

PRACTICE EXAM 7: POSTAL AUTOMOTIVE TECHNICIAN EXAM (944) SIMULATION (100 QUESTIONS)

This expanded 100-question practice exam targets technician-level automotive diagnosis and repair. USPS currently groups Exams 943/944/945 as Automotive Knowledge assessments. The USPS assessment information package presents a 30-minute Automotive Technician section and states a minimum passing score of 70. This 100-question set is a study-guide simulation, not a representation of the official question count. Select the single best answer for each question and consult the answer key after completing the full set.

1. A gasoline engine has a high HC reading and misfires only at idle. The EGR valve is commanded closed, but exhaust gas is still flowing. Which fault best explains the symptom?

- A. A thermostat that opens slightly early
- B. A catalytic converter that is completely cold
- C. An EGR valve that is stuck partly open
- D. A fuel cap that does not seal tightly

2. While holding engine speed steady above idle, a vacuum gauge reading begins normal and then gradually falls. Which condition is most consistent with that pattern?

- A. A fully charged battery with clean terminals
- B. A restriction in the exhaust system
- C. A properly operating positive crankcase valve
- D. A single weak spark plug at idle only

3. A scan tool shows both banks with strongly positive long-term fuel trim at idle, and the trims move much closer to zero at 2,500 rpm. What should the technician suspect first?

- A. An intake vacuum leak
- B. A restricted air filter

- C. An engine that is running too rich
- D. A stuck-open thermostat only

4. A vehicle hesitates whenever the accelerator is first opened. Scan data shows throttle position rising smoothly except for a brief dropout at the same pedal angle each time. What is the most likely fault?

- A. A fully open thermostat
- B. A clean catalytic converter
- C. A balanced driveshaft
- D. A worn or failing throttle-position sensor

5. A mass-airflow sensor is contaminated and reports less airflow than is actually entering the engine. What mixture tendency is most likely before fuel trim correction compensates?

- A. The transmission will command maximum line pressure
- B. The engine will immediately flood every cylinder
- C. The engine will tend to run lean
- D. The ignition coil will stop producing spark

6. During cranking, a no-start engine has normal fuel pressure and battery speed, but the scan tool shows zero engine rpm and there is no injector pulse. Which input should be checked first?

- A. The crankshaft position sensor circuit
- B. The downstream oxygen sensor heater
- C. The cabin blower resistor
- D. The evaporative canister vent hose

7. A vehicle has a random misfire only under heavy acceleration. Spark plugs are correct, but one coil boot shows carbon tracking and high secondary resistance. What is the best interpretation?

- A. The torque converter clutch is staying released

- B. The fuel tank is creating excessive vacuum
- C. The thermostat is stuck open
- D. The secondary ignition is breaking down under load

8. On a healthy gasoline engine in closed loop, how should the upstream oxygen sensor generally behave compared with the downstream sensor after a functioning three-way catalyst?

- A. Both signals should remain fixed at exactly the same value
- B. The upstream signal should switch more actively
- C. Neither sensor should change after the engine warms
- D. The downstream signal should switch faster than the upstream

9. An EGR system fails to flow when commanded during cruise. Which emission is most likely to increase because combustion temperature is not being reduced as designed?

- A. Oxides of nitrogen (NO_x)
- B. Water vapor only
- C. Carbon dioxide only
- D. Evaporative fuel vapor in the tank

10. A purge valve is stuck open. The engine runs rough at idle and is especially difficult to start immediately after refueling. Which mechanism best explains these symptoms?

- A. The radiator is circulating coolant too quickly
- B. The final-drive gears are binding during turns
- C. Excess fuel vapor entering the intake during purge
- D. The alternator is overcharging the battery

11. A single cylinder has repeated misfire counts. Compression is normal, and swapping that cylinder's coil with a neighboring cylinder causes the misfire to move. What has the test identified?

- A. A restricted catalytic converter
- B. A burned exhaust valve
- C. A weak fuel pump affecting every cylinder
- D. A faulty ignition coil

12. A fuel-pressure regulator uses manifold vacuum. Fuel is found inside the regulator's vacuum hose. What condition is most likely?

- A. The fuel tank vent is operating normally
- B. The regulator diaphragm has ruptured
- C. The throttle plate is closing completely
- D. The oxygen sensor has become electrically open

13. A diesel engine cranks normally on a cold morning, produces white smoke, and starts only after extended cranking. Once warm, it runs normally. Which system deserves early attention?

- A. The glow-plug or intake-heating system
- B. The rear differential vent
- C. The parking-brake cable
- D. The catalytic converter shield

14. A gasoline engine has good compression and strong spark, but fuel pressure is zero while cranking. Which diagnostic direction is most appropriate next?

- A. Replace the cylinder head gasket immediately
- B. Check the fuel-pump power, ground, control, and pump operation
- C. Rebuild the automatic transmission
- D. Adjust wheel alignment before further testing

15. What does a noid light connected in place of a fuel injector primarily help the technician verify?

- A. Whether the thermostat is fully open
- B. Whether the cylinder has correct mechanical compression
- C. Whether the injector circuit is receiving a control pulse
- D. Whether the rear axle has correct backlash

16. An intake-air temperature sensor falsely reports extremely cold air to the PCM even after the engine compartment is warm. What fuel-control response is most likely?

- A. The transmission will mechanically lock in park
- B. The ABS module will release brake pressure
- C. The PCM will disable every injector
- D. The PCM will tend to command a richer mixture

17. A coolant-temperature sensor is biased cold all the time. Which driveability result is most likely after the engine is fully warmed?

- A. A permanent loss of starter engagement
- B. Excess enrichment and poorer fuel economy
- C. A manual clutch that will not release
- D. A wheel bearing that becomes noisy

18. A fuel injector on one cylinder is suspected of leaking after shutdown. Which observation would best support that diagnosis?

- A. Fuel pressure decays quickly and that cylinder's spark plug is unusually wet
- B. All four tires show equal tread depth
- C. The steering wheel returns smoothly after a turn
- D. The blower motor works on every speed

19. A vehicle has poor acceleration and a turbocharger that produces less boost than commanded. A loud hiss is heard only under load. What should be inspected first?

- A. The parking-pawl linkage
- B. The cabin air-filter door
- C. The brake-fluid reservoir cap
- D. The charge-air piping and intercooler for leaks

20. A knock sensor detects combustion knock during heavy load. What is a common PCM response intended to protect the engine?

- A. Close the transmission manual valve
- B. Apply the parking brake
- C. Retard ignition timing
- D. Increase starter-motor current

21. A crankshaft-to-camshaft correlation code appears immediately after timing-chain service, and the engine now lacks power. What should be checked before replacing sensors?

- A. Refrigerant pressure only
- B. Mechanical cam-to-crank timing alignment
- C. Brake booster pushrod length only
- D. Wheel lug-nut torque only

22. A PCV valve is stuck fully open on an engine where it acts as a calibrated vacuum path. Which symptom is most likely at idle?

- A. An overcharged A/C system
- B. A locked rear differential
- C. A lean condition from excess unmetered airflow
- D. A seized brake caliper on one wheel

23. A gasoline engine is running rich and producing black exhaust smoke. Which finding would best fit that condition?

- A. A higher-than-normal wheel alignment caster angle
- B. A completely dry tailpipe with no odor
- C. Strongly positive fuel trims on both banks
- D. Negative fuel trims as the PCM tries to remove fuel

24. A persistent ignition misfire is allowed to continue while driving. Why can the catalytic converter overheat?

- A. Unburned fuel can oxidize inside the converter and create excessive heat
- B. The converter begins pumping engine oil into the intake
- C. The converter mechanically applies the service brakes
- D. The converter forces the battery to overcharge

25. An engine pings under load and testing confirms that the EGR passages are completely blocked with carbon. Why can this create spark knock?

