

PRACTICE EXAM 11: POSTAL AUTOMOTIVE TECHNICIAN EXAM (944) SIMULATION (100 QUESTIONS)

This standalone practice exam contains 100 questions covering technician-level automotive diagnosis and repair topics associated with USPS Automotive Knowledge Exams 943/944/945. The current USPS Exam 943 information package identifies a 30-minute Automotive Technician section and a minimum passing score of 70, excluding Veterans' Preference points. For study purposes, answer all 100 questions and review the explanations after completing the exam.

1. An engine has repeated oil seepage at several gaskets, and crankcase pressure is high at idle. Which fault should be checked first?

- A. A weak ignition coil
- B. A stuck-open thermostat
- C. A restricted PCV system
- D. A loose wheel bearing

2. A warm engine has low oil pressure at idle, but pressure rises noticeably when engine speed increases. No external leak is present. What is a likely cause?

- A. Excessive internal bearing clearance
- B. A restricted cabin filter
- C. A shorted oxygen sensor
- D. A seized parking-brake cable

3. A cooling-system pressure test loses pressure. No external leak is visible, and one spark plug appears unusually clean compared with the others. What is most likely?

- A. A restricted fuel return
- B. Coolant leaking into that cylinder

- C. An open alternator diode
- D. A worn tie-rod end

4. A vacuum gauge shows normal vacuum at idle, but the reading steadily falls while the engine is held at 2,500 rpm. Which condition is most likely?

- A. An overcharged battery
- B. A loose drive axle nut
- C. A leaking brake caliper
- D. A restricted exhaust system

5. During a leak-down test, air is heard strongly at the oil filler opening. Where is the primary leakage path?

- A. Through the intake valve
- B. Through the exhaust valve
- C. Across the heater core
- D. Past the piston rings

6. A relative-compression test using starter current shows one repeating current peak much lower than the others. What does this indicate?

- A. The alternator is overcharging
- B. One cylinder has reduced compression
- C. All injectors are restricted
- D. The brake booster is leaking

7. All cylinders have uniformly low compression, and adding oil during a wet test produces little improvement. Which condition is most likely?

- A. Worn piston rings in one cylinder

- B. A clogged fuel injector
- C. Incorrect camshaft timing
- D. A weak battery ground

8. A cylinder-balance test disables each injector one at a time. Disabling cylinder 4 causes almost no change in idle speed. What does this mean?

- A. Cylinder 4 is already contributing little power
- B. Cylinder 4 has the strongest combustion
- C. The alternator is charging normally
- D. The cooling fan is drawing excess current

9. An engine has low power after a timing-belt service. Compression is even but lower than expected, and manifold vacuum is also uniformly low. What should be checked first?

- A. Brake rotor runout
- B. Camshaft-to-crankshaft timing alignment
- C. Fuel-tank vent pressure
- D. Wheel alignment toe

10. A fully warm engine develops a misfire that is absent when cold. Valve lash on one cylinder is found below specification. What can excessively tight lash cause?

- A. A valve may not fully seat when hot
- B. The piston rings gain clearance
- C. The alternator field opens
- D. The fuel pump raises octane

11. A vehicle loses coolant, produces sweet-smelling white exhaust after warm-up, and has no visible external leak. Which fault is most likely?

- A. A rich fuel mixture only
- B. A slipping accessory belt
- C. Coolant entering a combustion chamber
- D. A weak shock absorber

12. The lower radiator hose becomes flattened at higher engine speed, and the engine begins to overheat. What is the most likely cause?

- A. The thermostat is stuck open
- B. The battery is sulfated
- C. The rear brakes are dragging
- D. The lower hose is collapsing under pump suction

13. A cooling system reaches normal temperature but pushes coolant into the overflow bottle earlier than expected because the pressure cap cannot hold rated pressure. What is the effect?

- A. The engine oil viscosity increases
- B. The fuel pressure rises sharply
- C. The coolant boiling point is reduced
- D. The brake pedal becomes harder

14. An engine takes an unusually long time to reach operating temperature, and heater output is weak during highway driving. Which fault is most likely?

- A. A blocked catalytic converter
- B. A thermostat stuck open
- C. A shorted starter motor
- D. A seized front caliper

15. A deep knocking sound is strongest under load and increases with engine speed. Oil pressure is also below normal. Which fault is most likely?

- A. Excessive connecting-rod bearing clearance
- B. A leaking vacuum hose
- C. A worn outer CV joint
- D. A restricted cabin filter

16. An engine overheats in traffic, but the electric cooling fan runs normally whenever the A/C is switched on. Which circuit deserves priority testing?

- A. The starter-solenoid feed
- B. The fuel-level sender
- C. The rear wheel-speed sensor
- D. The engine-temperature fan-control input

17. A gasoline engine has heavy carbon deposits and occasionally rattles or pings during acceleration even though ignition timing control is normal. What can the deposits contribute to?

