PRACTICE EXAM 2: ASE G1 SIMULATION — 55 QUESTIONS

1. A technician notices engine oil on the spark plug threads when performing a tune-up on a 4-cylinder engine. Which of the following is the MOST likely cause?

A. A cracked spark plug porcelain insulator

B. Leaking valve cover gasket

C. Worn piston rings causing blow-by

D. An over-torqued cylinder head bolt

2. A vehicle with an automatic transmission slips only when first driven in the morning but operates normally once warmed up. Which of the following is the MOST likely cause?

A. A worn torque converter clutch

B. An incorrect band adjustment

C. Contaminated transmission fluid

D. Hardened or shrunken transmission seals

3. During a multi-point inspection, a technician observes a serpentine belt with several small cracks on the rib side. What is the correct action?

A. Replace the belt immediately

B. Dress the belt with belt conditioner and recheck at the next service

C. Rotate the belt 180 degrees to extend its service life

D. Note the condition and recheck at the next oil change interval

4. A customer complains of a chirping noise from the front of the engine that increases with engine RPM. The noise disappears when water is sprayed on the serpentine belt. Which of the following is the MOST likely cause?

A. A misaligned or worn belt and/or pulley

B. A failing alternator bearing

C. A loose harmonic balancer bolt

D. A worn water pump impeller

5. While performing an oil change, a technician notices metal particles in the drained oil. Which of the following actions should be taken FIRST?

A. Refill with fresh oil and advise the customer to return in 500 miles

B. Immediately disassemble the engine to locate the source

C. Inform the customer and recommend further diagnosis of internal engine components

D. Flush the engine with solvent and install a magnetic drain plug

6. A technician is inspecting a CV (constant velocity) axle boot on a front-wheel-drive vehicle. The boot is torn and grease has been slung around the inside of the wheel well. What is the correct recommendation?

A. Repack the joint with fresh grease and install a new clamp only

B. Replace the complete CV axle assembly

C. Replace only the damaged boot using a split-type replacement

D. Clean the area, inspect the joint, and reuse the boot if the joint is not damaged

7. A vehicle equipped with a tire pressure monitoring system (TPMS) has the warning light illuminated. All four tires are inflated to the correct pressure. What should the technician check NEXT?

A. The tire tread depth on all four tires

B. The vehicle's wheel alignment angles

C. The tire rotation pattern history

D. The spare tire sensor or TPMS sensor batteries

8. A technician is performing a brake inspection. The brake pads have 4 mm of friction material remaining. According to most manufacturer specifications, what should the technician recommend?

A. The pads are approaching minimum thickness and should be replaced soon

B. The pads are at minimum thickness and must be replaced immediately

C. The pads are within normal service range and need no action at this time

D. The pads must be measured with a micrometer for a precise reading before any recommendation

9. A vehicle pulls to the right during braking. Steering and suspension components have been inspected and found to be in good condition. Which of the following is the MOST likely cause?

A. A stuck closed proportioning valve

B. A warped front right brake rotor

C. A restricted left front brake hose

D. Excessive right front tire pressure

10. A technician is testing a 12-volt automotive battery with no load applied. The voltmeter reads 12.2 volts. What does this indicate?

A. The battery is fully charged and ready for service

B. The battery is approximately 50% charged and should be recharged before testing

C. The battery has a dead cell and must be replaced

D. The battery is overcharged and the charging system must be tested

11. A vehicle's headlights are dim at idle but brighten when the engine is revved. Which of the following is the MOST likely cause?

A. A short circuit in the headlight wiring harness

B. Corroded headlight ground connections

C. A faulty headlight switch with excessive resistance

D. A failing alternator with low output at idle speed

12. A customer states that the air conditioning blows cold air from the dashboard vents but warm air from the floor vents. Which of the following is the MOST likely cause?

A. A low refrigerant charge in the A/C system

B. A clogged cabin air filter restricting airflow

C. A faulty or stuck blend door actuator

D. A leaking evaporator core

13. A technician is preparing to evacuate and recharge an A/C system. According to EPA regulations, what must be done with the recovered refrigerant?

A. It must be recycled, reclaimed, or properly disposed of and never vented to the atmosphere

B. Small amounts of R-134a may be safely vented to the atmosphere during service

C. It must be stored in any clean, sealed container for reuse

D. Only R-12 must be recovered; R-134a and R-1234yf may be vented legally

14. A vehicle with a distributorless ignition system (DIS) has a misfire on cylinder number 3. The coil pack fires cylinders 3 and 6 as a pair. Cylinder 6 runs normally. Which of the following is the MOST likely cause?

A. A faulty crankshaft position sensor

B. A fouled or damaged spark plug on cylinder 3

C. A failed ignition coil for the 3/6 pair

D. A faulty powertrain control module (PCM)

15. During an engine performance diagnosis, the technician connects a scan tool and reads a fuel trim value of +25% at idle. What does this positive long-term fuel trim value indicate?