- A. Peak combustion temperature rises because expected EGR dilution is missing
- B. The differential pinion loses all preload
- C. Battery electrolyte becomes too cold
- D. Brake hydraulic pressure becomes too high

26. A throttle-body injection system has normal fuel pressure, but one injector does not spray and its connector has a proper pulse. What is the most likely next conclusion?

- A. The battery has no electrical capacity
- B. The rear wheel alignment is out of specification
- C. The crankshaft has broken in half
- D. The injector itself is restricted or mechanically faulty

27. A scan tool shows the throttle opening increasing, but the MAP sensor continues to report very high vacuum as if the throttle were closed. What should the technician suspect?

- A. A broken heater-door cable
- B. A leaking axle seal
- C. A MAP sensor or MAP signal fault
- D. A warped brake rotor

28. A vehicle repeatedly sets a lean code after a fuel filter was replaced. Fuel trims are positive at idle and cruise, and fuel pressure is below specification under load. What is the most useful next check?

- A. Inspect the wiper-blade inserts
- B. Verify fuel supply volume and pump electrical feed
- C. Adjust front wheel toe
- D. Measure brake rotor thickness

29. A cylinder's spark plug is wet with fuel after a no-start, and spark is present. What does the wet plug most directly indicate?

- A. Fuel is reaching that cylinder but is not being burned
- B. The brake booster is leaking hydraulic fluid
- C. The wheel bearing has excessive preload
- D. The alternator has no diodes

30. An engine has normal fuel pressure and compression, but all injectors lose command as soon as the security system shows an active immobilizer fault. What is the best interpretation?

- A. The thermostat has caused total oil-pressure loss
- B. The anti-theft strategy may be intentionally disabling fuel injection
- C. The brake rotors have become magnetized
- D. The differential carrier is commanding the PCM

31. An automatic transmission in PARK produces a high-pitched whine that rises and falls with engine speed. Which component is the most likely source?

- A. The differential side gear
- B. The rear wheel bearing
- C. The transmission front pump
- D. The park pawl

32. An automatic transmission has a delayed engagement into DRIVE after sitting overnight, and the fluid level is below the specified range. What is the most appropriate first step?

- A. Disconnect the ABS module
- B. Replace the differential ring gear immediately
- C. Increase engine ignition timing
- D. Correct fluid level and inspect for external leaks

33. Transmission fluid is very dark, smells burned, and the pan contains substantial friction material. What does this evidence most strongly suggest?

- A. Internal clutch or band wear from overheating or slipping
- B. A perfectly normal break-in condition
- C. A weak windshield-washer pump
- D. An overinflated tire condition

34. A vehicle stalls as it comes to a stop, but restarts easily and idles normally in PARK. The symptom feels like stopping a manual-transmission car without depressing the clutch. What should be suspected?

- A. A weak rear shock absorber
- B. An open fuel cap
- C. A cabin blower that is on high
- D. A torque-converter clutch that remains applied

35. An electronically controlled transmission sets a shift-solenoid circuit code, but there are no signs of burned fluid or internal debris. What is the best next step before major disassembly?

- A. Rebuild the rear differential
- B. Test the solenoid circuit, power, ground, resistance, and command
- C. Adjust front wheel camber
- D. Replace every clutch pack without testing

36. A manual-transmission vehicle accelerates normally with light throttle, but engine speed rises sharply without a matching increase in road speed during a hard uphill pull. What is most likely?

- A. The steering gear is binding
- B. The radiator cap is too tight
- C. The clutch is slipping
- D. The ABS is cycling normally

37. With the clutch pedal fully depressed, a manual-transmission vehicle is difficult to shift into reverse and tends to creep forward. What condition is most likely?

- A. The clutch is not fully releasing
- B. The alternator belt is correctly tensioned
- C. The clutch is slipping only under load
- D. The differential oil is too clean

38. A front-wheel-drive vehicle makes a rhythmic clicking noise during tight turns under power, and a CV boot on that side is torn. Which component is the likely source?

- A. The fuel tank pressure sensor
- B. The brake booster check valve
- C. The outer constant-velocity joint
- D. The radiator thermostat

39. A rear-wheel-drive vehicle has a clunk when moving from acceleration to deceleration. Inspection finds noticeable play in a universal joint. What is the most likely diagnosis?

- A. The A/C evaporator is icing
- B. The brake pedal switch is misadjusted
- C. The engine air filter is restricted
- D. The worn universal joint is creating driveline lash

40. A humming noise increases with road speed and becomes louder when the vehicle is steered so that load shifts onto the left front wheel. What should be suspected?

- A. A weak ignition coil
- B. A worn left front wheel bearing
- C. A sticking purge valve
- D. A restricted heater core

41. After a driveshaft was removed and reinstalled, a vibration appears at highway speed that was not present before. What should be checked first?

- A. Cabin filter direction only
- B. Engine coolant color only
- C. Driveshaft indexing, phasing, balance weights, and installation
- D. Brake-light bulb wattage only

42. A part-time four-wheel-drive truck is driven on dry pavement with the transfer case locked in 4H. It becomes difficult to turn and the driveline feels wound up. What is occurring?

- A. Alternator field collapse under electrical load
- B. Driveline bind from locked front-rear speed differences
- C. Normal torque-converter slip at low speed
- D. Brake fluid boiling in the hydraulic system

43. An automatic transmission overheats during towing even though fluid level is correct. The cooler inlet line is very hot, but the return line remains unusually cool. What should be suspected?

- A. Restricted flow through the transmission cooler or lines
- B. A correctly aligned front axle
- C. A clean cabin air filter
- D. A fully charged battery

44. On an older hydraulically controlled automatic transmission, what is the governor primarily used to provide?

- A. A signal related only to engine coolant temperature
- B. Direct mechanical braking at each wheel
- C. Refrigerant pressure to the A/C clutch
- D. A hydraulic signal related to vehicle speed

45. What is the safest normal use of the transmission PARK position when securing a vehicle on a grade?

- A. Hold the vehicle by engine speed before shutdown
- B. Apply the parking brake so the pawl is not carrying the full vehicle load
- C. Leave the transmission in neutral with no brake
- D. Rely on the park pawl alone every time

46. A torque converter stator one-way clutch fails so the stator cannot redirect fluid effectively at low vehicle speed. Which symptom is most likely?

- A. A constant open circuit in the headlamps
- B. Immediate loss of all brake fluid
- C. Poor launch performance with excess heat
- D. A rigid steering wheel only at idle

47. An automatic transmission shifts correctly when cold but begins slipping after the fluid becomes hot. Which fault pattern best fits?

- A. A tire that gains tread depth as it warms
- B. A windshield switch that lowers line pressure
- C. A thermostat that locks the transmission mechanically
- D. Hydraulic leakage or worn friction elements that worsen as fluid thins

48. A scan tool shows an implausible output-speed signal, and the transmission begins shifting at the wrong road speeds. Why can the speed-sensor fault affect shift timing?

