PRACTICE EXAM 5: ASE A2 SIMULATION (50 QUESTIONS)

1. A vehicle equipped with a six-speed automatic transmission operates normally in every gear range except when climbing a steep grade under heavy throttle in 3rd gear. Under this specific condition, the engine RPM increases approximately 200 RPM without a corresponding increase in vehicle speed, then stabilizes. Light-throttle 3rd gear operation on flat roads produces no symptoms. Which of the following BEST describes this condition?

A. A one-way clutch in the 3rd gear circuit that freewheels intermittently under high torque loading

B. The 3rd gear clutch pack is slipping under high torque but holds adequately under lighter loads

C. A faulty pressure control solenoid that drops line pressure during uphill driving conditions only

D. A worn torque converter that loses efficiency specifically during high-load, low-speed operation

2. A technician notices that the transmission fluid on the dipstick appears foamy with visible air bubbles mixed throughout the fluid. The fluid level reads one inch above the full mark. The transmission exhibits erratic shifting and a whining noise at idle. What is the MOST LIKELY cause of ALL three symptoms — foamy fluid, erratic shifting, and whining?

A. A contaminated batch of ATF that was installed during the last service and contains dissolved air

B. A cracked transmission case that is drawing air into the hydraulic circuit through a passage wall

C. A leaking pump intake seal that allows air to enter the suction side of the pump during operation

D. An overfilled transmission where internal components are churning the fluid and whipping air into it

3. Technician A says that a transmission with a torque converter stator seized in the locked position will exhibit poor fuel economy at highway speeds. Technician B says this same condition will cause the transmission fluid to overheat during sustained highway driving. 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

4. A vehicle with a rear-wheel-drive automatic transmission produces a single, sharp clunk from underneath the vehicle immediately upon initial acceleration from a stop. The clunk does not repeat during continued acceleration and is not present during steady-speed cruising or deceleration. Which of the following is the LEAST LIKELY cause?

A. A worn U-joint on the driveshaft that has developed excessive play in the bearing caps

B. A loose torque converter-to-flexplate bolt that allows rotational play under initial load

C. A planetary gear set with worn thrust washers that shifts axially under the initial torque load

D. A worn differential ring and pinion with excessive backlash that takes up under acceleration

5. A customer reports that the engine stalls approximately 50 percent of the time when coming to a stop with the transmission in Drive. The stalling never occurs when the vehicle is decelerating in Neutral. A scan tool shows no DTCs stored in any module. Which of the following diagnostic tests would BEST isolate whether the problem is engine-related or transmission-related?

A. Monitor TCC slip RPM and TCC commanded status on the scan tool while decelerating to a stop in Drive

B. Perform a stall test in Drive to evaluate whether the converter can maintain proper fluid coupling at load

C. Check the engine idle speed in Park versus Drive to determine if the RPM drop in gear is excessive

D. Disconnect the TCC solenoid connector and road test to determine if the stalling condition ceases

6. A vehicle's automatic transmission engages Reverse with a harsh, banging shift but engages Drive smoothly. Line pressure measured at the main test port is within specification in both Drive and Reverse at idle. Which of the following is the MOST LIKELY cause?

A. A failed or stuck accumulator in the reverse clutch apply circuit that eliminates shift cushioning

B. A pressure control solenoid that commands excessive pressure only when Reverse is selected

C. A misadjusted shift cable that positions the manual valve too aggressively into the Reverse detent

D. An engine idle speed that is set too high, transferring excessive rotational energy into the reverse clutch

7. During a road test, a technician notices that the transmission produces a brief buzzing vibration during the exact moment of each 2-3 upshift. The vibration lasts less than one second and is felt through the floor. No vibration is present at any other time. All other shifts are smooth. Which of the following is the MOST LIKELY cause?

A. A worn 2-3 shift valve in the valve body that chatters momentarily during transition between positions

B. A separator plate orifice that is partially restricted, causing turbulent fluid flow during the 2-3 clutch fill

C. A failed engine mount that transmits drivetrain vibration specifically at the RPM where the 2-3 shift occurs

D. A cracked flexplate that resonates at the specific torsional frequency produced during the 2-3 shift event

8. A vehicle with a four-speed automatic has the following pressure test results: Drive at idle = 62 psi (spec: 55-75), Drive at stall = 165 psi (spec: 150-180), Reverse at idle = 95 psi (spec: 85-110), Reverse at stall = 240 psi (spec: 220-260). All readings are within specification. However, the customer complains of a soft 1-2 upshift. What does the pressure test tell the technician?

A. The soft 1-2 shift is caused by low overall line pressure that is at the bottom of the specification range

B. The pressure regulator valve is functioning normally and the problem is likely an engine performance issue

C. The main hydraulic system is functioning correctly and the problem is likely in the 1-2 shift-specific circuit

D. The reverse pressure is disproportionately high compared to Drive, indicating a regulator imbalance

9. Technician A says that a worn oil pump will always produce a whining noise that increases with engine RPM. Technician B says that a worn oil pump can cause delayed engagements and soft shifts without producing any abnormal noise. Who is correct?

A. Technician B only

B. Technician A only

C. Both Technician A and Technician B

D. Neither Technician A nor Technician B

10. A vehicle with an automatic transmission has been towed to the shop. The customer reports that the transmission was operating normally and then suddenly lost all gears — forward and reverse — while driving on the highway. The engine runs normally. Fluid level is correct and the fluid appears clean. Which single failure would MOST LIKELY cause a simultaneous loss of all gears?

A. A failed forward clutch pack that has completely burned out from overheating during highway driving

B. A broken torque converter hub that has separated from the housing and is no longer driving the oil pump

C. A catastrophic oil pump failure or a complete loss of hydraulic pressure from a main circuit rupture

D. A sheared input shaft that has separated the torque converter from the planetary gear train assembly

11. A vehicle's transmission produces a rhythmic ticking noise that is clearly heard when the vehicle is idling in Drive with the brakes applied. The ticking frequency matches engine RPM. The noise disappears completely in Park and Neutral. Which of the following is the MOST LIKELY source?

