PRACTICE EXAM 8: ASE G1 SIMULATION — 55 QUESTIONS

1. A customer returns two days after a front brake pad and rotor replacement complaining that the brakes make a grinding noise at low speed. The technician inspects and finds the inner pad on the right front is worn to bare metal. The outer pad still has full thickness. Which of the following MOST likely caused this comedown?

A. The replacement rotors were below minimum thickness when installed

B. The brake pads were manufactured with defective friction material

C. The caliper bleeder was left open during reassembly

D. The right front caliper slide pins were not cleaned, lubricated, or freed during the brake job, preventing the caliper from floating

2. A vehicle has all of the following symptoms simultaneously: the speedometer reads zero, the ABS warning light is on, the traction control light is on, and the automatic transmission will not shift out of first gear. Which single component failure would explain ALL of these symptoms?

A. A faulty instrument cluster that has lost its speed input display

B. A failed vehicle speed sensor (VSS) or its circuit

C. A defective transmission control module

D. A broken speedometer cable

3. A technician is performing an oil change on a vehicle that uses a cartridgestyle (replaceable element) oil filter housed in a reusable canister. Which of the following steps is unique to this filter design compared to a spinon filter?

A. Verifying that the drain plug washer is replaced

B. Checking that the old filter is the correct part number before installing the new one

C. Replacing the Oring seal on the filter housing cap to prevent leaks when the cap is reinstalled

D. Recording the oil filter part number on the repair order

4. Technician A says that a bent or damaged wheel can cause a vibration even after the tire has been properly balanced. Technician B says that a bent wheel will always be detected and corrected by the tire balancing machine. 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's A/C system is blowing warm air. The scan tool shows the A/C compressor clutch is commanded ON by the PCM, but the clutch is not engaging. The technician checks the compressor clutch connector and finds battery voltage and a good ground present. Which of the following is the MOST likely cause?

A. A faulty A/C pressure transducer preventing the PCM from commanding the clutch

B. A blown A/C compressor clutch fuse

C. A seized A/C compressor preventing the clutch plate from turning

D. An open (failed) compressor clutch coil that has power and ground but cannot create a magnetic field to engage the clutch plate

6. A vehicle's engine oil pressure gauge reads normal at idle but drops to zero at highway speed. There are no engine noises. Which of the following is the MOST likely cause?

A. A worn oil pump that cannot maintain pressure under high RPM demand

B. A faulty oil pressure sending unit or gauge that fails under vibration at highway speed

C. An overfilled crankcase causing oil aeration at high speed

D. A clogged oil pickup screen that restricts flow at all speeds

7. A customer asks what the recommended tire rotation interval is. The vehicle has a fullsize matching spare tire. Which of the following is the MOST complete and correct response?

A. Tire rotation is only necessary when uneven wear becomes visible

B. Rotate the four road tires every 5,000–7,500 miles; the spare should never be included in the rotation

C. Rotate tires every 5,000–7,500 miles per the manufacturer's recommendation, and some manufacturers recommend including the fullsize spare in a fivetire rotation pattern to equalize wear across all five tires

D. Tire rotation intervals depend on the brand of tire and have no relation to the vehicle manufacturer's maintenance schedule

8. A technician is diagnosing a vehicle that has both a P0300 (Random/Multiple Cylinder Misfire) and a P0171 (System Too Lean — Bank 1). Fuel pressure is within specification. Which of the following BEST explains how these two DTCs are related?

A. A vacuum leak is causing a lean condition that produces misfires across multiple cylinders — fixing the vacuum leak should resolve both codes

B. The misfires are diluting the catalytic converter and creating a false lean reading on the downstream sensor

C. The two codes are unrelated and must be diagnosed as separate faults

D. The ignition system is causing misfires that the O2 sensor interprets as a lean condition

9. A vehicle has a coolant leak that is only visible as dried residue on the engine block. The leak cannot be found with the engine cold. Which diagnostic method is MOST appropriate to locate this type of leak?

A. Adding a stopleak product to the cooling system to seal the leak internally

B. Removing the thermostat and running the engine to increase flow and make the leak visible

C. Performing a visual inspection only and rechecking at the next service

D. Pressurizing the cooling system with a pressure tester and adding UV dye, then using a UV light to trace the leak path on the warm engine

10. Technician A says that when replacing a serpentine belt, the tensioner should also be inspected for wear and proper spring tension. Technician B says that the tensioner never needs replacement because it is designed to last the life of the vehicle. Who is correct?

A. Technician B only

B. Both Technician A and Technician B

C. Technician A only

D. Neither Technician A nor Technician B

11. A vehicle with a manual transmission grinds when shifting into reverse from a stop. It does not grind when shifting into any forward gear. Which of the following is the MOST likely explanation?

A. The clutch disc is contaminated with oil, causing it to drag

B. Most manual transmissions do not have a synchronizer on the reverse gear, so the input shaft must come to a complete stop before engaging reverse — brief grinding occurs if the shaft is still spinning

C. The reverse idler gear is worn and must be replaced

D. The clutch release bearing has failed and is not fully disengaging the clutch

12. A vehicle's check engine light is on, and the scan tool shows DTC P0101 (MAF Sensor Circuit Range/Performance). The technician inspects the air intake system and finds the air filter box lid is not latched securely. Which of the following explains how this could set the code?

A. An unsealed air filter box allows unmetered air to enter after the MAF sensor, causing a discrepancy between measured and actual airflow that the PCM detects as a MAF performance fault

B. The loose lid is creating turbulent airflow that damages the MAF sensor element

C. The loose lid allows water to enter the intake and shortcircuit the MAF sensor connector

D. An unsealed air filter box has no effect on MAF sensor operation because the sensor measures all air regardless of the entry point

13. A customer returns three weeks after a coolant flush complaining that the heater is not producing adequate heat. The engine reaches normal operating temperature. Which of the following is the MOST likely cause related to the recent service?

A. The new coolant is an incompatible type that does not transfer heat effectively

B. The water pump was damaged during the flush procedure

C. The thermostat was inadvertently damaged and is now stuck open

D. Air was trapped in the cooling system during the refill and was not properly bled, creating an air pocket in the heater core that blocks coolant flow

14. A vehicle with a returnless fuel system has a DTC P0087 (Fuel Rail Pressure Too Low During Power Enrichment). The vehicle hesitates and loses power during hard acceleration but idles normally. Which of the following is the MOST likely cause?