A. The engine is running rich and the PCM is subtracting fuel

B. The engine is running lean and the PCM is adding fuel to compensate

C. The fuel pressure regulator is stuck open, flooding the engine

D. The oxygen sensors are biased rich and require replacement

16. A technician replaces the front brake pads and rotors on a vehicle with four-wheel disc brakes. After the repair, the brake pedal goes to the floor on the first application. What is the MOST likely reason?

A. The master cylinder has failed internally

B. There is air trapped in the brake lines

C. The new rotors are below minimum thickness specification

D. The caliper pistons need to be seated against the new pads by pumping the pedal

17. A vehicle is brought in for an engine coolant leak. The technician notices white crusty deposits around the thermostat housing. Which of the following is the correct repair procedure?

A. Add a cooling system sealer to stop the external leak

B. Tighten the thermostat housing bolts to manufacturer torque specifications only

C. Remove the housing, clean the mating surfaces, and install a new gasket or O-ring

D. Replace the thermostat only; the housing does not require service

18. A rear-wheel-drive vehicle produces a clunking noise when shifting from Park to Drive. Suspension components are in good condition. Which of the following is the MOST likely cause?

A. Worn universal joints in the driveshaft

B. A faulty torque converter lockup solenoid

C. Excessive transmission end play

D. A worn rear differential pinion seal

19. A technician is checking for a parasitic battery drain. With the ignition off and all accessories closed, the ammeter reads 350 milliamps after waiting 30 minutes for modules to go to sleep. Which of the following is correct?

A. This is a normal reading for a modern vehicle with multiple electronic modules

B. The reading indicates a weak battery that cannot hold surface charge

C. The alternator diodes should be tested for excessive AC ripple

D. The draw exceeds acceptable limits and the source of the drain must be identified

20. A vehicle's power steering pump makes a whining noise that gets louder during turns. The fluid level is correct and the fluid is not contaminated. Which of the following is the MOST likely cause?

A. A clogged power steering fluid cooler

B. A loose power steering pump pulley

C. Air trapped in the power steering system

D. An overtightened power steering pump belt

21. When inspecting the underside of a vehicle on a lift, a technician notices a wet spot on the rear axle housing near the pinion seal. What action should be taken?

A. Top off the differential fluid and recheck at the next service

B. Replace the pinion seal and check the differential fluid level

C. Replace the entire rear axle assembly due to potential contamination

D. Add a friction modifier to the differential fluid to condition the seal

22. A vehicle's check engine light is on. The scan tool reveals DTC P0420: Catalyst System Efficiency Below Threshold (Bank 1). Which of the following should the technician verify FIRST before condemning the catalytic converter?

A. That no exhaust leaks exist and the oxygen sensors are functioning correctly

B. That the air filter is not restricted and causing a rich condition

C. That the EGR valve is operating within manufacturer specifications

D. That the fuel injectors are delivering the correct spray pattern

23. A technician is replacing the cabin air filter on a vehicle. Where is this filter MOST commonly located?

A. Behind the front bumper near the condenser

B. Integrated into the engine air filter housing

C. Attached to the HVAC blower motor housing under the hood

D. Behind the glove box or at the base of the windshield cowl area

24. A vehicle has a vibration that occurs only between 55 and 65 mph and disappears above and below that range. The tires are properly inflated and have even wear. Which of the following is the MOST likely cause?

A. Worn engine mounts transmitting vibration at highway speed

B. A slipping transmission torque converter

C. An out-of-balance tire and wheel assembly

D. A worn center support bearing on the driveshaft

25. A technician is measuring brake rotor thickness with a micrometer. The reading shows the rotor is at the discard (minimum) thickness specification. What is the correct action?

A. Replace the rotor; it cannot be machined or returned to service

B. Machine the rotor if the surface is smooth and within parallelism specifications

C. Install the rotor as-is since it still meets the minimum standard

D. Apply a rotor coating compound to restore the friction surface

26. A vehicle's automatic transmission fluid appears dark brown and has a burnt odor. The customer reports no current drivability complaints. What should the technician recommend?

A. Continue driving and change the fluid at the next scheduled interval

B. Perform a transmission fluid exchange using the fluid exchange machine only

C. Add a transmission additive to restore the fluid properties

D. Advise the customer that internal transmission damage may be present and further inspection is needed

27. A technician is diagnosing a no-crank, no-start condition. Battery voltage is 12.6 volts. When the key is turned to the start position, there is a single click from the starter area. Which of the following is the MOST likely cause?