A. A loose component inside the transmission that contacts a rotating element only when the gear train is loaded

B. A cracked torque converter housing that clicks once per revolution when under the torsional load of engagement

C. A worn oil pump gear with a chipped tooth that produces a click once per revolution at engine speed

D. A damaged flexplate tooth that contacts the starter drive bendix gear once per revolution of the crankshaft

12. A scan tool shows DTC P0791 — Intermediate Shaft Speed Sensor Circuit. This vehicle has three speed sensors: input speed, intermediate shaft speed, and output speed. The technician is unfamiliar with the intermediate shaft sensor. What is the purpose of this sensor?

A. It provides a redundant backup signal for the output speed sensor in case of primary sensor failure

B. It monitors the speed of an intermediate shaft in the gear train, allowing the module to verify ratio in compound gear sets

C. It measures the rotational speed of the valve body manual valve shaft for precise range position detection

D. It reads the torque converter turbine speed from a secondary reluctor ring mounted on the converter housing

13. A technician is diagnosing a vehicle that has a DTC P0735 — Gear 5 Incorrect Ratio. The scan tool live data shows that when 5th gear is commanded, the actual ratio fluctuates between the correct 5th gear value and a value closer to 4th gear. The fluctuation occurs rhythmically at approximately one-second intervals. Which of the following is the MOST LIKELY cause?

A. A failing output speed sensor that intermittently drops its signal, causing ratio calculation errors

B. A worn input speed sensor reluctor ring with missing teeth that produces periodic signal dropouts

C. A 5th gear clutch pack with marginal friction material that alternately grabs and slips under load

D. A shift solenoid that intermittently loses electrical contact, causing the valve to oscillate between positions

14. A vehicle equipped with an electronically controlled transmission has all of the following DTCs stored simultaneously: P0750 (Shift Solenoid A), P0755 (Shift Solenoid B), P0760 (Shift Solenoid C), and P0765 (Shift Solenoid D). All four solenoids are located inside the transmission. What single fault would MOST LIKELY cause all four codes?

A. A failed internal wiring harness or case connector that carries the circuits for all four solenoids

B. A transmission control module with a corrupted program that is setting false codes on all circuits

C. Contaminated transmission fluid that has caused all four solenoid plungers to stick simultaneously

D. A low battery voltage condition that reduced current flow to all solenoids below the detection threshold

15. A technician connects a scan tool and observes the following data at a steady 55 mph cruise in 6th gear with TCC commanded ON: Engine RPM = 1,900, Input Shaft Speed = 1,900, Transmission Fluid Temperature = 190°F. Ten minutes later at the same speed and gear, the data shows: Engine RPM =

1,900, Input Shaft Speed = 1,900, TFT = 240°F. What is the MOST LIKELY cause of the rising fluid temperature?

A. A failing TCC that is slipping internally despite the scan tool showing zero slip between engine and input speed

B. A restricted fluid cooler or failed cooler thermostat that is preventing adequate heat dissipation from the fluid

C. A pressure control solenoid commanding progressively higher line pressure as fluid temperature increases

D. A worn oil pump that generates excessive heat from internal friction as the fluid thins at higher temperature

16. A technician is using a digital storage oscilloscope (DSO) to test an input speed sensor on a transmission. The waveform shows a clean sine wave pattern with consistent amplitude at steady engine RPM, but one pulse per revolution is noticeably smaller in amplitude than the others. What does this irregular pulse indicate?

A. A normal manufacturing variation in the reluctor ring tooth height that does not affect sensor accuracy

B. A single damaged, worn, or chipped tooth on the reluctor ring that produces a weaker magnetic signal

C. An intermittent short in the sensor coil winding that reduces output for one cycle before recovering

D. A cracked sensor magnet that momentarily weakens the magnetic field once per reluctor revolution

17. A vehicle has DTC P0894 — Transmission Component Slipping. The scan tool data shows that during the 4-5 upshift, the input shaft speed does not change to the expected 5th gear value — it remains at the 4th gear speed for approximately two seconds before finally dropping to the 5th gear speed. All other shifts complete within the expected time window. Which of the following is the MOST LIKELY cause?

A. A worn 4th gear clutch that is slow to release during the 4-5 transition, causing a momentary tie-up

B. A contaminated valve body passage that restricts fluid flow to the 4-5 shift valve during the transition

C. An adaptive learning value that has shifted the 4-5 shift timing beyond the normal window of operation

D. A 5th gear clutch with worn friction material or a leaking piston seal that delays full clutch engagement

18. A technician is diagnosing a transmission that shifts normally in all gears but has a persistent check engine light with DTC P0748 — Pressure Control Solenoid Electrical. The technician measures solenoid resistance at 4.5 ohms. The specification is 4.0 to 6.0 ohms. Voltage drop on the power feed circuit is 0.05 volts, and voltage drop on the ground circuit is 0.08 volts. All electrical measurements are within specification. What should the technician investigate NEXT?

A. The wiring harness for an intermittent fault by performing a wiggle test while monitoring circuit continuity

B. The transmission fluid temperature to determine if the solenoid code is temperature-dependent

C. The pressure regulator valve for a stuck condition that is triggering a false solenoid performance code

D. The control module for a failed internal driver circuit that is setting the code despite normal external circuits

19. A vehicle owner reports that the transmission shifts perfectly during summer driving but begins to exhibit delayed 1-2 upshifts and a soft 2-3 shift during winter cold starts, with symptoms resolving after approximately 15 minutes of driving. There are no DTCs stored. Which of the following BEST explains this seasonal symptom pattern?

A. Degraded transmission fluid that has lost its viscosity index improver additives through oxidation

B. A marginal input speed sensor that loses signal strength at cold temperatures due to increased resistance

C. A failing pressure control solenoid whose internal resistance increases in cold conditions, reducing output

D. Cold fluid viscosity affecting flow through orifices and accumulators, altering shift timing and cushioning

20. A technician is reviewing scan tool data and notices that the transmission range sensor PID shows "Between Gears" or an undefined position code while the shift lever is firmly in the Drive detent. The transmission is not engaging Drive. What is the MOST LIKELY cause?