A. A leaking fuel injector that floods the engine at idle

B. A faulty fuel pressure sensor reading higher than actual pressure

C. A weak fuel pump that can maintain adequate pressure at idle but cannot deliver sufficient volume under the high demand of wideopen throttle

D. A stuckclosed fuel pressure regulator causing excessive pressure that overwhelms the injectors

15. A technician is performing a prepurchase inspection on a used vehicle. The dipstick shows the transmission fluid is dark brown with a slight burnt smell, but there are no current shift complaints. What should the technician report to the customer?

A. The transmission is in good condition since it is shifting normally

B. The fluid condition indicates the transmission has experienced excessive heat and internal wear may be present — the customer should factor potential transmission repair or replacement into the purchase decision

C. The fluid should be changed immediately and the transmission will be restored to likenew condition

D. Brown transmission fluid is the normal color for a highmileage vehicle and is not a concern

16. A vehicle's driverside mirror heater does not work. The passengerside mirror heater operates normally. Both mirrors are controlled by the same switch and circuit. Which of the following is the MOST likely cause?

A. A broken heating element or connector in the driver's side mirror assembly

B. A faulty mirror control switch that only sends power to one side

C. A blown fuse for the mirror heater circuit

D. A faulty body control module that has deactivated the driver's side heater output

17. A vehicle's engine has a ticking noise that occurs at exactly half the crankshaft speed. Which of the following components operates at half crankshaft speed and could be the source?

A. The water pump impeller

B. The oil pump gears

C. The alternator rotor

D. The camshaft, which rotates at half crankshaft speed in a 4stroke engine and drives the valve train

18. A technician discovers that a vehicle's coolant was topped off with plain water during an emergency roadside repair six months ago. The vehicle is now in for regular service. Which of the following is the correct action?

A. Leave the diluted coolant since the vehicle has operated without issue for six months

B. Add a coolant conditioner to restore the freeze and corrosion protection properties

C. Perform a complete coolant flush, refill with the manufacturerspecified coolant at the correct concentration, and test freeze point and pH to verify protection levels

D. Add only the recommended coolant concentrate to the existing water until the proper color is achieved

19. Technician A says that a brake caliper that has been rebuilt or replaced on one side of the axle should always be accompanied by replacement or rebuilding of the caliper on the opposite side. Technician B says that it is acceptable to replace only the faulty caliper as long as it is the same specification as the original. 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

20. A vehicle has an exhaust drone at highway cruising speed. The technician performs a thorough exhaust system inspection and finds no leaks, loose hangers, or damaged components. The muffler and resonator appear intact externally. Which of the following is the MOST likely cause?

A. A restricted catalytic converter creating backpressure resonance

B. An exhaust manifold crack that only opens at highway temperature

C. A loose engine accessory bracket vibrating at a frequency that coincides with highway RPM

D. Internal baffle deterioration inside the muffler or resonator that has changed the exhaust system's tuned frequency, even though the exterior appears undamaged

21. A vehicle with a singlepiston floating caliper has a brake pull to the left. The left front brake is applying with more force than the right. Both calipers are the same type and brake pads are evenly worn on both sides. Which of the following is the MOST likely cause?

A. The left front rotor is thicker than the right front rotor

B. A restricted or collapsed brake hose on the right front that is not allowing full hydraulic pressure to reach the right caliper

C. The left front brake pads have a higher friction coefficient than the right

D. The proportioning valve is directing more pressure to the left front brake

22. A customer reports that the vehicle's interior lights stay on indefinitely after all doors are closed. The dome light override switch on the headlight switch is in the OFF position. Which of the following is the MOST likely cause?

A. A faulty headlight switch with a shorted interior light circuit

B. A weak battery that is providing reduced voltage to the BCM timer circuit

C. A door jamb switch (door ajar switch) on one of the doors that is stuck in the open position or misadjusted, signaling to the BCM that a door is still open

D. An aftermarket remote start system interfering with the interior lighting timer

23. A technician measures the voltage at the battery terminals during cranking. The voltmeter reads 9.2 volts. The engine cranks at a normal speed and starts. Which of the following is the correct interpretation?

A. The voltage is within the acceptable range — cranking voltage should not drop below 9.6 volts on most systems, and 9.2 volts is borderline but acceptable if the engine cranks and starts normally at the current temperature

B. The battery has failed and must be replaced immediately

C. The starter motor is drawing excessive current, causing the low voltage

D. The alternator is not providing supplemental voltage during cranking

24. A vehicle with a mass airflow (MAF) sensor has a hesitation on acceleration but idles smoothly. The technician unplugs the MAF sensor and the hesitation improves. What does this indicate?

A. The wiring harness to the MAF sensor has an intermittent short to ground

B. The air filter is so restricted that it is skewing the MAF sensor reading

C. The PCM is defective and cannot process the MAF signal correctly

D. The MAF sensor is providing inaccurate data — when unplugged, the PCM defaults to a calculated airflow estimate that is more accurate than the faulty sensor's actual reading

25. A technician replaces the front oxygen sensors on a vehicle. After the repair, the check engine light returns with codes P0131 and P0151 (O2 Sensor Circuit Low Voltage — Bank 1 and Bank 2). Both sensors were replaced with the same aftermarket part number. Which of the following is the MOST likely cause?

A. The catalytic converters have failed and are contaminating the new sensors

B. The replacement sensors are incorrect for the application — they may be conventional narrowband sensors installed where wideband airfuel ratio sensors are required, or vice versa

C. Both new sensors arrived defective from the manufacturer

D. The sensor connectors were swapped between Bank 1 and Bank 2

26. A vehicle's power steering fluid level drops gradually over several months. There is no fluid visible on the ground under the vehicle. Which of the following is the MOST likely location of the leak?

A. The power steering pump shaft seal, which leaks only under pressure and drips onto the exhaust where it burns off

B. The steering gear input shaft seal, which leaks and drips onto the subframe where it accumulates unseen

C. The power steering rack end seals (bellows boots), which contain the leaked fluid inside the boots and hide the leak from external view

D. The power steering cooler line, which has a pinhole leak that only weeps at operating temperature

27. A technician is asked to perform a fourwheel alignment on a vehicle with modified (lowered) suspension and aftermarket coilover struts. The alignment angles cannot be brought within the original factory specification. Which of the following is the correct action?