A. A faulty ignition switch in the start circuit

B. A failed starter motor or solenoid

C. A discharged battery with high surface voltage

D. A defective neutral safety switch

28. A customer complains that the heater only blows lukewarm air. The engine reaches operating temperature normally. The upper radiator hose is hot, but both heater hoses are only warm. Which of the following is the MOST likely cause?

A. A faulty radiator cap not holding pressure

B. An inoperative cooling fan running continuously

C. A partially clogged heater core restricting coolant flow

D. A stuck-open thermostat preventing full warm-up

29. A vehicle with electronic power steering (EPS) displays a power steering warning light. A scan tool shows a torque sensor code. Which of the following is the correct action?

A. Replace the power steering fluid and reset the code

B. Replace the EPS motor and retest the system

C. Follow the manufacturer's diagnostic procedure to test the torque sensor circuit

D. Disconnect the EPS module for 30 seconds to reset the system

30. A technician is replacing a thermostat on a vehicle. Which of the following is a critical step during installation?

A. Ensuring the thermostat jiggle valve or air bleed is oriented in the correct position

B. Installing the thermostat with the sensing element facing away from the engine

C. Applying RTV sealant to both sides of the thermostat housing gasket

D. Pre-opening the thermostat by immersing it in boiling water before installation

31. A customer reports that the vehicle's ABS warning light is illuminated. The conventional brakes operate normally. A scan tool reveals a DTC for the right front wheel speed sensor circuit. What should the technician inspect FIRST?

A. The ABS hydraulic control module

B. The brake fluid level in the master cylinder reservoir

C. The ABS pump motor relay and fuse

D. The right front wheel speed sensor wiring, connector, and sensor air gap

32. A vehicle equipped with a manual transmission makes a grinding noise when shifting into third gear. All other gears shift smoothly. Which of the following is the MOST likely cause?

A. Low transmission fluid level causing inadequate lubrication

B. A worn or damaged synchronizer assembly for third gear

C. A worn clutch disc that is not fully disengaging

D. A bent shift fork affecting all forward gears

33. A technician needs to reset the maintenance reminder light after performing an oil change. The procedure is not immediately known. What is the MOST appropriate action?

A. Consult the owner's manual or a service information system for the specific reset procedure

B. Disconnect the battery for five minutes to reset all vehicle modules

C. Use a universal scan tool to clear all diagnostic trouble codes

D. Drive the vehicle for 50 miles to allow the system to automatically reset

34. A vehicle has a slow cranking condition. The battery tests good and cables are clean and tight. Voltage drop testing on the starter circuit shows 1.5 volts on the ground side. What does this indicate?

A. Normal voltage drop for a starter circuit under cranking load

B. The starter motor is drawing excessive current due to worn brushes

C. The battery is unable to provide adequate cold cranking amps

D. Excessive resistance in the ground circuit that must be located and repaired

35. A technician is performing a cooling system pressure test. The system holds pressure, but the coolant level keeps dropping over several weeks. There are no visible external leaks. Which of the following should the technician investigate NEXT?

A. A leaking heater control valve hidden behind the dash

B. A leaking oil cooler mixing coolant with engine oil

C. A blown head gasket allowing coolant to enter the combustion chamber

D. A cracked coolant recovery bottle that only leaks under pressure

36. During a wheel alignment, the technician measures the front camber and finds it is excessively negative on both sides. Which symptom would this MOST likely cause?

A. The steering wheel being off-center during straight-ahead driving

B. Accelerated wear on the inside edges of both front tires

C. The vehicle pulling to one side during braking only

D. A shimmy in the steering wheel at highway speeds

37. A customer asks about the difference between DOT 3 and DOT 4 brake fluid. Which of the following statements is correct?

A. DOT 4 has a higher boiling point than DOT 3, making it suitable for higher-performance braking systems

B. DOT 3 and DOT 4 must never be mixed because they use different chemical bases

C. DOT 4 is synthetic and is the only brake fluid approved for use with ABS systems

D. DOT 3 has a higher boiling point than DOT 4 but absorbs moisture more slowly

38. A technician is measuring voltage at the fuel injector connector with the engine running. The voltmeter shows battery voltage constantly. What does this indicate?

A. The fuel injector is operating normally with a full duty cycle

B. The fuel injector is stuck open and flooding the cylinder

C. The fuel injector is receiving correct power and the injector is firing

D. The PCM is not providing a ground pulse to trigger the injector

39. A vehicle with a hydraulic cooling fan clutch has an overheating complaint. The fan spins freely when the engine is off and does not engage when the engine is at operating temperature. What is the MOST likely cause?

A. A clogged radiator core reducing airflow

B. A failed fan clutch that is no longer engaging

C. A faulty engine coolant temperature sensor signal

D. A missing or damaged radiator fan shroud

40. A technician is performing a state-required vehicle safety inspection. The windshield has a crack that extends 8 inches across the driver's field of vision. What is the correct action?