- A. The control module uses speed information to schedule gear changes
- B. The sensor mechanically turns the fuel pump
- C. The sensor changes brake fluid boiling point
- D. The speed sensor directly opens the radiator cap

49. A differential produces a gear whine mainly during coast, while acceleration is much quieter. Which area deserves close inspection?

- A. Ring-and-pinion contact pattern and pinion bearing setup
- B. The engine air-conditioning blend door
- C. The windshield washer nozzle
- D. The battery hold-down bracket

50. A vehicle has a vibration only while accelerating, and inspection reveals a rear driveshaft U-joint that binds through part of its travel. What is the best conclusion?

- A. The radiator fan is definitely overcooling the engine
- B. The brake booster is increasing fuel pressure
- C. The oxygen sensor is changing wheel balance
- D. The binding joint can create a load-sensitive driveline vibration

51. How should a voltmeter be connected when measuring voltage across a loaded electrical component?

- A. In series with the component
- B. Only to the battery negative terminal
- C. In parallel with the component
- D. Across a disconnected fuse with both leads grounded

52. What is the main purpose of a voltage-drop test on a starter cable while the starter is operating?

- A. To determine engine compression directly
- B. To locate excessive resistance in a loaded cable
- C. To set wheel alignment angles
- D. To measure tire rolling resistance

53. Before using an ohmmeter to check the resistance of an isolated component, what should the technician do?

- A. Start the engine and increase rpm
- B. Connect the meter in series with the battery
- C. De-energize the circuit and isolate the component as required
- D. Apply maximum system voltage to the meter leads

54. A fuse blows immediately every time a headlamp circuit is switched on. Which fault should be suspected first?

- A. A high-resistance open in the lamp feed
- B. A short to ground downstream of the fuse
- C. A correctly rated replacement fuse in place
- D. A fully charged battery with normal capacity

55. A lamp does not work. With the lamp commanded on, battery voltage is present at the power terminal and a large voltage drop is measured between the lamp ground terminal and battery negative. What is most likely?

- A. The power feed is completely open
- B. The bulb is receiving a perfect ground
- C. The battery has no voltage
- D. Excessive resistance in the ground side

56. Why can installing a fuse with a higher amperage rating than specified create a safety hazard?

- A. The wiring may overheat before the oversized fuse opens
- B. The starter will reverse direction
- C. The tires will lose air pressure
- D. The battery will become mechanically larger

57. A relay is used to control a high-current cooling fan. What advantage does the relay provide?

- A. It mechanically changes wheel camber
- B. It increases engine compression
- C. A low-current control circuit can switch a higher-current load circuit
- D. It converts brake fluid into electrical energy

58. A vehicle has repeated dead batteries after sitting overnight. What is the correct general approach to a parasitic-draw test?

- A. Open every door so all lamps remain on
- B. Measure alternator belt width with the engine running
- C. Short the battery terminals together briefly
- D. Measure key-off current after the vehicle's modules have entered sleep mode

59. An alternator charges at normal average voltage, but an oscilloscope or meter shows excessive AC ripple at the battery. What should be suspected?

- A. A failed or leaking alternator diode

- B. A worn brake pad only
- C. A broken coil spring
- D. A restricted heater core

60. What does a battery load test primarily evaluate?

- A. Whether wheel toe is correct
- B. Whether battery voltage remains adequate while delivering substantial current
- C. Whether the A/C blend door moves
- D. Whether the engine thermostat opens

61. The starter clicks, and a voltage-drop test shows a large drop across the positive battery cable during cranking. What is the best conclusion?

- A. The engine oil is definitely overfilled
- B. The wheel bearing is causing the voltage loss
- C. The cable is proven perfect
- D. The positive cable or its connections have excessive resistance

62. A Hall-effect crankshaft sensor produces a square-wave signal that disappears intermittently as the engine stalls. Why is the signal important?

- A. The PCM uses it for engine speed and position
- B. It directly pumps fuel through the fuel rail
- C. It sets front-wheel toe during vehicle movement
- D. It pressurizes the hydraulic service-brake system

63. Several modules suddenly lose communication on a high-speed CAN network. Power and grounds at the individual modules are good. What should be checked next?

- A. Only the parking-brake shoes and hardware

- B. Only the cabin air-filter housing and door
- C. The shared CAN wiring and termination for faults
- D. Only the engine oil filter and bypass

64. A circuit has battery voltage on the supply side of a switch, but zero voltage on the output side when the switch is commanded on. The load and ground are known good. What is the likely fault?

- A. A stuck thermostat
- B. An open or failed switch contact
- C. A worn differential gear
- D. A shorted tire tread

65. Two technicians are diagnosing an intermittent electrical fault. One wants to wiggle the harness while monitoring the affected signal. Why is this useful?

- A. Harness movement can reproduce an intermittent connection fault
- B. It automatically repairs corroded terminals
- C. It changes engine compression
- D. It permanently increases battery capacity

66. A cylinder has low compression. When a small amount of oil is added through the spark-plug hole, compression rises substantially. Which fault is most likely?

- A. A failed wheel bearing
- B. A burned intake valve
- C. A restricted A/C condenser
- D. Worn piston rings or cylinder sealing

67. Two adjacent cylinders have similarly low compression, and bubbles appear in the radiator neck during cranking. Which defect is most likely?

- A. A restricted cabin filter in the HVAC case
- B. A head-gasket leak involving the combustion chambers
- C. A weak wiper motor under heavy electrical load
- D. An out-of-balance tire at highway road speed

68. During a cylinder leak-down test, air is clearly heard at the throttle body. Where is the leakage most likely occurring?

- A. Through the heater core
- B. Through the brake booster diaphragm
- C. Past the intake valve
- D. Past the rear axle seal

69. An engine has excessive blow-by from the crankcase breather along with high oil consumption. What mechanical condition should be suspected?

- A. A perfectly sealed combustion chamber
- B. A properly adjusted parking brake
- C. A new cabin air filter
- D. Excessive piston-ring or cylinder wear

70. A gasoline engine emits a brief puff of blue smoke after a long deceleration and then acceleration. Which condition commonly produces this pattern?

- A. A balanced wheel assembly
- B. Oil leaking past valve guides or valve-stem seals
- C. A completely dry fuel tank
- D. An open headlamp circuit

71. An engine has correct oil level but very low oil pressure after fully warming. Which condition is a reasonable mechanical cause?

- A. A properly charged A/C system
- B. An overinflated tire
- C. Excessive bearing clearance or a worn oil pump
- D. A clogged cabin filter

72. An engine overheats quickly after startup, the upper radiator hose becomes very hot, and coolant circulation through the radiator is poor. Which fault is most likely?

- A. A thermostat stuck closed
- B. A clean fuel injector
- C. A balanced driveshaft
- D. A thermostat stuck fully open

73. A vehicle takes an unusually long time to reach operating temperature and has weak heater output in cold weather. Which condition is most likely?

- A. A thermostat stuck closed
- B. A shorted starter cable
- C. A thermostat stuck open
- D. A seized brake caliper

74. The electric cooling fan runs when the A/C is commanded on, but never turns on from engine temperature and the engine overheats in traffic. What should be checked?

- A. The windshield-washer hose
- B. The driveshaft balance weights
- C. The rear axle gear pattern
- D. The coolant-temperature input and fan-control logic or circuit

75. A chemical block test at the radiator indicates combustion gases in the cooling system. What type of fault should the technician investigate?

- A. A wheel-alignment toe problem
- B. A head-gasket, cylinder-head, or engine-block leak into coolant
- C. A weak blower-motor resistor
- D. A worn wiper blade

76. An engine overheats under load even though the thermostat is open and the radiator is not externally blocked. The water-pump impeller is found loose on its shaft. What is the effect?