A. Align the vehicle as close to factory specifications as possible, document the readings and the modification, and inform the customer that the modified suspension prevents achieving factory alignment specs — tire wear and handling may be affected

B. Force the alignment into specification by bending the steering knuckles

C. Refuse to perform the alignment because the vehicle has been modified

D. Set all angles to zero regardless of specification since the factory numbers no longer apply to the modified geometry

28. A vehicle equipped with automatic climate control has the interior temperature set to 72°F. The system alternates between blowing cold A/C air and warm heater air every few minutes, never stabilizing. The temperature display shows the cabin temperature fluctuating between 68°F and 76°F. Which of the following is the MOST likely cause?

A. A faulty compressor clutch that engages and disengages erratically

B. An incorrect refrigerant charge causing compressor cycling

C. A malfunctioning blend door actuator that overshoots in both directions

D. A faulty incar temperature sensor or aspirator fan that is providing inaccurate cabin temperature readings to the climate control module, causing overcorrection in both directions

29. A vehicle has a single rear axle seal leak on the driver's side. The technician notices brake fluid contamination on the inside of the left rear brake drum and shoes. Which of the following is the correct repair scope?

A. Replace only the axle seal and reinstall the existing brake components after cleaning

B. Replace the axle seal, replace BOTH rear brake shoe sets and hardware, clean or replace BOTH drums, and inspect the wheel cylinder — brake fluid contamination permanently degrades friction material and the opposite side should be matched

C. Replace the axle seal and the left rear brake shoes only, since the right side is not contaminated

D. Flush the brake fluid to remove any contamination and reinstall all existing components

30. A vehicle has a P0420 (Catalyst System Efficiency Below Threshold — Bank 1). The technician verifies that the upstream O2 sensor switches normally and the downstream O2 sensor mirrors the upstream. Before recommending catalytic converter replacement, which of the following should the technician verify FIRST?

A. That the exhaust system has no aftermarket modifications

B. That the engine has never been tuned or reprogrammed

C. That there are no exhaust leaks, misfires, or other engine conditions that could be damaging the converter — treating the cause prevents destroying the new converter

D. That the vehicle has accumulated enough mileage for the converter to have naturally worn out

31. A technician is inspecting a vehicle and finds that the rear shock absorbers have visible oil on the shock body. The vehicle has 60,000 miles. The customer has no ride quality complaints. What is the correct recommendation?

A. Replace both rear shocks — visible oil indicates seal failure, and ride quality deterioration is often gradual enough that the driver does not notice until the new shocks are installed for comparison

B. Clean the oil off and recheck at the next service since the customer is not complaining

C. Top off the shock absorber fluid through the dust cover

D. The oil is a normal factoryapplied rust preventive and does not indicate failure

32. A vehicle's check engine light is on with DTC P0401 (EGR Flow Insufficient). The EGR valve has been tested and operates correctly. Which of the following is the MOST likely cause?

A. A faulty EGR valve that is stuck closed despite testing good

B. A defective upstream oxygen sensor causing a false EGR reading

C. An overcharged A/C system creating excessive engine load that mimics EGR failure

D. Carbonclogged EGR passages in the intake manifold that restrict exhaust gas flow even though the valve itself opens properly

33. A customer asks whether it is safe to drive with the ABS warning light illuminated. Which of the following is the correct response?

A. The vehicle cannot be driven at all because the entire braking system is disabled

B. The conventional (nonABS) brakes still function normally — the ABS antilock function is disabled, meaning the wheels can lock during hard braking on slippery surfaces; the vehicle should be diagnosed promptly but can be driven carefully

C. The vehicle is safe to drive at all speeds because ABS is a convenience feature that does not affect braking performance

D. The ABS warning light is an indicator only and requires no attention until the next scheduled service

34. A vehicle equipped with Variable Valve Timing (VVT) has sluggish acceleration and a P0014 (Camshaft Position B — Timing OverAdvanced, Bank 1). The engine oil was changed recently with the correct specification oil. Which of the following should the technician check FIRST?

A. The timing chain for excessive stretch

B. The camshaft position sensor for signal accuracy

C. The oil level — because the VVT system is hydraulically actuated by oil pressure, a low oil level can cause insufficient pressure to properly control the VVT actuator position

D. The VVT solenoid screen for debris

35. A technician is diagnosing a vehicle with an intermittent stalling condition that occurs only during left turns. The engine restarts immediately. Fuel level is above half a tank. Which of the following is the MOST likely cause?

A. A failing fuel pump that loses prime when fuel shifts away from the pickup during left turns, momentarily starving the engine

B. A loose battery cable that disconnects momentarily during the lateral Gforce of turning

C. A faulty crankshaft position sensor that loses signal when the engine tilts during cornering

D. A worn ignition lock cylinder that momentarily loses electrical contact during steering input

36. A vehicle's windshield washer pump runs but no fluid reaches the windshield. The reservoir is full. Which of the following is the MOST likely cause?

A. A burntout washer pump motor that is drawing current but not producing flow

B. A faulty washer fluid level sensor that has deactivated the pump output

C. A clogged washer fluid filter screen at the bottom of the reservoir

D. A cracked, disconnected, or clogged washer hose or plugged washer nozzle between the pump and the windshield

37. A technician is testdriving a vehicle after a transmission fluid and filter service. The transmission now shifts harshly into every gear. The fluid level is correct. The transmission shifted normally before the service. Which of the following is the MOST likely cause?

A. The new transmission fluid is incompatible with the old fluid remaining in the torque converter

B. The incorrect transmission fluid type was installed — the wrong fluid specification can drastically alter shift quality because different fluids have different friction modifier properties

C. The transmission filter was installed backward, restricting flow

D. The transmission pan gasket is leaking, causing a gradual pressure loss

38. Technician A says that the fuel tank on a vehicle must be less than threequarters full before performing a fuel pump replacement to reduce weight and fuel exposure. Technician B says that the fuel should be drained or siphoned to a safe level before dropping the fuel tank. Who is correct?

A. Technician A only

B. Neither Technician A nor Technician B

C. Both Technician A and Technician B

D. Technician B only

39. A vehicle's rear window wiper operates normally, but the rear window washer does not spray fluid. The front windshield washers work normally. Which of the following is the MOST likely cause?