- A. Reduced brake-fluid boiling point
- B. Increased tendency toward abnormal combustion
- C. Higher tire rolling resistance
- D. A lower alternator pulley ratio

18. A newly installed oil filter is followed immediately by delayed oil-pressure buildup and valvetrain noise after each start. Which possibility should be checked?

- A. A stuck-open EGR valve
- B. A loose stabilizer link
- C. An incorrect or defective filter anti-drainback function
- D. A rich A/C refrigerant charge

19. A cylinder has normal compression when cold but much lower compression after the engine is fully hot. Which condition could explain the change?

- A. A valve that loses seating clearance when hot
- B. A fuel filter that becomes cleaner
- C. A battery that gains capacity
- D. A tire that gains tread depth

20. An engine cranks faster than normal after a timing-belt failure and shows little compression on every cylinder. What is the best first conclusion?

- A. The brake booster is seized
- B. The alternator belt is too tight
- C. The tires are overinflated
- D. Valve timing has been lost

21. A fully charged battery measures 12.6 volts open-circuit but drops well below the specified minimum during a proper load test. What does this indicate?

- A. The battery cannot supply adequate current
- B. The alternator belt is correctly adjusted
- C. The starter relay is definitely open
- D. The headlamps have excessive resistance

22. A starter only clicks. Battery voltage remains stable, but a voltage-drop test measures 2.0 volts from the battery positive post to the starter B terminal while cranking. What is most likely?

- A. A fully shorted ignition coil
- B. A low refrigerant charge
- C. Excessive resistance in the positive starter cable path
- D. A worn wheel bearing

23. A no-crank vehicle has normal battery voltage at the starter B terminal, but the starter S terminal receives no voltage with the key in START. What should be diagnosed next?

- A. The alternator stator windings
- B. The brake hydraulic circuit
- C. The rear axle bearings
- D. The starter-control circuit

24. A vehicle has an 0.80-amp key-off draw after modules should be asleep. Removing one fuse drops the draw to 0.03 amp. What has the test established?

- A. The battery has perfect capacity
- B. The excessive draw is on the fused circuit just removed
- C. The alternator must have a shorted rotor
- D. The starter solenoid is mechanically jammed

25. Charging voltage is normal with few accessories on but falls close to battery voltage when headlights, blower, and defogger are operating. Belt tension is correct. What is most likely?

- A. Insufficient alternator output under load
- B. A thermostat stuck closed
- C. Excessive front toe-in
- D. A leaking wheel cylinder

26. An alternator produces acceptable DC charging voltage, but a scope or meter shows excessive AC ripple at the battery. Which fault is most likely?

- A. A worn ball joint
- B. A failed rectifier diode
- C. A restricted heater core
- D. A stuck-open purge valve

27. Several sensors that share a 5-volt reference all read near zero, while their grounds are good. What should be checked first?

- A. A slipping transmission clutch
- B. A blocked radiator core
- C. A short on the shared 5-volt reference circuit
- D. A loose steering rack mount

28. A ground-side voltage-drop test across an operating blower-motor ground path reads 1.5 volts. What does this indicate?

- A. The motor is receiving ideal ground
- B. The battery is fully discharged
- C. The refrigerant is overcharged
- D. Excessive resistance in the ground path

29. A PCM-controlled relay has battery voltage on both sides of the relay coil when the relay is commanded on. The PCM normally completes the coil ground. What is most likely?

- A. The ground-control side is not being pulled low
- B. The relay coil has perfect current flow
- C. The load circuit is definitely shorted
- D. The battery polarity is reversed

30. A throttle-position sensor signal changes smoothly from about 0.5 volt closed to about 4.5 volts at wide-open throttle. What does this pattern indicate?

- A. A direct short to battery voltage
- B. An open sensor ground at all times
- C. A failed starter field winding
- D. A normal variable sensor signal

31. An engine-coolant-temperature sensor is a typical negative-temperature-coefficient thermistor. What happens to its resistance as coolant temperature rises?

- A. Its resistance always becomes infinite
- B. Its resistance decreases
- C. Its resistance remains exactly constant
- D. Its resistance reverses battery polarity

32. A three-wire Hall-effect crankshaft sensor has correct power and ground. What type of signal should normally be expected while the engine turns?

- A. A steady hydraulic-pressure signal
- B. A fixed mechanical vacuum signal
- C. A switching digital voltage signal
- D. A constant zero-voltage signal

33. A fuse blows immediately after replacement even when the protected load is unplugged. What fault is most likely?

- A. A grounded power wire before the load
- B. A weak shock absorber
- C. A low engine-oil level only
- D. A clogged transmission filter

34. Two rear lamps are dim, but each has proper power voltage at its connector. Both lamps share the same ground point. What should be checked?