A. A faulty TRS connector with a backed-out pin that produces a signal the module interprets as an invalid position

B. A corroded manual shaft that has seized and is preventing the valve from reaching the Drive detent physically

C. A failed transmission control module that cannot properly decode the range sensor signal voltage values

D. An internal transmission fault that prevents the manual valve from moving even though the external shaft rotates

21. A technician performs a bidirectional scan tool test commanding each shift solenoid on and off individually while monitoring line pressure and listening for solenoid clicking. Solenoids A, B, and C respond with audible clicks and measurable pressure changes. Solenoid D produces no click and no pressure change. The solenoid resistance test at the case connector shows Solenoid D at 14 ohms (specification: 11-15 ohms). What should the technician conclude?

A. The solenoid coil tests normal but is mechanically stuck or the circuit between the case connector and the solenoid has an internal fault

B. The solenoid has a shorted coil that reads within resistance specification but cannot generate magnetic force

C. The control module's driver circuit for Solenoid D has failed and cannot deliver current to the solenoid

D. The scan tool's bidirectional command for Solenoid D is not compatible with this vehicle's software version

22. A vehicle has DTCs P0731 (Gear 1 Incorrect Ratio) and P0732 (Gear 2 Incorrect Ratio) stored simultaneously. All other gears shift correctly with proper ratio readings. Using diagnostic logic and the component application chart, the technician should look for a component that is common to BOTH 1st and 2nd gear but NOT applied in the gears that work correctly. Which of the following approaches is correct?

A. Replace the forward clutch since it is the only device applied in all forward gears including 1st and 2nd

B. Replace the one-way clutch since it is typically applied only in 1st gear and should not affect 2nd gear

C. Test the oil pump for wear since low pressure would affect all gears equally, not just two specific ranges

D. Identify the specific holding device from the application chart that is uniquely applied in both 1st and 2nd

23. A technician discovers that a vehicle's transmission control module has stored a DTC for "Adaptive Learning Limit Reached" on the 3-4 clutch circuit. The adaptive value for the 3-4 clutch apply pressure is at its maximum positive correction. What is the correct interpretation and action?

A. The 3-4 clutch has a mechanical or hydraulic deficiency that has exceeded the adaptive system's compensation range

B. The control module software needs to be updated to expand the adaptive correction range for the 3-4 circuit

C. Resetting the adaptive values will resolve the code permanently since the system will re-learn from baseline

D. The pressure control solenoid needs replacement because it has drifted beyond its calibrated output range

24. A technician is diagnosing a vehicle where the cruise control disengages every time the transmission makes a 3-4 upshift. There are no transmission DTCs stored, and the shift itself feels normal. The cruise control works normally in all other gears. What is the MOST LIKELY cause?

A. A brief engine RPM spike during the 3-4 shift that causes the PCM to interpret it as a fault condition

B. A momentary TCC release during the 3-4 shift that creates a speed change exceeding the cruise control tolerance

C. A vehicle speed signal interruption during the 3-4 shift that causes the cruise module to lose its speed reference

D. A shift solenoid electrical spike during the 3-4 transition that feeds back into the cruise control circuit wiring

25. A vehicle equipped with a CVT has a customer complaint that the engine RPM fluctuates up and down by approximately 500 RPM during steady-speed highway cruising. The vehicle speed remains constant. The scan tool shows no DTCs and the CVT fluid level and condition are normal. Which of the following is the MOST LIKELY cause?

A. A failing CVT belt that alternately slips and grips on the pulley surfaces as it wears unevenly

B. A CVT ratio control solenoid or pulley actuator that cannot maintain a stable pulley position

C. Normal CVT behavior where the control module varies engine RPM to optimize fuel economy

D. A failing engine ignition coil that causes intermittent misfires perceived as RPM fluctuation

26. A technician is replacing the transmission fluid and filter on a vehicle that does not have a drain plug in the pan. The pan bolts are being loosened to allow the fluid to drain in a controlled manner. Which corner of the pan should be lowered FIRST to allow controlled draining?

A. The corner closest to the exhaust system to direct fluid away from hot components and prevent fire

B. The corner farthest from the technician to prevent splashing fluid toward the technician's body

C. The corner closest to the engine to allow fluid from the valve body to drain most efficiently

D. A rear corner to direct the fluid stream into a drain pan positioned at the lowest point of the vehicle

27. A technician completes a transmission fluid service and fills the transmission with the specified amount of DEXRON VI fluid. The vehicle's owner's manual specifies MERCON LV. The customer drives the vehicle for two days before returning with complaints of harsh shifting and a burnt fluid smell. What is the MOST LIKELY cause of the new symptoms?

A. The incorrect fluid specification has damaged the clutch friction material and altered the shift characteristics

B. The new fluid contained air from improper filling technique that has caused aerated hydraulic pressure

C. The filter installed during the service is restricting flow because it was designed for a different fluid viscosity

D. The harsh shifting is unrelated to the fluid service and is caused by a coincidental solenoid failure

28. A vehicle's transmission operates normally except that the Park position does not hold the vehicle on any grade — the vehicle rolls freely with the shift lever in Park. The parking brake holds the vehicle normally. What should the technician inspect?

A. The manual valve linkage for a misadjustment that prevents the shift lever from fully reaching Park

B. The parking pawl mechanism, parking gear, and the actuating linkage between the manual shaft and the pawl

C. The transmission range sensor for a fault that prevents the control module from commanding Park engagement

D. The transmission output shaft bearing for excessive play that prevents the parking gear from engaging the pawl

29. A technician replaces the transmission range sensor on a vehicle. After installation and adjustment, the engine starts normally in Park. When the driver shifts to Drive, the transmission engages Reverse instead. Shifting to Reverse produces forward gear engagement. What is the MOST LIKELY cause?

A. The replacement range sensor has a different internal configuration than the original and is incompatible

B. The internal wiring of the replacement sensor is reversed, sending mirror-image position signals

C. The range sensor is adjusted to the wrong reference position, offsetting all gear readings by two positions

D. The shift cable was inadvertently disconnected during the sensor replacement and needs to be reattached

30. A customer reports that the transmission fluid level has been dropping slowly over the past month, requiring the addition of approximately one pint every two weeks. There are no visible puddles under the vehicle. Which of the following leak sources should the technician investigate that might NOT produce visible drips on the ground?