A. A clogged or disconnected washer hose at the rear of the vehicle, or a failed rear washer pump (if separate from the front) or a faulty check valve in the rear washer supply line

B. A faulty combination switch that does not activate the rear washer circuit

C. A blown fuse for the rear wiper and washer circuit

D. The washer reservoir is empty despite the front washers working (separate reservoir system)

40. A customer reports that the vehicle pulls to the right when braking AND pulls to the right when driving straight at highway speed. Which of the following explanations accounts for BOTH symptoms?

A. A sticking right front caliper that causes extra drag during driving and extra braking force during stops

B. The vehicle may have two separate issues: a brake pull (restricted left front hose or sticking right caliper) AND an alignment pull (caster or camber imbalance) — each symptom should be diagnosed independently because the causes may be different

C. A worn right front tire with less traction than the left

D. A misadjusted steering gear that shifts the entire steering geometry to the right

41. A vehicle's battery light illuminates at idle but turns off when the engine speed is raised above 1,500 RPM. The alternator belt is tight and in good condition. Which of the following is the MOST likely cause?

A. A faulty battery that cannot accept charge at low alternator RPM

B. A bad battery temperature sensor that miscalculates the charge rate at idle

C. A corroded fusible link between the alternator and the battery

D. An alternator with worn brushes or a developing internal fault that reduces output at low RPM but can still produce adequate voltage at higher speeds

42. A vehicle is brought in for a noise complaint. The technician hears a metallic rattle from under the vehicle that occurs at idle and disappears under acceleration. Which of the following is the MOST likely cause?

A. A worn engine mount that allows excessive engine movement at idle

B. A loose driveshaft Ujoint that clunks at idle

C. A loose or cracked exhaust heat shield that vibrates at idle frequency but is dampened by increased exhaust flow and pressure under acceleration

D. A worn serpentine belt tensioner that rattles when there is no load on the belt

43. A technician replaces the thermostat on a vehicle. After the repair, the customer returns stating the engine takes much longer than before to reach operating temperature and the heater output is reduced. Which of the following MOST likely occurred during the repair?

A. The replacement thermostat has a lower opening temperature rating than the original — a thermostat with too low a rating allows coolant to flow to the radiator too early, preventing the engine from reaching proper operating temperature

B. The coolant was diluted with too much water during refilling

C. The new thermostat is defective and stuck closed

D. The technician overtorqued the thermostat housing bolts, cracking the housing

44. A vehicle has a clunking noise from the rear when accelerating from a stop and again when decelerating. The noise occurs during the transition between acceleration and deceleration in both directions. Which of the following is the MOST likely cause?

A. Worn rear shock absorber bushings

B. Excessive backlash in the rear differential ring and pinion gears, or worn Ujoints in the driveshaft that allow rotational play

C. A cracked rear coil spring

D. Worn rear wheel bearings

45. A customer asks the technician to explain what "maintenance and light repair" service includes and what types of repairs should be referred to a more advanced technician. Which of the following repairs falls OUTSIDE the typical scope of an MLR technician?

A. Replacing brake pads, rotors, shoes, and drums

B. Performing wheel alignments and tire services

C. Replacing serpentine belts and accessory components

D. Disassembling an automatic transmission for internal clutch pack replacement or valve body rebuild

46. A vehicle's scan tool shows longterm fuel trim (LTFT) at +5% on Bank 1 and +4% on Bank 2. Shortterm fuel trim (STFT) on both banks is oscillating between 2% and +3%. Which of the following is the correct interpretation?

A. The engine has a significant vacuum leak that must be located and repaired immediately

B. The fuel injectors are severely clogged and need to be replaced

C. The fuel system is operating within normal parameters — LTFT of ±5% and STFT oscillating near zero indicate the PCM is making minor corrections that are well within acceptable limits

D. The oxygen sensors are lazy and responding too slowly to fuel mixture changes

47. A technician replaces a crankshaft position (CKP) sensor on a vehicle. After the repair, the engine starts but runs rough and has poor performance. There are no DTCs. Which of the following is the MOST likely cause?

A. The replacement CKP sensor has a slightly different air gap specification than the original, or the sensor is not fully seated in its bore, creating an incorrect signal that alters ignition and fuel injection timing

B. The new CKP sensor is defective and producing no signal

C. The engine timing chain jumped during the repair

D. The PCM requires reprogramming after any CKP sensor replacement

48. A vehicle's right rear turn signal works when the turn signal stalk is activated, but the same bulb does not illuminate when the hazard (emergency) flashers are turned on. All other hazard lights work. Which of the following is the MOST likely cause?

A. A burntout right rear bulb that works intermittently due to a broken filament

B. A dualfilament bulb with one working filament and one burnedout filament — the turn signal and hazard functions use different filaments within the same bulb

C. A faulty hazard flasher relay that does not power the right rear circuit

D. A body control module fault that prevents hazard mode from activating the right rear output

49. A vehicle has a P0456 (EVAP Small Leak). The technician performs a smoke test and finds smoke escaping from around the fuel filler neck where it connects to the fuel tank. Which of the following is the correct repair?

A. Replace the fuel filler cap with a highersealing aftermarket unit

B. Apply RTV sealant around the filler neck connection to seal the leak

C. Replace the charcoal canister since the leak is in the EVAP system

D. Replace the filler neck seal, Oring, or gasket at the tank connection, and retest to verify the repair

50. Technician A says that underinflation causes excessive tire wear on both the inner and outer edges of the tread (shoulder wear). Technician B says that overinflation causes excessive wear in the center of the tread. 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

51. A vehicle's scan tool data shows the engine coolant temperature (ECT) sensor reading 230°F, but the temperature gauge on the dashboard shows normal operating temperature. Which of the following MOST likely explains this discrepancy?

A. The dashboard gauge and the PCM may use separate coolant temperature sensors — the PCM sensor has failed or is reading high, while the gauge sensor is accurate

B. The scan tool is displaying the reading in Celsius and the technician is misinterpreting it as Fahrenheit

C. The dashboard gauge is always more accurate than the scan tool because it reads directly from the sensor

D. The PCM is averaging the ECT reading over time, which always differs from the dashboard gauge

52. A vehicle has been driven through deep standing water. Afterward, the brakes feel weak and require excessive pedal pressure to stop the vehicle. There is a grinding sound from all four wheels. Which of the following is the correct action?