- A. A loose impeller can reduce coolant circulation
- B. Battery reserve capacity increases during engine operation
- C. Engine compression automatically rises in every cylinder
- D. Brake hydraulic pressure rises at every wheel

77. After timing-belt replacement, an engine starts but runs rough and has low power. A cam-crank correlation code is stored. What is the first mechanical check?

- A. Recharge the A/C system
- B. Replace all brake pads
- C. Verify the timing marks and belt indexing
- D. Balance the rear tires

78. A harmonic balancer's outer ring has slipped on its rubber isolator. What problem can this create during diagnosis?

- A. The alternator will reverse current flow
- B. The brake fluid will boil instantly
- C. The differential will lock solid
- D. The timing mark may no longer indicate true crankshaft position

79. A brake pedal feels spongy and becomes firmer after repeated pumping. Which condition should be suspected?

- A. Air trapped in the hydraulic brake system
- B. A clean throttle body
- C. A balanced driveshaft
- D. A fully charged battery

80. A vehicle consistently pulls right during braking. The left front rotor temperature is much lower than the right after the same stop. What should be suspected?

- A. A rich engine mixture
- B. Reduced braking force at the left front wheel
- C. A failed cabin blower resistor
- D. A loose fuel cap

81. ABS activates unexpectedly during a slow stop on dry pavement, and one wheel-speed signal drops to zero just before the event. What is the likely direction?

- A. A wheel-speed sensor, tone ring, wiring, or air-gap problem
- B. A thermostat stuck open
- C. A worn clutch disc
- D. A leaking heater core only

82. A vehicle has a very hard brake pedal and poor braking assist, but the hydraulic system is otherwise intact. Which system should be checked first?

- A. The EVAP vent valve
- B. The A/C evaporator drain
- C. The rear axle gear oil only
- D. The brake booster and its vacuum or assist supply

83. Why do disc brakes generally resist heat fade better than comparable drum brakes?

- A. Disc brakes use no hydraulic pressure
- B. Disc brakes cannot wear during use
- C. The exposed rotor sheds heat more effectively
- D. Disc brakes never generate friction heat

84. A steering wheel shakes mainly during braking from highway speed. What brake-related condition should be checked?

- A. Alternator diode polarity
- B. Rotor lateral runout or thickness variation
- C. Thermostat opening temperature
- D. Fuel-injector spray pattern

85. A front tire shows feathered tread blocks across the surface. Which alignment angle is most commonly associated with this wear pattern?

- A. Toe
- B. Steering-axis inclination only
- C. Caster only
- D. Included angle only

86. A tire develops repeated cupped or scalloped wear around the circumference. Which chassis condition should be investigated?

- A. A rich fuel mixture during closed-loop operation
- B. A clogged injector on one engine cylinder
- C. Weak damping or looseness letting the tire hop
- D. A stuck EVAP purge valve at idle

87. One corner of a vehicle sits noticeably lower than the opposite side with normal tire pressures and no cargo imbalance. What should be inspected first?

- A. The oxygen-sensor heater and its power circuit
- B. The spring and mount at the low corner
- C. The fuel-cap seal and filler-neck gasket
- D. The starter solenoid and starter-drive assembly

88. A hydraulic power-steering system whines, the fluid looks foamy, and assist varies. What is the most likely general cause?

- A. An overcharged battery
- B. A clean catalytic converter
- C. A perfect sealed hydraulic system
- D. Air entering or trapped in the power-steering fluid

89. An A/C system has low pressure on both the low and high sides, and the evaporator outlet is not very cold. Which condition is most likely?

- A. A severely overcharged system
- B. A low refrigerant charge
- C. A blocked condenser with an inoperative fan
- D. A compressor that is mechanically locked

90. An A/C system shows unusually high low-side pressure and unusually low high-side pressure while the compressor is running. Which fault best fits?

- A. A restricted expansion device that is fully blocked
- B. A very low refrigerant charge with low suction pressure
- C. A condenser fan failure that raises head pressure
- D. A compressor that is not pumping effectively

91. A/C pressures become excessively high at idle, but drop toward normal when a large shop fan is directed through the condenser. What should be suspected?

- A. A clogged fuel injector
- B. A worn outer CV joint
- C. Insufficient condenser airflow from the vehicle's fan system
- D. A leaking brake master cylinder

92. The heater inlet hose is hot, but the outlet hose remains much cooler and cabin heat is poor. What is the most likely problem?

- A. Restricted coolant flow through the heater core
- B. A worn wheel bearing
- C. A slipping transmission clutch
- D. An open headlamp circuit

93. A blower motor operates only on its highest speed. Lower speeds are inoperative. Which component is a common cause on a resistor-controlled system?

- A. An open blower-motor resistor assembly
- B. A failed differential carrier
- C. A stuck EGR valve
- D. A worn piston ring

94. The A/C clutch receives battery voltage and has a verified good ground when commanded on, but the clutch never pulls in. What should be suspected?

- A. A fuel-pressure regulator leak
- B. A worn rear axle bearing
- C. An open or failed clutch coil or clutch assembly
- D. A misadjusted wheel toe setting

95. After lifting a vehicle with a floor jack, what should be done before working underneath it?

- A. Rely on hydraulic jack pressure alone
- B. Place loose wood blocks under the oil pan
- C. Leave the vehicle running in gear
- D. Support the vehicle securely on approved stands at proper lift points

96. Before electric welding on a vehicle, why should the technician follow the manufacturer's electrical isolation procedure?

- A. To raise engine compression before the weld begins
- B. To protect electronic modules and wiring from welding current
- C. To refill the brake reservoir during the weld
- D. To increase tire tread depth before welding

97. Why should a technician avoid using an open flame to search for fuel, refrigerant, or solvent leaks?

- A. Open flame improves electronic sensor accuracy
- B. Flame pressure safely seals all leaks
- C. Flammable vapors can ignite and create fire or explosion hazards
- D. Heat always neutralizes hazardous vapors

98. A vehicle arrives with an intermittent driveability complaint and several stored diagnostic trouble codes. What should be done before clearing the codes?

- A. Record codes, freeze-frame data, and relevant scan information
- B. Replace every component named in a code description
- C. Erase all data immediately so the vehicle starts fresh
- D. Disconnect the battery before reading any data

99. Why is complete work-order documentation important after diagnosing and repairing a fleet vehicle?

- A. It allows safety procedures to be skipped

- B. It records symptoms, tests, labor, parts, repairs, and verification for future service history
- C. It guarantees that no future failure can occur
- D. It replaces the need to inspect the vehicle

100. After completing a repair to brakes or steering, what is the best final step before returning the vehicle to service?

- A. Disable warning lamps so the operator sees no messages
- B. Assume the repair is correct if no tools remain
- C. Return the vehicle without checking fluid levels or fasteners
- D. Perform an appropriate safety inspection and controlled verification test

Practice Exam 7: Answer Key and Explanations

1. C — An EGR valve that remains open at idle dilutes the intake charge when the engine cannot tolerate much exhaust gas. The diluted mixture burns poorly, creating an idle misfire and elevated hydrocarbons from unburned fuel. A fuel-cap leak affects EVAP integrity, while catalyst temperature and thermostat behavior do not specifically create this idle-only pattern.

