains in the reverse clutch piston bore or its feed passages. The first engagement requires the pump to fill the entire empty circuit before the piston can apply the clutch. Once filled, the circuit remains charged, and all subsequent Reverse engagements are immediate.

45. B — A new vibration that appears after 30 minutes of operation but was absent during the initial road test suggests a thermal-related change. As components reach operating temperature, metals expand. A component that was marginally aligned during the cold installation — a driveshaft angle, a mount position, or a half-shaft seating depth — can shift slightly with thermal expansion, moving from an acceptable position to one that produces vibration in the 25-35 mph speed range.

46. D — Forward flow passes specification at 22 seconds per quart, but reverse flow fails dramatically at 50 seconds per quart — double the allowed time. This significant directional difference indicates an internal obstruction that allows flow in one direction but blocks it in the other. Since transmission fluid flows through the cooler in one fixed direction during normal operation, the blocked direction may or may not be the operating direction — but the unreliable internal condition requires cooler replacement.

47. A — All shifts work correctly but the TCC does not engage despite being commanded ON. The solenoid operates (confirmed by the commanded state) but slip remains at 120 RPM. The most likely assembly-related cause is a displaced check ball in the TCC apply circuit. During valve body installation, a check ball may have moved from its correct position, blocking or misdirecting the TCC apply fluid. This prevents adequate pressure from reaching the converter clutch piston even though the solenoid is functioning.

48. C — After clearing the debris with compressed air, the orifice should be visually inspected to confirm it is completely clear and the correct diameter. Compressed air successfully removed the obstruction, and the plate can be installed if the orifice is verified as unobstructed and the correct size. Replacing the plate for a successfully cleared orifice is unnecessary. Pin gauge verification of every orifice is thorough but excessive if the technician has confirmed the affected orifice is clear.

49. B — A 300 RPM drop during each upshift — versus the expected 100-150 RPM — means the engine torque management system is reducing engine output more aggressively than the calibration intends. This excessive torque reduction during shifts can result from incorrect adaptive values after the rebuild (if they were not properly reset), a sensor input offset (such as a throttle position reading), or a module that has not yet re-learned the correct torque reduction parameters for the rebuilt transmission.

50. D — Domain C (Off-Vehicle Repair) covers the full scope of transmission overhaul procedures: removal, disassembly, component inspection against manufacturer specifications, clearance measurements (pump, clutch, endplay), reassembly techniques (snap ring installation, seal orientation, check ball placement), converter verification, installation, and post-installation testing. These hands-on technical areas form the core of off-vehicle repair knowledge tested on the ASE A2 exam.