A. Pass the inspection and note the crack in the inspection report

B. Apply a windshield repair resin to seal the crack and pass the inspection

C. Fail the inspection and advise the customer that the windshield must be replaced

D. Refer the customer to a glass specialist but pass the inspection for now

41. During a visual inspection, a technician notices a transmission cooler line is weeping fluid at a compression fitting. What is the appropriate repair?

A. Tighten the fitting to specification or replace the line and fitting as necessary

B. Apply thread sealant tape to the compression fitting and retighten

C. Bypass the transmission cooler entirely to eliminate the leak source

D. Clamp a rubber hose over the leaking fitting as a temporary repair

42. A vehicle with a coil-on-plug (COP) ignition system has a misfire on cylinder 2. The technician swaps the coil from cylinder 2 to cylinder 4. The misfire now moves to cylinder 4. What is the correct conclusion?

A. The cylinder 2 spark plug is fouled and should be replaced

B. The cylinder 2 fuel injector is not delivering fuel

C. The PCM driver for cylinder 2 has an internal fault

D. The coil that was originally on cylinder 2 is faulty and must be replaced

43. A technician is adding refrigerant to a vehicle's A/C system. Which of the following is the correct method?

A. Add refrigerant through the high-pressure service port with the engine off

B. Add refrigerant as a vapor through the high-pressure side with the compressor running

C. Add refrigerant as a liquid on the high side with the engine off, or as a vapor on the low side with the compressor running

D. Add refrigerant in any state through either service port while the engine is idling

44. A vehicle's horn does not work. The technician checks the fuse and finds it blown. After replacing the fuse, the horn works. Two days later the customer returns with the same complaint. What should the technician do NEXT?

A. Replace the fuse with a higher amperage rating to prevent recurrence

B. Inspect the horn circuit wiring for a short to ground causing repeated fuse failure

C. Replace the horn relay since intermittent relay contact can cause fuse failure

D. Replace both horns since an internally shorted horn can draw excessive current

45. A vehicle with a drive-by-wire (electronic) throttle system sets a DTC for throttle position sensor correlation. The customer reports reduced engine power. What is the correct diagnostic step?

A. Inspect the throttle body and APP sensor wiring, connectors, and voltage signals per manufacturer specifications

B. Replace the throttle body assembly immediately since these codes indicate imminent failure

C. Clean the throttle plate with carburetor cleaner to restore proper operation and clear the code

D. Reprogram the PCM with updated calibration software to correct the sensor correlation values

46. A technician is performing a transfer case fluid service on a four-wheel-drive vehicle. The service information specifies a specific ATF type. The technician only has conventional gear oil available. What should the technician do?

A. Use the gear oil since it provides better protection for gears than ATF

B. Mix equal parts of the gear oil and any available ATF as a substitute

C. Use the gear oil temporarily and advise the customer to return for the correct fluid

D. Obtain the correct manufacturer-specified fluid before performing the service

47. A vehicle's battery repeatedly goes dead overnight. The technician performs a parasitic draw test and isolates the draw to the interior fuse panel. Pulling fuse number 12 (labeled "BCM/Interior Lights") drops the draw to an acceptable level. What is the next step?

A. Replace fuse 12 with a new fuse of the same rating

B. Replace the body control module (BCM)

C. Check all circuits protected by that fuse for a component that is staying energized

D. Disconnect the negative battery cable each night until the customer can return

48. A vehicle owner asks about switching from conventional engine oil to full synthetic oil at 80,000 miles. Which of the following responses is correct?

A. Synthetic oil should only be used in new engines and will cause leaks in high-mileage engines

B. Switching to synthetic oil is acceptable if the correct viscosity and manufacturer specification are maintained

C. The engine must be flushed with a chemical cleaner before switching to synthetic oil

D. Only semi-synthetic blends should be used in high-mileage engines as a transition fluid

49. A scan tool reads an engine coolant temperature (ECT) sensor value of -40°F with the engine fully warmed up. Which of the following is the MOST likely cause?

A. An open circuit in the ECT sensor or its wiring

B. A stuck-closed thermostat preventing warm-up

C. A shorted ECT sensor sending a minimum resistance signal

D. A faulty PCM with a corrupt temperature lookup table

50. A technician installs new rear drum brake shoes. After assembly, the brake pedal is very low. Pumping the pedal several times does not improve pedal height. Which of the following is the MOST likely cause?

A. A leaking wheel cylinder allowing fluid to bypass internally

B. Air in the rear brake lines from the service procedure

C. The brake shoes were installed on the wrong sides

D. The self-adjuster mechanism was not properly installed or is not functioning

51. A vehicle with a returnless fuel system has a fuel pressure reading that is higher than specification at idle. Which of the following is the MOST likely cause?