A. A leaking integral cooler inside the radiator that is allowing ATF to cross into the engine coolant system

B. A weeping front pump seal that drips only during driving and the fluid is dispersed by airflow under the car

C. A loose pan bolt that allows a slow seep only when the fluid is at full operating temperature and pressure

D. A deteriorated transmission vent tube that is expelling small amounts of fluid during extended highway driving

31. A technician is inspecting transmission cooler lines on a vehicle in a northern climate that uses road salt. The steel cooler lines show surface corrosion along their entire length but appear to be structurally intact with no visible leaks. What is the correct action?

A. Clean the corrosion with a wire brush and apply rust-preventive coating to extend the line life

B. Leave the lines as-is since surface corrosion on steel lines is cosmetic and does not affect function

C. Replace only the rubber hose sections at each end of the steel lines since those fail before the steel

D. Note the condition on the repair order and recommend the customer monitor for leaks and plan for replacement

32. A technician discovers during a routine under-vehicle inspection that the transmission mount rubber has separated from its metal plates on one side. The mount has not fully collapsed and the transmission appears to be in its normal position. What is the appropriate recommendation?

A. Monitor the mount at the next oil change and replace it only if the separation progresses further

B. Replace the mount immediately since it will not pass a state safety inspection in its current condition

C. Replace the mount because a partially failed mount will fully collapse under load, causing sudden drivetrain shift

D. Apply structural adhesive to reattach the rubber to the metal plate and inspect at the next service

33. A technician replaces a vehicle speed sensor on the transmission extension housing. After clearing codes and performing a road test, the speedometer works correctly but the transmission shifts at abnormally high RPMs. No new DTCs are set. What is the MOST LIKELY cause?

A. The replacement sensor is producing a weaker signal that the speedometer can read but the TCM interprets as a lower speed

B. The replacement sensor has a different number of output pulses per revolution than the original, causing a speed calculation error

C. The transmission adaptive values need to be reset after any speed sensor replacement to recalibrate the shift schedule

D. The sensor connector was reversed during installation, causing the signal polarity to be inverted at the module

34. A technician needs to replace the solenoid body assembly — a single unit containing all six solenoids — on a modern six-speed transmission. The repair is being performed in-vehicle with the pan removed. After installing the new solenoid body, which of the following steps is MOST critical to perform before returning the vehicle to service?

A. Adjust the shift cable to compensate for the slightly different physical dimensions of the new solenoid body

B. Replace the torque converter to prevent contaminated fluid from the old converter from reaching the new solenoids

C. Perform a pressure test at the main line port to verify the new solenoid body's pressure regulation output

D. Enter all solenoid calibration codes from the new assembly into the control module and reset adaptive values

35. A technician is inspecting the transmission external wiring harness and notices that a splice in the harness has been repaired with a twist-and-tape connection by a previous technician. The splice is located in the ground circuit shared by the TFT sensor and two shift solenoids. No DTCs are currently stored. What is the correct action?

A. Remove the tape splice and repair the connection with a proper soldered and heat-shrink-sealed splice

B. Leave the existing repair since it is not currently causing any codes or symptoms and appears functional

C. Replace the entire external harness because any spliced wire compromises the harness integrity permanently

D. Add a second layer of electrical tape to the existing splice to ensure long-term moisture protection

36. A customer brings a vehicle in because the transmission shifts harshly only when the engine is cold. Shifts become smooth within five minutes of driving. A scan tool shows no DTCs and all live data parameters appear normal once the transmission reaches operating temperature. The technician checks for TSBs. Which of the following TSB remedies would be MOST appropriate for this concern?

A. A TSB recommending a different fluid specification that provides better cold-temperature friction characteristics

B. A TSB requiring replacement of the pressure control solenoid with a revised part that has better cold response

C. A TSB recommending a control module software update that adjusts cold-start shift pressure calibration

D. A TSB recommending installation of an auxiliary transmission fluid heater to reduce warmup time in cold climates

37. A vehicle has an intermittent fluid leak from the transmission that appears only after extended highway driving at speeds above 65 mph. The leak is never present during city driving or when the vehicle sits parked. Which of the following is the MOST LIKELY explanation?

A. A front pump seal that only leaks under the higher converter hub RPM produced at sustained highway speed

B. A transmission vent that expels fluid when internal case pressure rises from sustained high-speed operation and heat

C. A pan gasket that warps from heat expansion during extended highway driving and allows fluid to seep

D. A cooler line fitting that loosens from vibration only at the specific resonant frequency of highway speed

38. A technician is installing a rebuilt transmission and discovers that the replacement torque converter is a different physical length than the original. The replacement is approximately 1/4 inch shorter from the mounting pads to the pilot. What is the potential consequence of installing this converter?

A. The shorter converter will sit too far back in the pump bore, preventing proper pump drive engagement

B. The converter will engage the pump drive but will pull the flexplate rearward, overloading the crankshaft thrust bearing

C. The transmission will bolt to the engine normally but the converter will produce a vibration from imbalance

D. The converter pilot may not fully seat in the crankshaft bore, causing misalignment and potential vibration or seal damage

39. During a transmission overhaul, a technician finds that the friction material on a band lining is worn to the minimum specification on one end but has full thickness on the other end. What does this uneven wear pattern indicate?

A. The band was adjusted too tightly, causing one end to contact the drum harder than the other during operation

B. The band drum is out of round or has a surface irregularity that prevents even band contact across its circumference

C. The servo apply pin was bent or the wrong length, causing uneven force distribution across the band surface

D. The band anchor pin was loose, allowing the band to shift position and concentrate wear on one end

40. A technician is inspecting the oil pump during a transmission overhaul. The pump gears show no visible scoring or damage. Gear tip clearance measures 0.004 inches (spec: 0.006 max), gear side clearance measures 0.002 inches (spec: 0.003 max), and gear mesh clearance measures 0.004 inches (spec: 0.006 max). What is the technician's assessment?

A. All three pump clearance measurements are within specification and the pump is serviceable

B. The side clearance is too tight and will cause binding when the pump heats up during normal operation

C. The mesh clearance is at the upper limit and indicates the pump gears should be replaced preventively

D. The tip clearance and mesh clearance are nearly equal, which indicates abnormal wear and requires investigation

41. A technician measures clutch pack clearance on a newly assembled clutch pack and obtains a reading of 0.042 inches. The manufacturer's specification is 0.025 to 0.055 inches. What is the correct action?