2. B — A restricted exhaust can let manifold vacuum look acceptable at first, then fall as exhaust backpressure builds during sustained engine speed. The engine has increasing difficulty moving gases out of the cylinders. A single spark plug, a healthy battery, or a normal PCV valve does not usually produce a progressive vacuum decrease under a steady-speed test.

3. A — Unmetered air has its greatest proportional effect when normal airflow is low, so a vacuum leak often causes large positive fuel trims at idle that improve as engine speed rises. A restricted air filter tends to reduce airflow, and a rich condition drives trims negative. A thermostat issue can affect mixture, but not this characteristic idle-to-cruise change.

4. D — A repeatable dropout in throttle-position signal at one pedal angle indicates a dead spot in the sensor or its circuit. The PCM can momentarily misjudge driver demand and fuel or spark response, causing hesitation. Thermostat position, driveshaft balance, and catalyst condition do not create a signal dropout that tracks the same throttle angle repeatedly.

5. C — If the MAF underreports incoming air, the PCM initially calculates less fuel than the actual airflow requires. That produces a lean tendency until oxygen-sensor feedback and fuel trims add fuel. A contaminated MAF does not directly eliminate ignition or command transmission pressure, and it does not inherently cause immediate flooding of every cylinder.

- 6. A** — The PCM normally needs a crankshaft position signal to recognize engine rotation and schedule ignition and injector operation. Zero rpm on scan data during cranking strongly points toward that signal or its circuit. Oxygen-sensor heaters, EVAP plumbing, and the blower resistor are not primary inputs used to establish engine position for starting.
- 7. D** — Cylinder pressure rises under load, so the ignition system needs more voltage to jump the plug gap. Carbon tracking or excessive secondary resistance can divert or weaken the spark precisely when demand is highest, producing a load-related misfire. Fuel-tank vacuum, thermostat position, and torque-converter operation do not explain the visible secondary ignition fault.
- 8. B** — The upstream sensor responds directly to changes in exhaust oxygen as the PCM corrects mixture, so its signal normally changes actively. A functioning catalyst stores and releases oxygen, smoothing the exhaust seen by the downstream sensor. Identical or completely fixed signals are not the normal relationship and can suggest sensor, mixture, or catalyst concerns.
- 9. A** — EGR lowers peak combustion temperature by introducing a controlled amount of inert exhaust gas into the intake charge. If commanded EGR flow is absent, combustion temperature can rise and promote formation of oxides of nitrogen. Water vapor and carbon dioxide are normal combustion products, while tank vapor is controlled by the EVAP system rather than EGR.
- 10. C** — A purge valve stuck open can feed uncontrolled fuel vapor from the EVAP system into the intake, especially after the tank has been disturbed during refueling. That can upset the idle mixture and cause a rich or unstable restart. Charging-system output, coolant circulation, and final-drive operation are unrelated to this vapor-control fault.
- 11. D** — Moving a suspect component and seeing the fault move with it is a strong isolation test. Normal compression reduces the likelihood of a mechanical cylinder problem, and the misfire follows the coil rather than staying with the cylinder. A restricted catalyst or weak common fuel pump would usually affect multiple cylinders rather than migrate with one coil.
- 12. B** — Fuel should not be present on the vacuum side of a vacuum-referenced pressure regulator. Gasoline in that hose indicates the diaphragm is leaking internally, allowing fuel to enter the intake and often creating a rich condition. Normal tank venting, an open oxygen-sensor circuit, and a closed throttle plate do not place liquid fuel in the vacuum hose.
- 13. A** — Cold diesel combustion depends on adequate heat from compression, and many engines use glow plugs or another intake-heating aid to improve ignition during cold starts. White smoke can represent unburned fuel during failed cold combustion. Parking-brake hardware, catalyst shielding, and a differential vent do not explain a temperature-dependent diesel starting problem.
- 14. B** — With compression and ignition already established, zero fuel pressure points the diagnosis toward the fuel-delivery system. The technician should verify pump command, electrical feed, ground integrity, and pump or pickup operation before replacing parts. A head gasket, alignment setting, or transmission overhaul does not restore missing fuel pressure at the rail.

15. C — A noid light is used at the injector connector to show whether the control circuit is being pulsed during cranking or operation. It does not prove the injector itself flows correctly, but it separates an electrical-control question from a fuel-delivery question. Compression, thermostat position, and axle backlash require entirely different tests and tools.

16. D — Cold air is denser, so a falsely low intake-air temperature can cause the PCM to calculate that more fuel is needed for the reported air conditions. Depending on strategy, this can bias the mixture rich. The IAT signal does not directly disable all injectors, operate ABS hydraulics, or mechanically engage the transmission park mechanism.

17. B — The PCM uses coolant temperature to determine warm-up enrichment and other operating strategies. If the sensor continues to report a cold engine, the PCM may keep adding more fuel than necessary and may alter idle or timing strategy. Starter engagement, wheel-bearing noise, and clutch release are mechanical concerns that do not follow from a biased coolant-temperature input.

18. A — A leaking injector can let rail pressure fall after shutdown while also wetting one cylinder with fuel. Pairing pressure decay with evidence localized to the same cylinder is stronger than either clue alone. Tire tread, blower operation, and steering return do not evaluate whether a closed injector is sealing against residual fuel pressure.

19. D — Boost pressure exists only when the turbocharger is moving significant air, so a split hose or leaking intercooler often becomes obvious under load and can produce a hiss with low boost. The leak lets compressed air escape before reaching the engine. Park linkage, brake-fluid hardware, and the cabin filter do not carry turbocharger charge air.

20. C — When knock is detected, the PCM commonly reduces spark advance, or retards timing, to lower the tendency for abnormal combustion and protect engine components. This may temporarily reduce power. The starter motor, parking brake, and manual transmission valve are not control elements the PCM uses to respond to a knock-sensor signal during normal driving.

21. B — A correlation code after timing service strongly suggests the mechanical relationship between the crankshaft and camshaft may be incorrect. A chain installed one tooth off can produce poor performance while the sensors themselves still report accurately. Wheel torque, refrigerant pressure, and brake-booster adjustment have no connection to the cam-crank relationship monitored by the PCM.

22. C — A PCV system meters crankcase vapors into the intake. If the valve allows excessive flow at idle, it can act like a vacuum leak and introduce more air than expected, causing lean fuel trims or roughness. Differential locking, A/C charge level, and a seized caliper are unrelated systems and do not result from excessive PCV airflow.

23. D — Black smoke on a gasoline engine commonly indicates excessive fuel relative to available air. In closed loop, the PCM responds to a rich exhaust signal by subtracting fuel, producing negative fuel trims. Positive trims indicate the PCM is adding fuel. Tailpipe appearance alone is not definitive, and wheel-alignment caster has no role in air-fuel control.

24. A — A misfiring cylinder can send oxygen and unburned fuel into the exhaust. When that mixture reaches a hot catalytic converter, oxidation can continue inside the catalyst and generate damaging heat. The converter does not pump engine oil, control alternator voltage, or apply brakes. Correcting the misfire protects both emissions performance and the catalyst.

25. A — EGR reduces peak combustion temperature by diluting the incoming charge with inert exhaust gas during selected operating conditions. Blocked passages prevent that cooling effect, increasing the tendency for detonation or spark knock under load. Brake pressure, battery electrolyte temperature, and differential preload are unrelated to the combustion-temperature mechanism controlled by EGR.