A. A weak fuel pump that cannot maintain adequate volume

B. A clogged fuel filter restricting flow to the fuel rail

C. A faulty fuel pressure regulator or fuel pressure sensor sending an incorrect signal to the PCM

D. Leaking fuel injectors reducing rail pressure

52. A customer requests a tire rotation on a vehicle with directional tires. Which of the following rotation patterns is correct?

A. Cross-rotate the tires in an X-pattern for even wear

B. Rotate front to rear on the same side of the vehicle

C. Rotate only the rear tires to the front and leave the front tires in place

D. Directional tires cannot be rotated and should be replaced in pairs

53. A technician discovers that one rear shock absorber is leaking oil. The customer asks if only the leaking shock needs to be replaced. What is the correct advice?

A. Replace only the leaking shock to minimize repair costs

B. Replace all four shocks and struts whenever any single unit fails

C. Replace the leaking shock and inspect the opposite side; replacement is not required if it tests good

D. Replace both rear shock absorbers as a pair to maintain balanced handling and ride control

54. During a routine maintenance inspection, a technician finds that the PCV (positive crankcase ventilation) valve is stuck in the open position. Which of the following symptoms would MOST likely result?

A. A rough or unstable idle due to a vacuum leak

B. Increased crankcase pressure causing oil leaks

C. White smoke from the exhaust indicating coolant consumption

D. Decreased fuel economy from an overly rich condition

55. A technician needs to top off power steering fluid on a vehicle that specifies a specific OEM fluid. Only universal power steering fluid is available. What is the correct action?

A. Use the universal fluid since it meets the general requirements for all power steering systems

B. Substitute automatic transmission fluid as a temporary measure until the correct fluid is available

C. Wait to obtain the correct manufacturer-specified fluid before servicing the system

D. Mix the universal fluid with a small amount of the remaining OEM fluid already in the reservoir

Practice Exam 2: Answer Key and Full Explanations

1. B — A leaking valve cover gasket allows oil to seep down around the spark plug tubes and onto the spark plug threads. The valve cover gasket seals the top of the cylinder head, and when it deteriorates, oil pools in the spark plug wells. This is one of the most common causes of oil-fouled plug threads and should be corrected to prevent ignition misfires and coil damage.

2. D — Hardened or shrunken transmission seals lose their ability to hold hydraulic pressure when the fluid is cold and thick, allowing clutch pack slippage on initial startup. Once the transmission warms up, the seals expand slightly and the thinner fluid flows more easily, temporarily restoring normal operation. This cold-slip symptom is a classic indicator of aged seals in a high-mileage automatic transmission.

3. A — A serpentine belt showing multiple cracks on the rib side has exceeded its useful service life and should be replaced immediately. Modern EPDM belts wear by losing material from the rib surfaces, and visible cracking indicates the belt is at risk of sudden failure. A broken serpentine belt disables the alternator, water pump, power steering, and A/C compressor simultaneously, creating a potential safety hazard.

4. A — A chirping noise that disappears when water is sprayed on the belt points directly to belt slip caused by a misaligned pulley or a worn, glazed belt. The water temporarily increases friction between the belt and pulley, silencing the chirp. Correcting the alignment or replacing the belt and tensioner resolves the noise and restores proper accessory drive operation.

5. C — Metal particles in drained engine oil indicate internal wear to bearings, journals, or other rotating components and require further diagnosis before the vehicle is returned to service. The technician's responsibility is to inform the customer of the finding and recommend inspection to determine the source and severity. Refilling and driving risks catastrophic engine failure if the cause is a failing bearing or other critical component.

6. B — When a CV boot is torn and grease has been slung out, the joint has been exposed to road contaminants and moisture, making it likely that internal damage has already occurred. The standard industry practice is to replace the entire CV axle assembly rather than attempting to repack a potentially compromised joint. Aftermarket reman axles make full replacement both cost-effective and reliable.

7. D — If all four tires are at the correct pressure and the TPMS light remains on, the issue is likely a faulty sensor, a dead sensor battery, or a spare tire sensor transmitting a low-pressure signal. Many vehicles monitor the spare tire as part of the TPMS system, and a low or dead spare sensor will trigger the warning. TPMS sensor batteries are not serviceable and require full sensor replacement.

8. A — At 4 mm of remaining friction material, most brake pads are above the absolute minimum thickness (typically 2–3 mm) but are approaching the end of their service life. The technician should advise the customer that replacement will be needed soon so they can plan the repair. Waiting until pads reach minimum thickness risks rotor damage and reduced braking performance.

9. C — A restricted brake hose on the left front acts like a check valve, preventing full hydraulic pressure from reaching the left front caliper during braking. With less braking force on the left and full force on the right, the vehicle pulls toward the side with the stronger brake — the right. Collapsed or internally deteriorated brake hoses are a common cause of brake pull that is often overlooked.