A. Install a thinner selective snap ring because the clearance is above the midpoint of the specification range

B. Accept the measurement since it falls within the manufacturer's specified range and proceed with reassembly

C. Add an additional friction disc to the pack to reduce the clearance closer to the minimum specification value

D. Replace the selective snap ring with the thickest available to bring the clearance to the tightest possible setting

42. A technician is reassembling a transmission and preparing to measure endplay. The service information states that endplay must be measured with the pump installed and torqued but without the torque converter installed. Why must the converter be absent during the endplay measurement?

A. The converter weight would compress the thrust washers and produce a falsely low endplay reading

B. The converter locks the input shaft in position and prevents the axial movement needed for measurement

C. The converter fluid would interfere with the dial indicator's magnetic base and prevent accurate readings

D. The converter preloads the input shaft through the turbine spline engagement, which would mask the true endplay

43. A technician finds that three of the six valve body mounting bolts have stretched beyond the manufacturer's torque-to-yield specification during a transmission overhaul. The threads are not damaged. What is the correct action?

A. Retorque the stretched bolts to a higher torque value to compensate for the elongation and loss of clamping force

B. Reuse the bolts since they are not damaged and torque-to-yield stretch is a normal characteristic of the design

C. Replace all six valve body bolts with new ones to ensure uniform and correct clamping force across the valve body

D. Replace only the three stretched bolts and reuse the three that are within specification to minimize parts cost

44. During transmission reassembly, a technician installs a new forward clutch piston with new inner and outer lip seals. After installing the piston into the drum, the technician applies compressed air to the clutch apply passage to verify piston movement. The piston does not move. What is the MOST LIKELY cause?

A. One or both lip seals were twisted, rolled, or pinched during installation, preventing a proper seal for pressure buildup

B. The compressed air supply does not provide sufficient pressure to move the piston against the return spring force

C. The snap ring retaining the return spring is seated too deeply, mechanically preventing piston travel in the bore

D. The new piston is slightly oversized for the drum bore and is binding against the bore wall due to an interference fit

45. A technician completes a transmission overhaul on a unit that failed due to a seized torque converter clutch. During reassembly, the technician installs all new friction components, a new torque converter, and new seals throughout. Before installing the transmission, the technician flushes the cooler and performs a flow test. The flow rate is acceptable. After installation and initial startup, what additional step is critical?

A. Perform a stall test immediately to verify that the new converter is producing the correct stall speed

B. Drive the vehicle at highway speed for 30 minutes to break in the new friction components under load

C. Adjust all bands to the manufacturer's specification since the new friction material changes the effective clearance

D. Reset the adaptive values in the control module and perform a complete re-learn drive cycle

46. A technician is checking the parking pawl mechanism during a transmission overhaul. The pawl pivots freely on its shaft, the return spring is intact, and the pawl tip engages the parking gear teeth cleanly. However, the technician notices that the parking gear teeth have visible rounding on their engagement edges. What is the correct action?

A. Reinstall the parking gear since rounded edges provide smoother pawl engagement and reduce noise

B. Replace the parking gear because rounded teeth may allow the pawl to skip over the teeth under the weight of the vehicle on a grade

C. Sharpen the parking gear teeth with a file to restore their original square engagement profile and improve holding

D. Leave the gear and replace only the pawl with a new one that has a sharper tip to compensate for the rounded teeth

47. A technician is reassembling a transmission and must install a roller-type one-way clutch. The clutch has an arrow stamped on the outer race. The service information states the arrow must point in the direction of engine rotation when the clutch is installed in the transmission. What happens if the arrow is installed pointing in the opposite direction?

A. The clutch will lock when it should freewheel and freewheel when it should lock, reversing the gear range's function

B. The clutch will function normally because roller clutches lock in the same direction regardless of installation orientation

C. The clutch will lock in both directions, causing a permanent bind in the gear range that uses this one-way clutch

D. The clutch will freewheel in both directions because the rollers cannot wedge into the ramps from the wrong side

48. A technician installs a rebuilt transmission and fills it with the correct fluid. Upon initial startup, the pump produces a loud whining noise that was not present before the rebuild. The fluid level is correct. What should the technician check FIRST?

A. The pump-to-case gasket alignment to verify it is not blocking the pump intake passage or feed port

B. The torque converter for proper seating since a partially seated converter may not drive the pump at full engagement

C. The transmission for proper bell housing bolt torque since loose bolts can cause pump housing misalignment

D. The fluid type to confirm the correct specification was used since different viscosities affect pump noise characteristics

49. A technician has completed a major transmission overhaul including valve body replacement with new solenoids. After installation, fluid fill, and initial startup, the technician attempts to perform a re-learn drive cycle. During the drive cycle, every upshift produces a harsh, slamming engagement. What is the MOST LIKELY cause if the adaptive values were already reset?

A. The new solenoids are defective and are commanding maximum pressure on every shift event during operation

B. The solenoid calibration codes for the new valve body were not entered into the control module before the drive cycle

C. The re-learn drive cycle requires at least 200 miles of driving before the adaptive system can smooth the shifts

D. The clutch pack clearances were set too loose during assembly, causing each clutch to slam to engagement harshly

50. A technician has completed a transmission rebuild necessitated by a catastrophic planetary gear failure that produced large metallic debris throughout the system. The cooler was flushed and flow-tested successfully. An inline cooler filter was installed. After 500 miles, the customer returns for the scheduled filter inspection. The technician removes the inline filter and finds it packed with fine metallic particles. What is the correct action?

A. Remove the filter permanently since it has captured all residual debris and the system is now clean

B. Install a new inline filter and schedule another inspection in 500 miles to continue monitoring

C. Perform another cooler flush since the particles indicate the original flushing was inadequate

D. Replace the cooler entirely and install a new inline filter since the original cooler is still releasing trapped debris

Practice Exam 5: Answer Key and Explanations

1. B — The symptom occurs only under high torque demand in a specific gear — 3rd gear under heavy throttle on a grade — while light-throttle 3rd gear operation is normal. This pattern is characteristic of a clutch pack that has worn to the point where it can hold under light loads but slips when torque demand exceeds its reduced holding capacity. A system-wide pressure fault would affect all gears, and a converter issue would not be gear-specific.