26. D — A proper injector command shows that the control circuit is attempting to operate the injector, and normal system pressure shows fuel is available. If that injector still does not deliver fuel, the fault is likely inside the injector, such as a stuck pintle or restriction. Crankshaft failure, battery capacity, and wheel alignment do not fit the established test results.

27. C — Opening the throttle normally raises intake manifold absolute pressure and reduces vacuum. If the MAP signal does not respond while throttle data clearly changes, the sensor, its vacuum source if used, wiring, or reference circuit becomes suspect. Brake rotors, axle seals, and heater doors do not determine the manifold-pressure signal used for engine load calculations.

28. B — Positive trims at both idle and cruise, combined with low pressure under load, point toward inadequate fuel delivery rather than a simple idle vacuum leak. Checking pump voltage, ground, current, pickup restriction, and delivery volume helps separate electrical supply from pump or tank problems. Brake, wiper, and alignment checks do not address the lean condition.

29. A — A wet plug shows that fuel has entered the cylinder, so the diagnosis should not begin by assuming complete fuel starvation. The technician must consider mixture quality, spark energy under compression, timing, and mechanical compression. Brake-boost fluid, alternator diodes, and wheel-bearing preload do not explain gasoline on the spark plug after cranking.

30. B — Many immobilizer systems prevent unauthorized starting by disabling injector operation or another engine-control function even though the mechanical engine and fuel supply are intact. An active security fault that coincides with loss of injector command supports that direction. Thermostat behavior, brake rotors, and differential components do not command antitheft fuel-injection authorization.

31. C — The front pump turns whenever the engine drives the torque converter, even while the vehicle is stationary in Park. A pump problem can therefore create a speed-related whine without vehicle movement. The park pawl is static, while wheel bearings and differential gears normally require road-wheel rotation before their noises change with vehicle speed.

32. D — Low transmission fluid can let the pump draw air and delay hydraulic pressure buildup, especially after the vehicle sits. The correct first move is to restore the level using the specified fluid and locate the leak, then reevaluate operation. Differential replacement, ABS disconnection, and ignition timing changes do not correct insufficient transmission fluid or hydraulic supply.

33. A — Burned fluid and visible friction debris indicate that internal friction elements have been slipping, overheating, or deteriorating. This is stronger evidence of internal transmission distress than color alone. It is not a normal condition when debris is substantial, and tire pressure or washer-pump output cannot create clutch material in the transmission pan.

34. D — The torque-converter clutch should release at low speed so the engine can idle independently of the stopped drivetrain. If it remains applied, the engine can be mechanically dragged to a stall just as a manual clutch would. Fuel-cap sealing, shock damping, and blower speed do not couple the crankshaft to a stationary transmission input.

35. B — A circuit code identifies an electrical control problem before it proves a hydraulic or mechanical failure. Checking the solenoid, connector, wiring, supply voltage, ground, and PCM command can locate an open, short, or failed actuator without unnecessary teardown. Clutch-pack replacement, differential rebuilding, and alignment adjustments ignore the electrical evidence already provided by the diagnostic code.

36. C — Under heavy load, a worn clutch disc or weak pressure-plate clamping force may be unable to transmit engine torque. Engine rpm then rises while vehicle speed does not increase proportionally. Steering binding, radiator-cap pressure, and normal ABS operation do not disconnect engine speed from driveline speed only when torque demand becomes high.

37. A — Creeping with the pedal down means some engine torque is still reaching the transmission input shaft. That incomplete release can keep gears rotating and cause grinding or difficult engagement, especially into reverse. A slipping clutch is the opposite condition during torque transfer. Differential-oil cleanliness and alternator-belt tension do not prevent clutch disengagement.

38. C — Outer CV joints operate through large steering angles while transmitting drive torque, so wear commonly produces clicking during powered turns. A torn boot allows lubricant loss and contamination that accelerates joint damage. The thermostat, booster check valve, and tank-pressure sensor do not rotate with the steering knuckle or experience the joint angles that create this noise.

39. D — A worn universal joint adds free movement to the driveline. When torque reverses from drive to coast, that clearance can be taken up suddenly and produce a clunk. The visible joint play supports the diagnosis. Air-filter restriction, evaporator icing, and brake-switch adjustment do not create rotational clearance in the driveshaft during torque reversal.

40. B — Wheel-bearing noise commonly changes with road speed and with lateral loading during gentle steering. If the noise grows when weight transfers onto the left front, that bearing becomes a strong suspect, although confirmation is still needed. Purge valves, ignition coils, and heater cores do not normally create a speed-related hum that changes with cornering load.

41. C — A new vibration immediately after driveshaft service makes installation-related causes most likely. Incorrect phasing, changed flange indexing, a missing balance weight, damaged joint, or improper seating can create rotating imbalance. Coolant color, brake-light bulb wattage, and cabin-filter direction do not change the balance or angular relationship of the driveshaft assembly.

42. B — A part-time four-wheel-drive system can lock front and rear output speeds together. On high-traction pavement, the axles need slightly different average speeds while turning, so the driveline stores torsional stress instead. That causes binding and hopping. Torque-converter slip, brake-fluid boiling, and alternator field behavior do not create this front-to-rear speed conflict.

43. A — A large temperature difference with a very cool return can indicate that hot fluid is not flowing normally through the cooler circuit. A restriction limits heat transfer and can drive transmission temperature upward under load. Battery state, wheel alignment, and cabin filtration do not control automatic-transmission fluid flow through the external cooler and return lines.

44. D — A hydraulic transmission governor produces a pressure signal that changes with output-shaft or vehicle speed. The valve body uses that information with throttle or modulator inputs to determine shift timing. Coolant temperature, wheel braking, and refrigerant pressure belong to separate systems and are not the governor's basic role in a traditional automatic transmission.

45. B — The park pawl locks the transmission output mechanically, but loading the vehicle against it on a grade can make disengagement difficult and places unnecessary stress on the mechanism. Applying the parking brake lets the wheel brakes hold most of the load. Neutral without a brake or engine speed after shutdown cannot secure the vehicle safely.

46. C — The stator redirects returning fluid to improve torque multiplication when the vehicle is starting and turbine speed is low. If the one-way clutch cannot hold as intended, launch torque can fall and converter losses can create heat. Brake-fluid loss, headlamp circuits, and steering stiffness are not produced by stator-fluid redirection inside the torque converter.

47. D — As transmission fluid warms, viscosity decreases. Excessive internal clearances, seal leakage, weak pump output, or worn friction elements may then lose enough apply pressure to slip even though cold operation seemed acceptable. Tire tread, engine thermostat operation, and windshield switches do not determine clutch-apply pressure inside the transmission hydraulic circuit.

48. A — Electronically controlled transmissions compare input and output speeds, throttle or load, and other data to select gears and monitor clutch operation. An incorrect output-speed signal can therefore cause poorly timed shifts or diagnostic trouble codes. The sensor does not control radiator pressure, brake-fluid chemistry, or physically drive the fuel pump.

49. A — A ring-and-pinion set loads opposite sides of the gear teeth during drive and coast. Noise concentrated in one condition can point to tooth contact, backlash, pinion depth, or bearing preload that is incorrect on that load side. Blend doors, battery brackets, and washer nozzles do not alter differential gear contact when torque direction reverses.

50. D — A universal joint must articulate smoothly as the driveshaft rotates. If it binds, the joint can cause cyclic speed variation and vibration that becomes more noticeable when driveline torque loads the joint during acceleration. Radiator cooling, brake-boost operation, and oxygen-sensor feedback cannot change the mechanical articulation of the rotating driveshaft joint.