10. B — A resting voltage of 12.2 volts on a 12-volt lead-acid battery indicates approximately 50% state of charge. A fully charged battery reads 12.6 volts or higher at open circuit. The battery should be recharged to full capacity before load testing or conductance testing to obtain accurate results.

11. D — An alternator that cannot produce adequate output at low RPM will cause dim headlights at idle that brighten as engine speed increases and alternator output rises. This is a classic symptom of worn brushes, a failing voltage regulator, or damaged diodes inside the alternator. Testing alternator output across its RPM range confirms the diagnosis.

12. C — The blend door directs heated or cooled air to different outlets in the HVAC system. When a blend door actuator sticks or fails, airflow temperature can vary between vents because the door is not positioning correctly. Cold air from the dash with warm air from the floor vents is a textbook symptom of a blend door that is partially stuck.

13. A — The EPA Clean Air Act Section 608 prohibits the intentional venting of any refrigerant to the atmosphere. All recovered refrigerant must be recycled on-site, sent to a reclamation facility, or disposed of properly through an approved method. Violating this regulation carries significant fines, and it applies equally to R-12, R-134a, and R-1234yf.

14. B — In a waste-spark DIS system, the coil fires both paired cylinders simultaneously. If the coil were faulty, both cylinders 3 and 6 would misfire. Since only cylinder 3 misfires, the coil and its shared circuit are functioning, pointing to a problem specific to cylinder 3 — most commonly a fouled, cracked, or worn spark plug.

15. B — A long-term fuel trim of +25% means the PCM is commanding 25% more fuel than its base calibration to maintain the target air-fuel ratio. This large positive correction indicates the engine is running lean and the PCM is compensating by adding fuel. Common causes include vacuum leaks, a weak fuel pump, or a dirty mass airflow sensor.

16. D — When brake pads and rotors are replaced, the caliper pistons are pushed fully back into their bores to accommodate the new, thicker pads. This creates a gap between the pads and rotors that must be taken up by pumping the brake pedal several times to seat the pistons. This is a normal and expected condition after pad and rotor replacement, not a system failure.

17. C — White crusty deposits around the thermostat housing indicate a long-standing external coolant leak caused by a deteriorated gasket or O-ring. The correct repair is to remove the housing, thoroughly clean both mating surfaces of old gasket material and corrosion, and install a new gasket or O-ring. Simply tightening bolts on a damaged gasket will not create a reliable seal.

18. A — A clunking noise when shifting from Park to Drive on a rear-wheel-drive vehicle is a classic symptom of worn universal joints in the driveshaft. The backlash in the worn U-joint allows the driveshaft to snap under the sudden torque load of engagement. Inspecting the U-joints for play by grabbing the driveshaft and checking for rotational looseness confirms the diagnosis.

19. D — The generally accepted maximum parasitic draw for a modern vehicle is 50 to 85 milliamps after all modules have entered sleep mode. A reading of 350 milliamps far exceeds this threshold and indicates that a module or component is staying awake or a circuit has a fault drawing excessive current. The technician must systematically pull fuses to isolate the offending circuit.

20. C — Air trapped in the power steering system is the most common cause of whining noise from the pump when the fluid level is correct and uncontaminated. Air causes cavitation inside the pump, producing a whining or groaning sound that worsens during turns when system demand is highest. Bleeding the system by cycling the steering lock-to-lock with the front wheels off the ground typically resolves the noise.

21. B — A wet spot at the pinion seal indicates active fluid loss from the differential. The correct repair is to replace the pinion seal and verify the differential fluid level is restored to the proper fill height. Ignoring a pinion seal leak leads to low fluid levels, which can cause premature wear or failure of the ring and pinion gears and bearings.

22. A — Before condemning a catalytic converter based on a P0420 code, the technician must first rule out conditions that can mimic converter failure. Exhaust leaks between the engine and the downstream oxygen sensor can introduce oxygen and cause false efficiency readings. Similarly, a lazy or contaminated oxygen sensor can send inaccurate data to the PCM, triggering the code without an actual converter failure.

23. D — The cabin air filter is most commonly located behind the glove box or at the base of the windshield in the exterior cowl area. These locations allow the filter to clean incoming air before it enters the HVAC system and passenger compartment. The glove box typically drops down or removes to provide access to the filter housing.

24. C — A vibration that occurs within a specific speed range and disappears above and below that window is the classic signature of a tire and wheel assembly that is out of balance. The imbalance creates a resonance at a particular rotational speed. Rebalancing all four tire and wheel assemblies resolves the vibration in the vast majority of cases.

25. A — A brake rotor that has reached its discard (minimum) thickness specification cannot be returned to service under any circumstances, even if the surface appears smooth. The discard thickness represents the absolute minimum needed for safe heat dissipation and structural integrity during braking. Machining would remove additional material and take the rotor below this critical safety threshold.