2. D — All three symptoms share one root cause: overfilling. When the fluid level is excessively high, rotating internal components dip into the fluid surface and churn it like a mixer, whipping air into the fluid and creating foam. Aerated fluid is compressible and cannot transmit hydraulic force effectively, causing erratic shifting. The pump cavitates as it draws in the air-fluid mixture, producing the whining noise. Correcting the fluid level to specification resolves all three symptoms.

3. D — Both technicians are correct. A seized stator remains locked during the coupling phase when it should be freewheeling, obstructing normal fluid circulation at highway speed. This obstruction forces the engine to work harder to maintain speed (reducing fuel economy) and converts excess energy into heat in the fluid (causing overheating). Both consequences stem from the same root cause — the stator blocking fluid flow when it should be spinning freely with the impeller and turbine.

4. C — The question asks for the LEAST LIKELY cause. A worn U-joint, loose converter bolt, and worn differential ring and pinion can all produce a single clunk during initial acceleration as the mechanical play in each component takes up under load. Planetary gear thrust washers shifting axially would produce a continuous noise or vibration during operation, not a single sharp clunk at initial takeoff — their axial movement is controlled by endplay and is not a sudden, impact-type event.

5. A — The stalling occurs only in Drive during deceleration to a stop, never in Neutral. The most common transmission-related cause of stalling at a stop is a TCC that fails to release. Monitoring TCC slip RPM and commanded status on the scan tool during deceleration directly reveals whether the TCC is remaining engaged as the vehicle approaches zero speed. If TCC slip stays at zero while the vehicle decelerates, the TCC is the cause.

6. A — Line pressure is within specification in both Drive and Reverse, which eliminates system-wide pressure regulation faults. The harsh Reverse engagement with normal Drive engagement points to the specific circuit that cushions the reverse clutch application. A failed reverse accumulator — stuck piston, broken spring, or blocked feed — allows full line pressure to hit the reverse clutch piston instantaneously without cushioning, producing the harsh bang.

7. B — A brief buzzing vibration occurring only during the exact moment of the 2-3 shift and lasting less than one second points to turbulent fluid flow during the clutch fill event for that specific shift. A partially restricted orifice in the 2-3 circuit creates turbulence as fluid forces through the narrowed passage under pressure, producing a vibration that transmits through the case. Once the clutch is fully applied and fluid stops flowing through the orifice, the vibration stops.

8. C — All four pressure readings — Drive idle, Drive stall, Reverse idle, and Reverse stall — are within manufacturer specifications. This confirms the pump, pressure regulator, and EPC solenoid are all functioning correctly, and the main hydraulic system is delivering proper pressure. Since system pressure is verified as correct, the soft 1-2 shift must be caused by a problem in the 1-2 shift-specific circuit — a leaking 2nd gear clutch seal, a stuck accumulator, or a restricted orifice in that circuit.

9. A — Technician B is correct. A worn oil pump can have clearances that allow internal leakage, reducing pressure output without necessarily producing audible noise. The pressure loss causes delayed engagements (clutch circuits fill slowly) and soft shifts (insufficient apply force at the clutch piston) because the pump cannot maintain adequate line pressure under demand. Technician A is wrong because noise is not a guaranteed symptom of pump wear — many worn pumps operate quietly while delivering reduced pressure.

10. C — A simultaneous loss of all gears — both forward and reverse — requires a failure that affects the one system common to every gear range: the hydraulic pressure supply. A catastrophic oil pump failure or a rupture in the main pressure circuit eliminates all hydraulic pressure, making it impossible for any clutch pack or band to apply. A forward clutch failure would only affect forward gears. A broken input shaft or converter hub would affect both ranges but through different failure mechanisms.

11. D — A ticking noise at engine RPM frequency that is present only in Drive (not Park or Neutral) and occurs once per crankshaft revolution points to a component at the engine-transmission junction that contacts something only when the drivetrain is loaded. A damaged flexplate tooth contacting the starter drive bendix is consistent with this pattern — the flexplate flexes under the torsional load of gear engagement, bringing the damaged tooth into contact with the starter gear. In Park and Neutral, the flexplate unloads and the contact ceases.

12. B — Some modern transmissions with compound planetary gear arrangements use three speed sensors to monitor the speed of an intermediate shaft between the input and output. This allows the control module to verify the gear ratio across each individual gear set independently, rather than relying solely on the overall input-to-output ratio. This provides more precise diagnostic capability for identifying which specific gear set or clutch is not performing correctly.

13. C — A rhythmic fluctuation between the correct 5th gear ratio and a value closer to 4th gear at one-second intervals indicates the 5th gear clutch is alternately holding and slipping under load. The clutch momentarily grabs (producing the correct ratio), then slips (the ratio shifts toward a lower value as the gear partially disengages), then grabs again. This grab-slip-grab pattern is characteristic of marginal friction material that cannot maintain consistent grip.

14. A — All four shift solenoids are located inside the transmission and share a common internal wiring harness that routes their circuits through a single case connector to the external harness. A single failure in this shared pathway — a broken wire bundle, a corroded internal connector, a damaged case pass-through, or a pinched harness — affects all solenoid circuits simultaneously, producing codes for all four solenoids from one root cause.

15. B — The TCC is fully engaged (zero slip between engine RPM and input speed) and the transmission is operating in the correct gear, so the transmission itself is not generating abnormal heat. The steadily rising fluid temperature from 190°F to 240°F over 10 minutes of highway driving indicates the cooling system cannot dissipate the heat being generated. A restricted cooler core or a failed cooler thermostat stuck in bypass prevents adequate heat transfer from the ATF.

16. B — A clean sine wave with one consistently weak pulse per revolution indicates that one specific tooth on the reluctor ring is producing a weaker magnetic field change as it passes the sensor. This is caused by a single tooth that is worn, chipped, or slightly shorter than the others. Every other tooth produces a normal-amplitude pulse, confirming the sensor coil and magnet are functioning correctly — the anomaly is mechanical, not electrical.

17. D — The input shaft speed remaining at the 4th gear value for two seconds before finally dropping to the 5th gear speed indicates the 5th gear clutch is taking too long to fully engage. A worn clutch with reduced friction material or a leaking piston seal allows pressure to build slowly, delaying the full clamping of the clutch. The two-second delay represents the time it takes for the marginal clutch to finally develop enough clamping force to hold the 5th gear ratio.