A. Replace all four sets of brake pads immediately since water has permanently contaminated the friction material

B. The brake system has suffered a hydraulic failure from water intrusion and must be completely rebuilt

C. Pull over and wait for the brakes to dry completely before driving again

D. Apply the brakes lightly and repeatedly while driving slowly in a safe area to generate heat that evaporates the water film from the rotor and pad surfaces — this restores normal friction and is the standard recovery procedure for watersoaked brakes

53. A vehicle's right front headlight aims noticeably higher than the left, even though neither headlight has been replaced or adjusted recently. Which of the following is the MOST likely cause?

A. The right front headlight bulb has shifted in its socket

B. A worn or broken spring in the right front suspension that allows that corner of the vehicle to sit higher, changing the headlight aim relative to the road

C. The headlight leveling motor on the right side is stuck in the up position

D. An electrical fault in the headlight circuit causing the right bulb to burn at higher intensity

54. A vehicle is brought in with a customer complaint of a whistling noise that occurs only at highway speed and disappears when the windows are cracked open slightly. Which of the following is the MOST likely cause?

A. A worn serpentine belt that whistles under load at highway RPM

B. A vacuum leak in the intake manifold that resonates at specific engine speeds

C. A wind noise caused by a deteriorated door seal, window molding, or weatherstripping that allows air to enter the cabin at speed and creates a whistle as it passes through the gap

D. A faulty HVAC blower motor bearing that is speedsensitive

55. A technician completes a repair and the vehicle is ready for customer pickup. Before returning the vehicle, which of the following is the MOST important final step?

A. Verify the repair by road testing or operational testing, confirm the original complaint is resolved, check for any new issues introduced during the repair, and ensure the vehicle is clean and presentable

B. Document the repair on the work order and park the vehicle in the pickup area

C. Call the customer immediately to pick up the vehicle and describe the repair over the phone

D. Clear all DTCs from the scan tool and turn off all warning lights before the customer sees them

Practice Exam 8: Answer Key and Full Explanations

1. D — A floating caliper relies on lubricated slide pins to move laterally and apply equal clamping force on both the inner and outer pads. If the slide pins are seized, corroded, or dry, the caliper cannot float — only the inner pad (pushed directly by the piston) contacts the rotor, while the outer pad barely touches. This produces rapid inner pad destruction within days. Servicing slide pins is a mandatory step during any brake pad replacement, and skipping it is the number one cause of uneven pad wear comebacks.

2. B — The vehicle speed sensor provides speed data to the speedometer, ABS module, traction control module, and transmission controller simultaneously. A single VSS failure logically produces all four symptoms: zero speedometer reading (no speed input to display), ABS and traction control warning lights (both systems require wheel/vehicle speed data to function), and no upshifts (the transmission controller has no speed reference to command gear changes). This multi-symptom, single-cause pattern is the highest-difficulty question format on the ASE exam.

3. C — Cartridge-style oil filters use a reusable plastic or aluminum canister with a removable cap. The cap seats against the engine with an O-ring that prevents oil leaks. Unlike spin-on filters that carry their own integral gasket, the cartridge cap O-ring must be inspected and replaced each time the filter element is changed. Reusing a compressed or damaged O-ring results in an oil leak that can drain the engine in minutes.

4. A — Technician A is correct. A bent wheel creates a lateral or radial distortion that produces a vibration independent of tire balance. A balancing machine can compensate for the weight imbalance caused by the bend, but it cannot correct the physical shape deformation — the wheel still wobbles as it

rotates. Technician B is incorrect because balancing addresses weight distribution only, not geometric runout. The bent wheel must be replaced or professionally straightened.

5. D — The diagnostic path has already confirmed that the PCM is commanding the clutch ON, and battery voltage plus ground are present at the clutch connector. The only component remaining between the verified electrical supply and the mechanical engagement is the clutch coil itself. An open (burned-out) coil winding has infinite resistance, cannot create a magnetic field despite having power and ground, and therefore cannot pull the clutch plate against the pulley to engage the compressor.

6. B — If the engine had a genuine oil pressure problem at highway speed, bearing noise would be audible because the rotating components would be starved for lubrication. The absence of engine noise combined with a gauge reading of zero at highway speed strongly suggests a faulty sending unit or gauge — not an actual pressure loss. Sending units can fail under vibration or heat, causing erratic or zero readings while actual pressure remains normal. Verifying with a mechanical gauge confirms the diagnosis.

7. C — The most complete answer includes both the standard rotation interval (5,000–7,500 miles per most manufacturers) and the option to include the full-size spare in a five-tire rotation pattern. Some manufacturers — notably those with full-size matching spares — recommend rotating all five tires to equalize tread wear across the set, which extends overall tire life by 20% and ensures the spare has adequate tread if ever needed in an emergency.

8. A — A vacuum leak introduces unmetered air into the intake manifold downstream of the MAF sensor. The PCM does not account for this extra air in its fuel calculations, creating a lean air-fuel mixture that directly triggers the P0171 lean code. The lean mixture simultaneously causes incomplete combustion across multiple cylinders — each cylinder experiences a slightly different lean severity depending on its proximity to the leak — producing the random/multiple cylinder misfires that set the P0300. One root cause, two DTCs.

9. D — A cooling system pressure test simulates operating pressure and makes external leaks visible by forcing coolant through the leak path. UV dye added to the coolant fluoresces brightly under ultraviolet light, tracing even the smallest leak path to its origin point — especially on surfaces where dried coolant residue has camouflaged the leak. This combination of pressure testing and UV dye is the industry-standard method for locating difficult-to-find coolant leaks.

10. C — Technician A is correct. The automatic tensioner is a wear item that gradually loses spring tension, develops bearing play, and can seize or fail — leaving the new belt loose or misaligned. Best

practice during any belt replacement is to check the tensioner for smooth pivot action, adequate spring tension (the tensioner arm should resist movement and snap back), and bearing roughness. Technician B is incorrect — no spring-loaded mechanical component lasts forever, and tensioner failure is a common cause of belt noise and premature belt wear.