- A. The engine thermostat
- B. The A/C metering device
- C. Resistance at the shared ground connection
- D. The front wheel alignment

35. With vehicle power off and the network asleep, resistance measured across a properly terminated high-speed CAN bus is about 60 ohms. Why?

- A. The battery cells are wired in parallel
- B. The starter brushes are exactly 60 ohms
- C. The alternator phases are open-circuited
- D. Two 120-ohm termination resistors are effectively in parallel

36. A 12-volt circuit has a total resistance of 4 ohms. Approximately how much current should flow?

- A. 0.33 ampere
- B. 3 amperes
- C. 8 amperes
- D. 48 amperes

37. A high-current connection has 0.02 ohm of resistance while carrying 50 amperes. What voltage drop is produced across the connection?

- A. 0.04 volt
- B. 1.0 volt
- C. 2.5 volts
- D. 25 volts

38. Two resistors of 2 ohms and 4 ohms are connected in series across a 12-volt source. What is the circuit current?

- A. 2 amperes
- B. 1 ampere
- C. 3 amperes
- D. 6 amperes

39. With steady foot pressure, a brake pedal slowly sinks toward the floor. No external fluid leak is found. What is most likely?

- A. A seized wheel bearing
- B. A restricted air filter
- C. Internal bypass in the master cylinder
- D. A weak alternator diode

40. A vehicle pulls sharply to the right only during braking. The right-front brake operates normally. Which condition could cause the pull?

- A. Equal braking force at both front wheels
- B. A balanced tire on the rear axle
- C. A fully charged battery
- D. Reduced braking force at the left-front wheel

41. A brake pedal pulsates rhythmically during normal stops, and the pulsation frequency increases with road speed. Which condition is most likely?

- A. A weak fuel pump
- B. Brake rotor thickness variation or runout
- C. A stuck-open thermostat
- D. A loose battery terminal

42. One wheel remains partially applied after the brake pedal is released. Opening that wheel's bleeder immediately releases the brake. What is most likely?

- A. A restricted flexible brake hose trapping pressure
- B. A worn shock absorber
- C. An open oxygen-sensor heater
- D. A loose exhaust shield

43. ABS activates unexpectedly at very low speed on a dry road. Scan data shows one wheel-speed signal dropping out just before activation. What should be inspected?

- A. The engine oil filter
- B. The A/C compressor clutch
- C. That wheel's sensor, tone ring, and air gap
- D. The fuel-tank cap

44. A brake pedal is very hard with the engine running. Manifold vacuum is normal, but little vacuum reaches the brake booster. What should be checked first?

- A. The booster vacuum hose and check valve
- B. The rear axle ratio
- C. The transmission cooler
- D. The cabin air filter

45. A hydro-boost equipped vehicle suddenly has both a hard brake pedal and unusually heavy power steering. What common source should be checked?

- A. The ignition coil secondary circuit
- B. The EVAP vent valve
- C. The rear defogger grid
- D. Power-steering hydraulic pressure and flow

46. A rear drum brake repeatedly locks before the other wheels. Inspection shows one shoe lining soaked with axle lubricant. What is the proper conclusion?

- A. The ABS fuse should simply be removed
- B. The master cylinder bore is too large
- C. The contaminated lining can cause abnormal braking and must be corrected
- D. The tire pressure alone caused the contamination

47. A parking brake requires excessive lever travel, but the hydraulic service brakes operate normally and the rear friction components are properly adjusted. What should be checked?

- A. Engine compression pressure
- B. Alternator AC ripple
- C. A/C high-side pressure
- D. Parking-brake cable adjustment and stretch

48. Brake-system rubber parts are swollen and soft, and the fluid has an oily appearance. What is the likely cause?

- A. Normal moisture absorption only
- B. Petroleum contamination of the brake fluid
- C. Excessive wheel alignment caster
- D. A weak starter solenoid

49. After repeated heavy braking, the pedal becomes soft and braking effectiveness decreases. The fluid has overheated enough to form vapor. What is this condition?

- A. Normal ABS modulation
- B. Hydraulic fade from brake-fluid boiling
- C. Mechanical tire scrub
- D. Charging-system ripple

50. A caliper slide pin is seized on a floating-caliper brake. What wear pattern is most likely?

- A. Identical tire wear on all four corners
- B. Equal compression on all cylinders
- C. Uneven pad wear between the inner and outer pads
- D. Higher fuel pressure at idle

51. A technician applies 100 pounds of force to a master-cylinder piston with an area of 0.5 square inch. Ignoring losses, what hydraulic pressure is produced?