51. C — A voltmeter measures electrical potential difference between two points, so it is connected in parallel across the component or section being tested. Its high internal resistance minimizes circuit disturbance. An ammeter is typically placed in series for current measurement. Grounding both leads or using only battery negative provides no meaningful voltage difference across the load.

52. B — A cable can show continuity with an ohmmeter yet still fail under high current because of corrosion, damaged strands, or poor terminal contact. Measuring voltage across the cable while current flows reveals the energy lost through unwanted resistance. Tire rolling resistance, cylinder compression, and alignment angles require unrelated mechanical tests rather than an electrical load test.

53. C — An ohmmeter supplies its own small test current, so measuring resistance on an energized circuit can produce false readings or damage the meter. Isolating the component also prevents parallel paths from changing the result. Starting the engine, applying system voltage, or placing the meter in series is not the correct method for resistance testing.

54. B — A fuse opens when current exceeds its rating. A conductor shorted to ground can bypass the intended load and allow very high current, causing the fuse to blow as soon as the circuit is energized. An open circuit reduces current, while a healthy battery and correctly sized fuse do not by themselves create an overcurrent condition.

55. D — Battery voltage at the power side shows the feed reaches the lamp. A large voltage difference between the ground terminal and battery negative while current should flow means the ground path is not staying near battery-negative potential. That identifies unwanted resistance in the ground circuit rather than an absent battery or open power feed.

56. A — The fuse is selected to protect the wiring and components from excessive current. Replacing it with a higher rating can let a fault draw more current than the conductors safely tolerate, creating heat and possible fire damage before the fuse opens. Fuse size does not change battery dimensions, starter direction, or tire pressure.

57. C — A relay uses an electromagnetic or electronic control to open or close contacts in a separate load circuit. This lets a switch or control module handle only modest current while the relay contacts carry the fan's larger current. Relays do not generate energy from brake fluid, alter suspension geometry, or change engine compression.

58. D — Modern vehicles can draw temporary current after shutdown while modules complete routines. A useful parasitic-draw test waits for normal sleep, then measures remaining key-off current and isolates circuits if the draw is excessive. Keeping doors open can add normal loads, and shorting battery terminals is dangerous. Belt width does not measure electrical draw.

59. A — Alternator stator windings produce alternating current, and the rectifier diodes convert it to direct current for the vehicle. A defective diode can leave excessive alternating-current ripple even when average charging voltage looks acceptable. Coil springs, heater cores, and brake pads cannot create AC ripple in the charging system output measured at the battery.

60. B — A battery can show reasonable open-circuit voltage yet lack usable capacity because of internal deterioration. A load test applies a significant electrical demand and observes whether terminal voltage remains adequate. It evaluates the battery's ability to supply current, not thermostat operation, wheel alignment, or HVAC door movement. Verify the finding with a second targeted test.

61. D — A substantial voltage drop across a cable while high current is flowing means voltage is being consumed by resistance in that cable path. Corrosion, loose connections, or damaged conductors are common causes. The result does not prove the cable good, and engine-oil level or wheel-bearing condition cannot create electrical voltage loss across the positive starter cable.

62. A — Crankshaft position information allows the PCM to identify engine rotation and synchronize ignition and fuel-injection events. If the signal drops out, the PCM can lose the timing reference and the engine may stall. The sensor does not mechanically pump fuel, adjust wheel alignment, or create hydraulic brake pressure. Confirm the cause before replacing parts.

63. C — When multiple modules on the same data network fail to communicate at once, a fault in the shared bus can affect all of them even though each module still has power and ground. Checking network continuity, shorts, connectors, and termination is therefore logical. Oil, parking-brake, and cabin-filter service cannot restore data-bus communication.

64. B — If voltage reaches the switch input but does not appear at the output when the switch should be closed, the current path is being interrupted inside the switch or its immediate connection. Because the downstream load and ground are already verified, the switch becomes the prime suspect. Tires, thermostats, and differential gears are unrelated to circuit continuity.

65. A — Intermittent faults often depend on vibration, connector tension, temperature, or conductor position. Carefully moving the harness while observing voltage, continuity, or scan data can make the fault appear and help localize the affected area. The test does not increase battery capacity, permanently repair corrosion, or change the engine's mechanical compression.

66. D — Oil added during a wet compression test can temporarily improve sealing between the piston rings and cylinder wall. A substantial increase therefore points toward ring or cylinder wear. A burned valve generally will not seal better because oil was added above the piston. Wheel bearings and A/C condensers have no effect on cylinder compression.

67. B — Low compression in neighboring cylinders can indicate a sealing failure across the shared head-gasket area. Bubbles in the cooling system during cranking add evidence that combustion pressure is entering coolant passages. A cabin filter, tire balance, or wiper motor cannot connect two combustion chambers or introduce cylinder pressure into the cooling system.

68. C — With the tested cylinder positioned so both valves should be closed, air heard at the throttle body is escaping back through the intake tract. That most directly indicates an intake-valve sealing problem. Air at the tailpipe suggests an exhaust valve, while crankcase noise suggests rings. Axle, booster, and heater components are unrelated to cylinder sealing.

69. D — Blow-by is combustion gas that escapes past the pistons into the crankcase. Excessive crankcase flow together with oil consumption points toward poor ring sealing, worn cylinders, or related piston damage. A perfectly sealed chamber would reduce blow-by, and cabin filtration or parking-brake adjustment cannot influence gas leakage past the pistons.

70. B — High intake vacuum during closed-throttle deceleration can draw oil past worn valve guides or hardened valve-stem seals. When the throttle opens again, that accumulated oil burns and creates a short blue puff. A dry fuel tank would cause fuel starvation, while headlamp wiring and wheel balance have no route for engine oil into the combustion chamber.

71. C — Oil thins as it warms, so excessive bearing clearances or a worn pump can become more evident at hot idle when flow demand and pump speed are low. The diagnosis still requires gauge verification and inspection, but the pattern fits internal lubrication wear. Tire pressure, cabin filtration, and A/C charge do not determine engine oil pressure.

72. A — A thermostat stuck closed blocks the normal path from the engine to the radiator, so heat builds rapidly in the engine while radiator circulation remains limited. A thermostat stuck open usually causes slow warm-up rather than rapid overheating. Driveshaft balance and injector cleanliness do not control coolant flow between the engine and radiator.

73. C — A thermostat stuck open allows coolant to circulate through the radiator too soon and too continuously, making warm-up slow and reducing available heater-core temperature in cold conditions. A closed thermostat tends to cause overheating. Brake calipers and starter cables do not regulate engine coolant warm-up or heater-core temperature. Confirm the result before replacing major components.

74. D — Because the fan motor can run when the A/C requests it, the motor and at least part of the power circuit are proven capable of operating. The missing temperature-based command points toward the coolant-temperature sensor input, PCM strategy, relay control, or related wiring. Driveshaft, axle, and washer components cannot create a missing fan command.

75. B — Combustion gases should remain inside the cylinders and exhaust system. Detecting them in coolant means there is a path between a combustion chamber and the cooling jacket, commonly through a failed head gasket, cracked head, or block defect. Wheel alignment, blower resistors, and wiper blades cannot introduce exhaust gases into engine coolant.

76. A — A water pump can appear to rotate normally from the outside while a loose, eroded, or damaged impeller moves too little coolant inside the engine. Under load, inadequate circulation can cause temperature to rise quickly. The impeller does not increase cylinder compression, hydraulic brake pressure, or battery capacity; its job is to circulate coolant.