11. B — Most manual transmissions use synchronizers on all forward gears but NOT on reverse. The synchronizer's job is to match shaft speeds before gear engagement. Without a synchronizer, the reverse gear relies on the input shaft coming to a complete stop before the reverse idler meshes cleanly. If the input shaft is still spinning slightly when reverse is selected — which is common immediately after the clutch is disengaged — the gears clash and produce a brief grinding noise. Pausing a moment in Neutral before selecting reverse allows the shaft to stop spinning.

12. A — The MAF sensor measures all air entering through its sensing element. If the air filter box lid is not sealed, air enters the intake downstream of the MAF sensor through the gap, bypassing the sensing element. The PCM calculates fuel delivery based on the MAF reading, but the actual airflow is greater than measured, creating a lean condition. The PCM detects the discrepancy between expected and actual engine performance and flags it as a MAF range/performance error.

13. D — Air trapped in the cooling system after a coolant flush creates air pockets that displace liquid coolant from passages that rely on liquid flow. The heater core sits at a high point in the cooling system on many vehicles and is especially susceptible to trapped air. An air pocket in the heater core prevents hot coolant from circulating through it, dramatically reducing heat output even though the engine reaches full operating temperature. Properly bleeding the cooling system through the bleed valve or bleeder nipple eliminates the trapped air and restores heater performance.

14. C — A returnless fuel system with a P0087 code specifically indicates insufficient fuel rail pressure under high-demand conditions. At idle, fuel demand is low and even a weakened pump can maintain adequate pressure. Under wide-open throttle, the injectors demand maximum fuel volume, and a pump with worn impellers or weakened motor windings cannot deliver enough fuel flow to maintain rail pressure — causing the pressure to drop, the engine to lean out, and the hesitation the customer describes.

15. B — Dark brown transmission fluid with a burnt odor is evidence that the clutch pack friction material has been subjected to excessive heat, causing the organic friction material and its binding agents to break down. Even though the transmission currently shifts normally, the degraded fluid indicates internal wear has already occurred. The customer should understand that the transmission may be nearing failure, and this knowledge should factor into their purchase price negotiation and their expectations for potential future repair costs.

16. A — Since the passenger-side mirror heater works, the fuse, switch, and control circuit are all functional — they share the same fuse and switch. The fault is isolated to the driver's side mirror assembly: either the heating element itself has burned open, or the connector at the mirror has corroded, become disconnected, or the wire to the element has broken inside the mirror housing. Checking for voltage at the driver's mirror connector with the heater activated confirms whether the wiring is intact up to the mirror.

17. D — In a four-stroke engine, the camshaft completes one full revolution for every two crankshaft revolutions — operating at exactly half crankshaft speed. The camshaft opens and closes the intake and exhaust valves and drives the valve train components (lifters, pushrods, rocker arms). A noise occurring at half engine speed is therefore timed to the camshaft's rotation and points to a valve train source: a worn cam lobe, collapsed lifter, misadjusted rocker, or worn cam bearing.

18. C — Plain water provides no freeze protection, no boil-over protection, and no corrosion inhibition for the aluminum, steel, iron, and copper components in the cooling system. Six months of operation on diluted coolant has exposed internal surfaces to accelerated corrosion. A complete flush removes the degraded mixture, and refilling with the manufacturer-specified coolant at the proper concentration (typically 50/50) restores freeze protection, boiling point elevation, and corrosion inhibitor coverage. Testing the refilled system with a refractometer confirms proper freeze point.

19. A — Technician B is correct. While replacing calipers in pairs is considered best practice by many shops for balanced braking, it is not an absolute requirement as long as the replacement caliper matches the original specification — same bore size, same bracket type, and same piston configuration. A properly functioning replacement caliper on one side paired with a properly functioning original caliper on the other side will provide equal hydraulic clamping force because both receive the same pressure from the master cylinder.

20. D — An exhaust drone — a low-frequency resonance felt and heard in the cabin at a specific RPM range — with no visible external damage points to internal deterioration. Mufflers and resonators use internal baffles, perforated tubes, and packing material tuned to cancel specific sound frequencies. When these internal components corrode, shift, or disintegrate, the tuned cancellation changes, allowing certain frequencies to pass through unchecked. The exterior shell can appear perfect while the internal sound-control elements have completely failed.

21. B — In a split brake system with equal calipers and equal pad material, unequal braking force between sides is caused by unequal hydraulic pressure delivery. A restricted or internally collapsed brake hose on the right front acts like a check valve — it may allow some fluid through under moderate pressure but cannot deliver full volume under hard braking. The left front receives full pressure and

applies full force, while the right front receives reduced pressure, creating a pull toward the side with more braking force (the left).

22. C — The BCM controls interior lighting duration based on door ajar switch inputs. If any door jamb switch is stuck in the "open" position — from physical damage, misadjustment, or corrosion — the BCM receives a continuous "door open" signal and keeps the interior lights on indefinitely. Checking the door ajar indicator on the instrument cluster or scan tool confirms which door the BCM believes is open. Adjusting or replacing the faulty door switch restores normal timed lighting operation.

23. A — During cranking, battery voltage drops because the starter motor draws 150–300+ amps. Most manufacturers specify a minimum cranking voltage of 9.6 volts at 70°F. A reading of 9.2 volts is slightly below this threshold but is borderline — if the engine cranks at normal speed and starts, the battery may still be serviceable, especially in colder temperatures where voltage drops further. The battery should be noted for monitoring and ideally load-tested to determine whether it is weakening toward failure.

24. D — Unplugging the MAF sensor forces the PCM to switch to a calculated (default) airflow estimate based on RPM, throttle position, and other inputs. If the engine runs BETTER without the MAF than with it, the MAF sensor is providing inaccurate data that is worse than the PCM's calculated estimate. This confirms the MAF sensor is the fault — typically from contamination, a failing hot wire element, or an internal circuit problem. Cleaning or replacing the MAF sensor restores accurate airflow measurement.

25. B — When BOTH newly installed O2 sensors immediately set identical low-voltage codes, the sensors themselves are suspect — and the most common cause is installing the wrong sensor type. Many modern vehicles use wideband air-fuel ratio sensors (which operate on a different voltage principle than conventional narrowband O2 sensors) in the upstream position. Installing a narrowband sensor where a wideband is required produces voltage output the PCM cannot interpret correctly, immediately triggering a circuit code on both banks.