26. D — Dark brown, burnt-smelling transmission fluid is a strong indicator that the clutch material and internal components have been subjected to excessive heat and are likely damaged. Even without current drivability complaints, the customer should be informed that the degraded fluid suggests internal wear that may lead to transmission failure. Further inspection or a transmission specialist evaluation is warranted.

27. B — A single, loud click from the starter area with a fully charged battery (12.6V) and clean connections strongly suggests that the starter solenoid is engaging but the starter motor is not spinning. This is typically caused by worn starter motor brushes, a burned commutator, or a faulty solenoid contact disc. The solenoid has enough power to engage but cannot pass sufficient current to turn the motor.

28. C — When both heater hoses are only warm despite the engine being at operating temperature, coolant flow through the heater core is restricted. A partially clogged heater core limits the volume of hot coolant that can circulate through it, resulting in lukewarm air from the vents. Flushing the heater core or replacement resolves the restriction and restores full heat output.

29. C — Electronic power steering systems rely on precise torque sensor input to determine the amount of steering assist to provide. A torque sensor code requires following the manufacturer's specific diagnostic procedure, which typically includes checking wiring, connector integrity, sensor voltage signals, and calibration. Replacing parts without proper diagnosis leads to unnecessary expense and may not resolve the issue.

30. A — The jiggle valve or air bleed notch on a thermostat must be oriented at the highest point (usually the 12 o'clock position) to allow trapped air to escape from the cooling system during filling. Incorrect orientation traps air pockets that prevent proper coolant circulation and can cause localized overheating and erratic temperature gauge readings. This is a frequently tested detail on the ASE exam.

31. D — When the ABS light is on with a wheel speed sensor circuit code, the logical first inspection point is the sensor itself — its wiring, connector, and air gap at the tone ring. These components are exposed to road debris, water, and corrosion that commonly cause signal loss or erratic readings. The ABS module, relay, and pump motor are unlikely causes when the code specifically identifies a single sensor circuit.

32. B — Grinding in a specific gear while all other gears shift smoothly indicates a worn or damaged synchronizer assembly for that particular gear. The synchronizer's job is to match input and output shaft

speeds during the shift; when its friction surfaces or blocking ring are worn, the gears clash. A clutch problem or low fluid would typically affect all gears, not just one.

33. A — Maintenance reminder reset procedures vary significantly between manufacturers and model years, making it essential to consult the owner's manual or a service information database. Disconnecting the battery can erase learned values in multiple modules and may not reset the maintenance light on all vehicles. Using the correct, vehicle-specific procedure prevents unintended consequences.

34. D — The maximum acceptable voltage drop on the ground side of a starter circuit is typically 0.2 to 0.3 volts. A reading of 1.5 volts indicates severe resistance in the ground path — caused by corroded connections, a damaged ground strap, or a poor engine-to-body ground. This excessive resistance robs the starter of current and causes the slow crank condition.

35. C — When a cooling system holds pressure during a standard pressure test but coolant continues to disappear with no visible external leaks, an internal leak is the most likely cause. A blown or failing head gasket can allow coolant to enter the combustion chamber, where it is burned off as steam and exits through the exhaust. A combustion gas leak test or block test of the coolant confirms this diagnosis.

36. B — Excessive negative camber tilts the tops of the tires inward, concentrating the vehicle's weight on the inside edges of the tread. Over time, this causes accelerated and uneven wear on the inner tire edges while the outer tread remains relatively unworn. Correcting the camber angle to specification through alignment restores even tire contact with the road.

37. A — DOT 4 brake fluid has a higher dry and wet boiling point than DOT 3, which is why it is specified for vehicles with higher-performance or heavier-duty braking systems that generate more heat. Both are glycol-based fluids and can generally be mixed, though always follow the manufacturer's recommendation. Using a fluid with a boiling point that is too low increases the risk of brake fade under heavy braking.

38. D — At the fuel injector connector, one wire supplies constant battery voltage (B+) from the ignition circuit, and the other wire is the ground-side control from the PCM. If the voltmeter reads constant battery voltage, the PCM is not pulsing the ground to open the injector. This means the injector is not firing, and the fault lies in the PCM driver circuit, wiring, or PCM itself.

39. B — A hydraulic fan clutch uses a silicone fluid coupling that engages the fan when engine temperature rises and a bimetallic spring opens an internal valve. When the clutch fails, the valve no longer opens, the fan freewheels at all temperatures, and insufficient airflow across the radiator causes overheating. A failed fan clutch that spins freely when hot is a straightforward diagnosis.

40. C — A crack that extends across the driver's field of vision is a safety hazard that impairs visibility and compromises the structural integrity of the windshield. Virtually all state safety inspection programs require rejection for cracks of this size in the driver's primary viewing area. The windshield must be replaced before the vehicle can pass inspection.