77. C — The symptoms began immediately after timing-belt service, and a correlation code directly concerns camshaft-to-crankshaft relationship. Verifying timing marks, tension, and belt indexing should come before replacing sensors or unrelated parts. Brake pads, tire balance, and refrigerant charge cannot shift valve timing or create a mechanical correlation error after belt installation.

78. D — The outer ring of many harmonic balancers carries the timing mark. If that ring slips relative to the crankshaft hub, the mark can become inaccurate even though the crankshaft itself is correctly positioned. That can mislead timing or TDC checks. Brake fluid, alternator rectification, and differential locking are not controlled by the balancer's timing mark.

79. A — Air is compressible, while brake fluid is effectively incompressible for normal hydraulic operation. Trapped air therefore allows extra pedal travel and a soft feel, and pumping can temporarily compress the air and make the pedal feel firmer. Battery charge, throttle cleanliness, and driveshaft balance do not change hydraulic pedal compressibility.

80. B — A much cooler left rotor indicates that wheel is converting less vehicle energy into brake heat than the right. Reduced left-front braking can make the vehicle pull toward the stronger right side. The technician should inspect caliper action, hose flow, pads, and contamination. Engine mixture, blower control, and fuel-cap sealing do not explain unequal rotor heating.

81. A — ABS compares wheel-speed signals to detect impending lockup. If one sensor falsely drops toward zero at low speed, the module may interpret that wheel as locking and command unnecessary pressure modulation. The sensor, tone ring, wiring, bearing play, or gap should be inspected. Thermostat, heater-core, and clutch faults do not create a false wheel-speed signal.

82. D — A hard pedal with reduced assist points toward the power-assist system rather than trapped air, which usually creates a soft pedal. On a vacuum booster, the technician checks vacuum supply, check valve, hose, and booster operation. Hydro-boost systems require their hydraulic supply checked. EVAP, axle oil, and evaporator drainage do not provide brake assist.

83. C — Disc-brake rotors are exposed to airflow and can release heat readily, while drums enclose much of the friction surface and retain more heat. Better heat rejection helps disc brakes maintain friction during repeated stops. They still generate substantial heat, rely on hydraulic force in common systems, and their pads and rotors remain wear items.

84. B — Brake torque that varies once per rotor revolution can feed a pulsation through the caliper, hub, and steering system. Excessive rotor runout, thickness variation, hub rust, or uneven friction transfer can produce a steering-wheel shake during braking. Injector spray, thermostat behavior, and alternator diodes are not synchronized with wheel rotation during a stop.

85. A — Incorrect toe makes the tires scrub sideways as they roll instead of tracking straight. That lateral scrub commonly produces a feathered tread pattern that can be felt by hand across the tread. Caster mainly affects directional stability and steering return, while steering-axis inclination and included angle are important diagnostic geometry but are not the usual primary cause of feathering.

86. C — Cupping occurs when the tire repeatedly loads and unloads against the road instead of maintaining consistent contact. Weak shocks or struts, wheel imbalance, worn joints, or other looseness can contribute to that hopping pattern. Fuel mixture, injector flow, and EVAP purge control affect engine operation rather than the vertical motion of the tire and suspension.

87. B — Ride height is primarily supported by the vehicle's springs. A broken, sagged, improperly seated, or damaged spring or mount can lower one corner even when tire pressures and load are correct. Shock absorbers control motion but usually do not carry static weight. Oxygen sensors, fuel caps, and starter solenoids cannot determine chassis ride height.

88. D — Foam in hydraulic fluid indicates aeration. Air can enter through a low fluid level, suction-side leak, poor connection, or improper bleeding, and the pump may whine as it moves an air-fluid mixture. A properly sealed system should not continuously aerate fluid. Battery state and catalyst condition do not create foam in the steering reservoir.

89. B — When refrigerant quantity is low, the compressor has less mass flow to circulate, so both suction and discharge pressures can be lower than expected and cooling capacity drops. An overcharge or poor condenser airflow usually raises high-side pressure. A locked compressor creates a different operating condition and may prevent normal pressure development entirely.

90. D — A weak compressor cannot create the normal pressure difference between suction and discharge, so low-side pressure tends to stay too high while high-side pressure stays too low. A severe restriction commonly drives suction lower, and poor condenser airflow raises discharge pressure. A low charge usually lowers both sides rather than equalizing them toward each other.

91. C — The shop fan artificially restores airflow across the condenser and immediately improves pressure, so the refrigeration circuit is responding to better heat rejection. That points toward an inoperative cooling fan, blocked airflow path, or fan-control problem. CV joints, brake hydraulics, and fuel injectors do not regulate airflow through the A/C condenser at idle.

92. A — A large temperature difference across the heater core with a hot inlet suggests that hot coolant reaches the core but does not flow through it adequately. Internal restriction, trapped air, or a control valve problem should be considered. Transmission clutches, headlamp circuits, and wheel bearings cannot create a hot-inlet/cool-outlet pattern in the heater circuit.

93. A — Traditional blower circuits route the lower speeds through resistor elements, while high speed often bypasses those resistors through a separate path or relay. If only high works, an open resistor assembly or its connector is a common suspect. Differential, EGR, and piston-ring faults do not selectively remove the lower electrical blower speeds.

94. C — Correct voltage and ground at the clutch connector show that the command and feed path reach the clutch. If the magnetic clutch still does not engage, the coil may be open or the clutch mechanism may be damaged or out of adjustment. Fuel pressure, wheel toe, and axle-bearing wear do not prevent an energized A/C clutch from pulling in.

95. D — A hydraulic jack is a lifting device, not a dependable long-term support. Before anyone works underneath, the vehicle should be stabilized on properly rated stands at approved support points and checked for security. Loose improvised blocks or the engine and drivetrain are not substitutes for safe support, and a running vehicle adds unnecessary hazards.

96. B — Welding current can seek unintended paths through vehicle grounds, wiring, bearings, or control modules if the equipment and vehicle are not connected and isolated correctly. Following the manufacturer's battery, module, and ground-clamp procedure reduces that risk. Welding setup does not alter tire tread, engine compression, or automatically add brake fluid.

97. C — Fuel and many shop chemicals can produce vapors that ignite readily, and heating pressurized systems can create additional hazards. Leak detection should use approved visual, electronic, pressure, dye, or soapy-solution methods appropriate to the system. An open flame does not improve sensor accuracy, seal leaks, or reliably make hazardous vapors safe.

98. A — Stored codes and freeze-frame data preserve conditions that existed when a fault was detected. Recording them before clearing memory can reveal load, temperature, speed, and system state needed to reproduce an intermittent problem. Codes identify monitored faults, not automatic parts-replacement instructions. Erasing or disconnecting power first can destroy valuable diagnostic evidence.

99. B — Accurate service records let later technicians understand what the driver reported, what was tested, which parts and labor were used, and whether the repair was verified. That history improves repeat-failure diagnosis, maintenance planning, and accountability. Documentation supports technical work; it does not replace inspection, guarantee future reliability, or waive safe work practices.

100. D — Critical systems should be verified after repair. The technician checks fluid levels, fasteners, leaks, pedal or steering feel, warning indicators, and then performs a controlled test appropriate to shop policy and conditions. Tool count alone cannot prove function. Skipping checks or disabling warning lamps can hide a defect rather than demonstrate that the vehicle is safe.