26. C — Rack-and-pinion steering gears have seals at both ends of the rack where the inner tie rods exit the housing. When these end seals fail, power steering fluid leaks past them but is contained within the rubber bellows boots that cover the inner tie rod assemblies. The boots fill with fluid over time, hiding the leak from visual inspection — there is no drip on the ground because the fluid is trapped inside the boot. Squeezing the bellows boots reveals the trapped fluid and confirms the leak location.

27. A — A modified suspension changes the geometry that the factory alignment specifications were designed for. The technician's professional responsibility is to set the alignment as close to specification as possible within the available adjustment range, document all the actual measured angles, and clearly communicate to the customer that the modifications prevent achieving factory specifications. This documentation protects the shop if the customer later complains about tire wear or handling that results from the modification.

28. D — Automatic climate control systems use an in-car temperature sensor (often with a small aspirator fan that draws cabin air across the sensor) to continuously measure the actual cabin temperature. If this sensor is faulty, disconnected, or if the aspirator fan has failed, the module receives inaccurate cabin temperature data and overcorrects — blowing cold when it thinks the cabin is too warm, then switching to hot when it reads too cold. This oscillating overcorrection in both directions is the signature of a faulty feedback sensor in any closed-loop control system.

29. B — Brake fluid is petroleum-based enough to permanently swell and degrade brake shoe friction material — once contaminated, the shoes cannot be cleaned and reused because the friction properties are permanently altered. Both sides must receive new shoes and hardware to maintain balanced braking, even though only one side was directly contaminated. Additionally, the drums on both sides should be cleaned or replaced, and the wheel cylinders should be inspected for seal damage from the axle oil contamination.

30. C — A new catalytic converter installed on an engine that has an active misfire, exhaust leak, or other unresolved condition will be damaged by the same fault that destroyed the original. Misfires send unburned fuel into the converter that ignites and overheats the substrate. Exhaust leaks introduce oxygen that skews O2 sensor readings and can cause the PCM to run the engine rich. The technician must verify the engine is running correctly, with no misfires, proper fuel trim, and a sealed exhaust, before installing a $500–$2,000 catalytic converter.

31. A — Shock absorbers are sealed hydraulic units that cannot be refilled. Visible oil on the shock body means the internal shaft seal has failed, allowing the hydraulic damping fluid to leak past the piston rod. Once fluid is lost, the shock can no longer control suspension oscillation — the damping force is reduced progressively. Drivers often do not notice the gradual degradation because it occurs over thousands of miles. Replacing the shocks in pairs restores ride control that the driver typically describes as "I didn't realize how bad it had gotten."

32. D — The EGR valve itself has been confirmed functional — it physically opens and closes on command. However, the exhaust gas must flow through passages in the intake manifold to reach the combustion chambers. Over time, these passages clog with carbon deposits, restricting or completely

blocking EGR flow even though the valve is open. The PCM detects insufficient flow through the EGR diagnostic monitor and sets P0401. Cleaning the carbon-clogged passages in the intake manifold restores proper EGR flow.

33. B — When the ABS warning light is on, the ABS system has detected a fault and disabled itself — but the conventional hydraulic brake system continues to function normally. The vehicle will stop, but without ABS, the wheels can lock during hard braking on slippery surfaces, increasing stopping distance and reducing directional control. The customer should be advised that the vehicle is drivable but should be diagnosed promptly, and they should avoid aggressive braking situations until the ABS is repaired.

34. C — The VVT system uses engine oil pressure directed through the VVT solenoid to hydraulically position the camshaft phaser. If the oil level is low, the oil pump may not be able to maintain sufficient pressure to properly control the phaser — especially at idle or low RPM when oil pressure is already at its minimum. Before pursuing electrical or mechanical VVT faults, the technician should verify the oil level is correct. A simple top-off may resolve the code entirely.

35. A — An engine stall that occurs specifically during left turns and restarts immediately suggests a momentary loss of fuel delivery. During a left turn, centrifugal force pushes fuel in the tank to the right side. If the fuel pump is weak, the pickup is partially blocked, or the fuel level is at a critical threshold despite reading above half, the pump can momentarily lose its fuel supply as the fuel shifts away. The engine starves for fuel, stalls, and restarts immediately when fuel settles back over the pickup.

36. D — The washer pump is running (confirmed audible), which means the fuse, switch, and motor are all functional. Fluid is present in the reservoir but is not reaching the windshield, which means the fluid path is blocked or broken somewhere between the pump and the nozzles. A disconnected hose, a cracked hose that diverts fluid under the hood, a frozen or clogged nozzle, or a plugged inline check valve are the most common causes. Tracing the hose from the pump to the nozzles while the pump is running quickly reveals where the fluid stops.

37. B — Automatic transmission fluids are not interchangeable. Each manufacturer specifies a fluid with particular friction modifier properties engineered to match the clutch pack material, the valve body calibration, and the shift programming of their transmission. Installing a fluid with different friction characteristics — even if it looks identical and meets a "universal" specification — can drastically change shift firmness, timing, and feel. This is one of the most common and easily preventable transmission service comebacks.

38. C — Both technicians express valid safety principles. A full fuel tank weighs 100–200+ pounds, making the tank dangerously heavy to handle and increasing fuel exposure risk during removal.

Reducing the fuel level — through siphoning, running the vehicle to burn fuel down, or draining through the tank drain — reduces weight for safe handling and minimizes the volume of fuel that can spill if a fitting separates during removal. Both the weight concern (Technician A) and the draining procedure (Technician B) are correct safety practices.

39. A — Since the rear wiper motor operates normally and the front washers work, the fuse, washer fluid supply, and main washer pump are all functional. The rear washer system branches off from the front at a tee fitting, check valve, or uses a separate pump output. A clogged hose (common at the hinge where the hose enters the rear hatch or liftgate), a disconnected line at the liftgate, or a failed check valve in the rear supply line prevents fluid from reaching the rear nozzle while the front system operates independently.

40. B — A pull during braking and a pull during straight-line driving are frequently caused by DIFFERENT faults, even though they produce the same directional symptom. A brake pull is caused by unequal braking force (restricted hose, sticking caliper, contaminated pad). A driving pull is caused by alignment angles (unequal caster or camber), tire condition, or suspension geometry. Assuming one cause explains both symptoms leads to incomplete diagnosis. Each symptom should be investigated and repaired independently — the two faults may coincidentally pull in the same direction.