18. A — All static electrical measurements — solenoid resistance, power circuit voltage drop, and ground circuit voltage drop — are within specification. However, the DTC is persistent. This combination of normal static tests with a persistent code is the hallmark of an intermittent fault — a connection that tests fine at rest but opens or increases resistance under vibration, heat, or physical movement. A wiggle test while monitoring continuity is the next logical step to detect the intermittent break.

19. D — Cold ATF has significantly higher viscosity than warm ATF. The thicker cold fluid flows more slowly through the orifices and accumulator passages that control shift timing and cushioning. This slower flow delays the 1-2 upshift (the clutch circuit takes longer to fill) and softens the 2-3 shift (the accumulator absorbs more slowly, delaying pressure buildup). As the fluid warms and thins to its designed operating viscosity within 15 minutes, normal shift behavior returns.

20. C — The TRS is producing a signal, but the module interprets it as "Between Gears" or an undefined position, even though the lever is firmly in Drive. If the module's internal processing, reference voltage, or analog-to-digital conversion is faulty, it may not correctly decode the TRS voltage into a recognized gear position. A failed module that cannot properly interpret a valid sensor signal explains why the mechanical system is correct but the electronic interpretation is wrong.

21. A — The solenoid coil resistance is within specification (14 ohms within the 11-15 range), so the coil winding is electrically intact. However, the solenoid does not click or produce a pressure change when commanded. This means either the solenoid plunger is mechanically stuck (seized from debris or varnish) despite a good coil, or there is a break in the circuit between the case connector where the resistance was measured and the solenoid itself — an internal harness fault that the external resistance test cannot detect.

22. D — The forward clutch is applied in all forward gears, so if it were the fault, all forward gears would be affected — not just 1st and 2nd. The correct approach is to consult the specific transmission's component application chart, identify which device is uniquely applied in both 1st and 2nd gear but released in the gears that work correctly, and test that specific component. This is the fundamental diagnostic application of the clutch and band application chart.

23. A — An "Adaptive Learning Limit Reached" code means the control module has increased the 3-4 clutch apply pressure to its maximum programmable correction and the clutch is still not meeting its engagement targets. The adaptive system is working correctly — the mechanical or hydraulic deficiency has simply exceeded the system's correction range. Simply resetting the adaptations will cause the module to quickly re-adapt back to the same limit. The root cause is a worn clutch or leaking circuit that requires mechanical repair.

24. C — The cruise control relies on a continuous, stable vehicle speed signal to maintain the set speed. If the output speed sensor or vehicle speed signal momentarily drops, glitches, or changes during the 3-4 shift — due to an electrical noise spike, a loose connector that is momentarily disrupted by the shift vibration, or a brief interruption in the signal — the cruise module interprets this as a loss of speed reference and disengages as a safety measure.

25. B — A CVT maintains stable vehicle speed by continuously adjusting the pulley ratio. If the ratio control solenoid or the hydraulic pulley actuator cannot maintain a stable pulley position, the pulleys drift slightly, changing the ratio and forcing the engine to speed up or slow down to compensate. This produces the observed RPM fluctuation at constant vehicle speed. A healthy CVT holds a rock-steady pulley position during cruise, producing stable engine RPM.

26. D — When no drain plug is present, the pan is loosened at one corner to allow controlled draining. Lowering a rear corner directs the fluid stream toward the rear of the vehicle where the drain pan can be most easily positioned at the lowest point. This orientation takes advantage of gravity to guide the fluid into the catch container in a controlled stream rather than allowing it to spill unpredictably from multiple edges.

27. A — DEXRON VI and MERCON LV are different fluid formulations with different viscosities, friction modifier packages, and additive chemistries. They are not interchangeable. The DEXRON VI friction modifiers do not match the clutch material characteristics designed for MERCON LV, causing the clutches to engage too aggressively (harsh shifts) and generating excessive heat (burnt smell) from incorrect friction interaction. The fluid must be drained and replaced with the correct specification.

28. B — The parking pawl mechanism is a purely mechanical system consisting of the pawl, the parking gear on the output shaft, the actuating rod that connects the manual shaft to the pawl, and the return spring. If the vehicle rolls freely in Park, the pawl is not engaging the gear teeth — either the pawl is broken, the actuating linkage is disconnected, the parking gear teeth are damaged, or the pawl pivot shaft is worn. The linkage and TRS are separate systems that do not control the pawl's mechanical engagement.

29. C — If Drive and Reverse are swapped — Drive produces Reverse engagement and Reverse produces Drive engagement — the range sensor is reading each position offset by approximately two detent positions. This indicates the sensor was adjusted to the wrong reference point during installation, shifting all position readings by a fixed offset. The sensor itself is not defective — it is consistently off by the same amount in every position, which is the signature of an adjustment error.

30. A — A slow, steady fluid loss with no visible puddles or drips under the vehicle points to an internal leak path where the fluid is being consumed or captured rather than dripping externally. A leaking integral cooler inside the radiator allows ATF to cross into the engine coolant system through a breach in the cooler tube. The ATF mixes with the coolant and is contained within the cooling system — it never reaches the ground. Checking the coolant for a pink tinge or oily film confirms this leak path.

31. D — Surface corrosion on steel cooler lines in a salt-belt vehicle is a progressive condition. While the lines are currently intact, the corrosion will continue to thin the walls until pinholes develop. The correct action is to document the current condition, inform the customer of the developing risk, and recommend monitoring and planned replacement before a failure occurs during driving. Neither ignoring corrosion nor aggressive immediate replacement is the most appropriate balanced recommendation.

32. C — A partially separated mount is a failing mount. The rubber has already begun to tear away from the metal bonding plate, and the remaining bonded area is now carrying the load that was designed for the full surface. Under the dynamic torque loads of acceleration, deceleration, and gear engagement, the remaining bond will continue to fail until the mount fully collapses. Replacing it now prevents the sudden shift in drivetrain position that would occur during full collapse.

33. B — The speedometer reads correctly because the instrument cluster may use a different calibration or processing method than the TCM for converting the raw sensor pulses to speed. If the replacement sensor produces a different number of pulses per revolution than the original — for example, a sensor with fewer teeth on its drive gear — the TCM calculates a lower vehicle speed than actual and delays upshifts accordingly, waiting for the vehicle to reach what it believes is the correct shift speed.