41. A — A weeping compression fitting on a transmission cooler line indicates a connection that has loosened or a ferrule that is no longer sealing properly. The first corrective step is to tighten the fitting to specification; if the leak persists, the fitting or line should be replaced. Transmission cooler line leaks left unrepaired will lead to low fluid levels and potential transmission damage.

42. D — Swapping a coil from one cylinder to another is a standard isolation test. When the misfire follows the coil to its new cylinder, it conclusively proves that the coil is the faulty component. If the misfire had stayed on cylinder 2, the problem would be in the plug, injector, or cylinder-specific wiring rather than the coil.

43. C — The correct procedure for charging an A/C system is to add liquid refrigerant through the high-side service port with the engine off (to avoid compressor damage from liquid slugging), or to add vapor through the low-side port with the compressor running. Never introduce liquid refrigerant into the low side with the compressor running, as liquid cannot be compressed and will damage the compressor.

44. B — A fuse that blows once could be a fluke, but a fuse that blows repeatedly indicates a persistent fault in the circuit — most commonly a short to ground. The wiring in the horn circuit must be inspected for chafing, bare conductors contacting metal, or a pinched wire that intermittently creates a direct path to ground. Increasing fuse size is dangerous and could cause a wiring fire.

45. A — A throttle position sensor correlation code means the PCM is seeing a disagreement between redundant throttle position or accelerator pedal position signals. The correct diagnostic approach is to inspect wiring, connectors, and reference voltages at both the throttle body and the APP sensor per manufacturer specs. Drive-by-wire systems enter a reduced power or limp mode as a safety measure when these signals disagree.

46. D — Transfer cases are engineered with specific internal clearances and seal materials that require the exact fluid type specified by the manufacturer. Using the wrong fluid — even if it seems similar — can damage clutch packs, seals, and synchronizer components inside the transfer case. The technician must obtain the correct fluid before completing the service.

47. C — Identifying the fuse that eliminates the parasitic draw only narrows the problem to the circuits on that fuse. Multiple components typically share a single fuse, so the next step is to identify which specific component on that circuit is staying energized and drawing current. Replacing the BCM without further diagnosis would be premature and expensive if the problem is a simple stuck relay or faulty switch.

48. B — Modern full synthetic oils are compatible with engines of any mileage, including high-mileage engines, as long as the correct viscosity grade and manufacturer specification (such as API or ILSAC rating) are used. The myth that synthetic oil causes leaks in older engines stems from early synthetic formulations that have long since been reformulated. Switching is safe and may even provide better protection.

49. A — The ECT sensor is a negative temperature coefficient (NTC) thermistor: its resistance decreases as temperature rises. An open circuit produces maximum resistance, which the PCM interprets as the coldest possible value — typically -40°F. This reading on a warm engine is the hallmark of an open sensor circuit, whether from a broken wire, corroded connector, or failed sensor element.

50. D — After installing new rear drum brake shoes, the self-adjuster mechanism must be properly assembled and functional to maintain the correct shoe-to-drum clearance. If the adjuster is not installed correctly, is binding, or is missing components, the shoes will sit too far from the drum and the pedal will remain low regardless of pumping. Verifying adjuster operation during assembly prevents this issue.

51. C — In a returnless fuel system, fuel pressure is regulated by the PCM based on input from a fuel pressure sensor on the rail. If the pressure sensor sends an incorrect (low) signal, the PCM commands the fuel pump to increase pressure beyond specification. Alternatively, if a mechanical regulator is used in the tank module, a stuck-closed regulator will cause excessive rail pressure.

52. B — Directional tires have a tread pattern designed to rotate in one specific direction for optimal water evacuation and traction. They cannot be cross-rotated without dismounting and remounting the tires on opposite-side wheels. The correct rotation pattern is front-to-rear and rear-to-front on the same side of the vehicle.

53. D — Shock absorbers and struts should be replaced in pairs (both fronts or both rears) to maintain balanced ride control and handling characteristics. A new shock on one side paired with a worn shock on the opposite side creates unequal damping forces, which can cause unpredictable handling, uneven tire wear, and reduced vehicle stability during emergency maneuvers.

54. A — A PCV valve stuck in the open position creates an unmetered vacuum leak into the intake manifold. The excess air entering the engine leans out the air-fuel mixture at idle, causing a rough or unstable idle. The PCM may partially compensate through fuel trim adjustments, but the idle quality will remain noticeably affected until the valve is replaced.

55. C — Many modern vehicles require a specific OEM power steering fluid formulated to be compatible with the seals, hoses, and pump internals of that system. Using a universal or incorrect fluid can cause seal degradation, increased wear, and eventual component failure. The correct action is to obtain the manufacturer-specified fluid before adding any fluid to the system.