41. D — An alternator that produces adequate voltage at higher RPM but drops below the warning threshold at idle has a developing internal fault. The most common cause is worn carbon brushes that maintain adequate contact with the slip rings at higher rotational speed (centrifugal force helps) but lose contact at low RPM when the force is insufficient. A developing stator or rectifier fault can produce the same pattern. The alternator produces less output at low RPM by design, and any internal weakness manifests first at idle.

42. C — An exhaust heat shield is a thin stamped metal cover that protects surrounding components from exhaust heat. When its spot welds crack or mounting hardware loosens, the shield vibrates freely against the exhaust pipe at certain frequencies. At idle, the exhaust pulses are at a frequency that excites the shield into audible rattling. Under acceleration, increased exhaust flow velocity and pressure dampen the shield against the pipe, silencing the rattle. Retightening, rewelding, or replacing the shield eliminates the noise.

43. A — Thermostats are rated by their opening temperature — typically 180°F, 192°F, or 195°F for most applications. If a replacement thermostat with a lower opening temperature than the original is installed (for example, 160°F instead of 195°F), the thermostat allows coolant to flow to the radiator at a lower temperature, preventing the engine from reaching its designed operating temperature. This causes extended warm-up time, reduced heater output, increased fuel consumption, and potentially even a P0128 code.

44. B — A clunk that occurs during the transition between acceleration and deceleration — in both directions — is caused by rotational play (backlash) in the drivetrain. When the driver lifts off the throttle, the driving force reverses and the drivetrain components shift from the loaded to the unloaded side of their clearance. Excessive ring and pinion backlash in the differential or worn U-joint cross and cap assemblies in the driveshaft allow this rotational slack, producing a distinct clunk at each torque reversal.

45. D — The ASE G1 (Maintenance and Light Repair) certification covers inspection, maintenance, and replacement of external or bolt-on components across all vehicle systems. Internal automatic transmission work — including clutch pack replacement, band adjustment, and valve body rebuilding — requires disassembly of the transmission and falls under the ASE A2 (Automatic Transmission/Transaxle) certification scope. An MLR technician should diagnose the concern, recommend the repair, and refer the vehicle to a technician with the appropriate advanced certification.

46. C — Fuel trim values within ±5% on long-term and oscillating near zero on short-term represent a fuel system that is making minimal corrections and maintaining excellent mixture control. The PCM's target is 0% correction, but real-world operating variables (temperature, altitude, fuel quality, sensor aging) always create small deviations. Corrections of ±5% are well within the acceptable range and do not indicate any fault. Most manufacturers consider fuel trim values concerning only when they exceed ±10% to ±15%.

47. A — A CKP sensor that is not fully seated in its bore or has a different air gap than the original produces a signal with altered amplitude, timing, or waveform. The PCM uses the CKP signal as its primary reference for ignition timing and fuel injection timing — even a slight deviation in signal characteristics can cause the PCM to command spark and fuel at slightly incorrect points in the engine cycle. The engine starts because the signal is present, but runs rough because the timing is imprecise.

48. B — Many rear light assemblies use dual-filament bulbs (such as 1157 or 2057) where one filament serves the turn signal function and a separate filament serves the brake/tail/hazard function. These filaments operate independently within the same bulb envelope. If the hazard filament burns out while the turn signal filament remains intact, the turn signal works normally but the hazard function does not illuminate at that bulb position. Replacing the bulb restores both functions.

49. D — The smoke test has precisely identified the leak location: the filler neck connection to the fuel tank. This connection uses a seal, O-ring, or gasket that has deteriorated, allowing the EVAP system to lose pressure at that point. The correct repair is to replace the specific sealing component at the filler neck joint and then retest with the smoke machine to verify the repair is complete. Replacing the fuel cap or charcoal canister would not address a leak at the filler neck connection.

50. C — Both technicians are correct. Under-inflation causes the tire to deform under load so that the center of the tread lifts away from the road while the shoulders bear the majority of the vehicle's weight — producing accelerated wear on both the inner and outer edges. Over-inflation produces the opposite effect: the center of the tread bulges into the road while the shoulders lift, concentrating wear in the center. These two wear patterns are mirror images of each other and are the most fundamental tire wear diagnostics.

51. A — Many vehicles use TWO separate coolant temperature sensors: one dedicated to the PCM for fuel, ignition, and emissions calculations, and a separate one dedicated to the dashboard temperature gauge. If the PCM's sensor has failed and reads 230°F while the gauge's sensor is accurate and reads normal operating temperature, the two displays disagree. This is a critical concept because the PCM will make fuel and fan control decisions based on its sensor's incorrect reading, even though the gauge appears normal.

52. D — Water between the brake pad friction surface and the rotor acts as a lubricant that drastically reduces friction, causing the weak, grabby, grinding brake feel. The standard recovery procedure is to drive slowly in a safe area while applying light, repeated brake applications. The friction heat generated by each application evaporates the water film, progressively restoring normal pad-to-rotor friction. This is a normal and expected condition after driving through standing water and does not indicate any permanent damage to the brake components.

53. B — Headlight aim is determined by the vehicle's ride height and attitude relative to the road surface. If a front spring on one side has sagged, broken, or weakened, that corner of the vehicle sits lower, tilting the vehicle and aiming the headlight on the opposite (higher) side upward. The headlights themselves have not moved in their housings — the entire vehicle has tilted. Correcting the spring issue restores proper vehicle attitude, which automatically corrects the headlight aim discrepancy.

54. C — A whistling noise at highway speed that disappears when a window is cracked is a pressure-related wind noise. At highway speed, aerodynamic pressure builds against the vehicle's exterior. If a door seal, window molding, or weatherstripping has deteriorated, shrunk, or pulled away, the pressurized air forces its way through the gap, creating a whistle as it enters the cabin. Cracking a window equalizes the interior-exterior pressure differential and eliminates the whistle. Replacing the compromised seal restores the cabin's airtight barrier.

55. A — The final step before returning any vehicle is verification. The technician must confirm the original complaint is resolved through a road test or operational test, verify that no new problems were introduced during the repair (loose fasteners, disconnected sensors, fluid leaks), and return the vehicle in a clean, professional condition. Simply documenting the repair and parking the vehicle (option B) skips

the critical verification step. Clearing DTCs without understanding why they were present (option D) masks potentially unresolved faults and is unprofessional.