34. D — A solenoid body assembly containing all six solenoids is a major hydraulic control component with individual calibration codes for each solenoid. The control module must be programmed with the specific calibration codes from the new assembly so it can adjust its commands to match each solenoid's unique flow and response characteristics. Adaptive values must also be reset since the learned corrections from the old solenoids are no longer applicable.

35. A — A twist-and-tape splice is not a reliable long-term repair for automotive wiring — it is susceptible to corrosion, increased resistance, and eventual failure from vibration and moisture. The splice is in a ground circuit shared by three components, meaning any degradation of this connection will affect all three devices simultaneously. The correct repair is to remove the tape, properly solder the connection, and seal it with adhesive-lined heat shrink tubing to create a durable, moisture-resistant splice.

36. C — Cold-start harsh shifting that resolves once the fluid reaches operating temperature is a calibration issue — the module's cold-start pressure commands are too aggressive for the actual conditions. A control module software update (reflash) that adjusts the cold-start shift pressure calibration is the most targeted and appropriate remedy. This solution addresses the root cause (incorrect pressure commands at cold temperatures) without replacing hardware that is functioning within specification.

37. B — A leak that appears only after extended highway driving and is never present during city driving or when parked suggests that sustained high-speed operation raises the internal case temperature and pressure enough to force fluid out through the transmission vent. The vent is designed to equalize internal pressure, but if the vent tube is partially restricted or the fluid is overheated, fluid can be expelled. City driving does not generate enough sustained heat and pressure to trigger this condition.

38. D — A converter that is 1/4 inch shorter than the original has a shorter pilot projection. If the pilot does not extend far enough into the crankshaft bore, it cannot provide proper centering of the converter on the crankshaft centerline. This misalignment causes the converter to orbit slightly off-center as it rotates, producing vibration, potential seal damage from the eccentric hub motion, and uneven loading on the pump bushing.

39. C — Uneven band wear — full thickness on one end and worn to minimum on the other — indicates the force was not distributed evenly across the band surface during application. A bent servo apply pin or an incorrect pin length concentrates the apply force on one side of the band, causing that side to press harder against the drum while the opposite side barely contacts. This uneven loading produces the observed asymmetric wear pattern.

40. A — All three critical pump clearance measurements — tip clearance at 0.004 inches (max 0.006), side clearance at 0.002 inches (max 0.003), and mesh clearance at 0.004 inches (max 0.006) — are within their respective specifications. The pump shows no visible damage to the gears. The pump is serviceable and can be reassembled and returned to service with confidence that it will produce adequate pressure and flow.

41. B — A clutch pack clearance of 0.042 inches falls squarely within the manufacturer's specified range of 0.025 to 0.055 inches. The measurement does not need to be at the midpoint or minimum of the range — any value within specification is acceptable. No selective snap ring change, additional discs, or other modifications are needed. The technician should proceed with reassembly.

42. D — The torque converter, when installed, engages the input shaft through the turbine spline. This engagement preloads the input shaft axially through the mechanical contact between the converter and the shaft, which adds a force to the endplay measurement that is not present during normal transmission operation. Measuring without the converter ensures that the dial indicator reads only the true axial free play of the gear train components without converter-induced preload.

43. C — Torque-to-yield bolts are designed to be stretched into their elastic-to-plastic transition zone during installation, which provides precise and consistent clamping force. Once stretched beyond their yield point, they cannot be reliably re-torqued to the correct clamping specification — they will not develop the same clamping force as new bolts. All six bolts should be replaced to ensure uniform clamping force across the entire valve body, preventing internal pressure leaks.

44. A — If the clutch piston does not move when compressed air is applied to the clutch circuit, the most common cause is a lip seal that was twisted, rolled, or pinched during installation. A damaged seal allows the compressed air to leak past the piston rather than building pressure behind it, so the piston cannot move against the return spring. The piston must be removed, the seals inspected for damage, and new seals carefully reinstalled.

45. D — Even though all mechanical components are new and correctly assembled, the control module's stored adaptive values reflect the old, failed transmission's wear condition. These outdated values —

which may include elevated pressures to compensate for worn clutches, altered shift timing for degraded friction material, and incorrect TCC slip targets — will cause the new transmission to shift incorrectly. Resetting the adaptive values and performing a complete re-learn drive cycle allows the module to build fresh correction values matched to the new components.

46. B — Parking gear teeth with rounded engagement edges have lost the square profile needed for the pawl to positively lock into the tooth notch. Rounded teeth allow the pawl to ride up and over the teeth under the sustained force of a vehicle's weight on a grade, causing the vehicle to roll. This is a safety-critical failure — the parking gear must be replaced to restore positive, reliable parking engagement.

47. A — The directional arrow on a one-way clutch indicates the designed locking direction. Installing the clutch with the arrow pointing opposite to engine rotation reverses its locking and freewheeling behavior. The clutch will lock when the associated gear element should be freewheeling (causing a bind or engagement in the wrong condition) and freewheel when it should be locked (eliminating the holding function for that gear range).

48. A — A loud pump whine immediately after a rebuild with correct fluid level and a properly seated converter suggests the pump is not receiving fluid correctly. A misaligned pump-to-case gasket can block or partially obstruct the pump intake passage — the channel through which fluid flows from the pan and filter to the pump's suction side. The starved pump cavitates as it tries to draw fluid through the restricted passage, producing the whining noise.

49. B — The adaptive values were already reset, eliminating that common cause. Harsh shifts on every upshift from a new valve body assembly with new solenoids — despite correct clutch clearances and a clean system — strongly points to a calibration mismatch. The solenoid calibration codes for the new assembly were not entered into the control module, so the module is applying the old solenoid calibration values to solenoids with different flow and response characteristics, commanding incorrect pressures for every shift.

50. D — A filter packed with fine metallic particles after only 500 miles indicates the cooler is still releasing trapped debris despite the successful flush and flow test. The debris was embedded deep within the cooler core passages — not free-flowing material that flushing could remove, but material that is gradually dislodging during normal fluid circulation. The cooler must be replaced entirely because it will continue to release debris indefinitely, and a new inline filter should be installed to protect the transmission during the remaining break-in period.