- A. 50 psi
- B. 100 psi
- C. 500 psi
- D. 200 psi

52. After replacing front brake pads, what should be done before moving the vehicle under power?

- A. Restore a firm pedal by pumping it
- B. Hold the throttle wide open
- C. Disconnect the ABS module
- D. Deflate the front tires

53. The front tires show a feathered tread pattern across the ribs. Which alignment angle should receive close attention?

- A. Caster only
- B. Steering-axis inclination only
- C. Ride height only
- D. Toe

54. Inspection shows alternating high and low tread patches around a front tire, and the corner continues to oscillate after a bump. Which failed function best fits the wear pattern?

- A. Correct wheel balance
- B. Normal toe setting
- C. Poor shock or strut damping
- D. A clean air filter

55. A vehicle has weak steering return-to-center after a turn. Which alignment condition can contribute to this complaint?

- A. Insufficient positive caster
- B. Excessive fuel pressure
- C. Low alternator ripple
- D. High brake-fluid level

56. Tire pressures are equal and a tire swap does not change a rightward pull. Alignment shows the right-front camber is substantially more positive than the left. What can this cause?

- A. The vehicle must pull left
- B. The vehicle may pull toward the right
- C. The engine will misfire
- D. The transmission will slip

57. Both front tires are worn heavily on their inner shoulders, and toe is within specification. Which alignment condition is most likely?

- A. Excessive negative camber
- B. Excessive positive camber
- C. Too much positive caster only
- D. Correct steering-axis inclination

58. After a suspension ride-height modification, the vehicle changes direction noticeably as the wheels move through bumps even though the steering wheel is held steady. What is this called?

- A. Brake fade from boiling fluid
- B. Bump steer from altered steering-linkage geometry
- C. Fuel trim from a vacuum leak
- D. Alternator ripple from a diode

59. A front-end clunk occurs over small bumps, and body roll feels greater than normal. Which component should be inspected closely?

- A. Fuel injector seals
- B. Starter brushes
- C. A/C pressure switches
- D. Stabilizer-bar links and bushings

60. Power-steering fluid is foamy, and the pump groans during steering assist. What is most likely happening?

- A. The fuel is too high in octane
- B. The alternator is overexcited
- C. Air is entering or trapped in the hydraulic system
- D. The brake shoes are overadjusted

61. A steering-wheel vibration is strongest between 55 and 65 mph and changes with vehicle speed, not engine rpm. What is a common cause?

- A. A cylinder misfire at idle
- B. A stuck thermostat
- C. Wheel or tire imbalance
- D. A weak battery cell

62. A vehicle wanders and requires constant steering correction. Inspection finds excessive free play in both outer tie-rod ends. What is the likely effect?

- A. Fuel pressure becomes unstable
- B. Toe changes while the vehicle is moving
- C. A/C head pressure falls
- D. Engine oil becomes diluted

63. A vehicle tracks straight only with the steering wheel off-center after a four-wheel alignment. Rear thrust angle is not centered. What should be corrected?

- A. Starter current draw
- B. Engine valve lash
- C. Brake fluid viscosity
- D. Correct the rear thrust-line alignment

64. A front wheel has measurable hub play and a growling noise that changes when the vehicle is gently steered left and right. Which component is most suspect?

- A. The wheel bearing or hub assembly
- B. The engine thermostat
- C. The fuel-pressure regulator
- D. The A/C blend door

65. After a vehicle sits for many hours, selecting DRIVE produces a several-second delay before engagement. The transmission-fluid level is found below the specified range. What should be addressed first?

- A. The wheel alignment caster
- B. The spark-plug gap only
- C. The low transmission-fluid level
- D. The brake-booster check valve

66. An automatic transmission slips in both forward and reverse ranges, and line pressure is below specification in every range. Which area is most suspect?

- A. A common pump or pressure-regulator fault
- B. A single forward clutch only
- C. One outer CV joint
- D. The parking-brake cable

67. An automatic transmission has normal forward operation but no reverse engagement. Which fault is most likely?

- A. A failed engine thermostat
- B. A reverse-specific clutch, band, or hydraulic circuit fault
- C. A shorted headlamp bulb
- D. A worn front strut mount

68. A vehicle shudders lightly at steady cruise. Touching the brake pedal just enough to command torque-converter-clutch release makes the shudder disappear. What is most likely?

- A. A wheel bearing seized solid
- B. A thermostat stuck open
- C. A battery cable short
- D. Torque-converter-clutch shudder

69. During a slow parking-lot U-turn under light acceleration, a rhythmic snap repeats from one front axle and disappears when the wheels straighten. Which component is the leading suspect?

- A. An inner tie-rod only
- B. An outer CV joint
- C. The alternator diode trio
- D. The heater control valve

70. A front-wheel-drive vehicle has a shudder during straight-line acceleration that decreases when the throttle is released. Which drivetrain component is a common suspect?

- A. An outer mirror motor
- B. A brake-light switch
- C. A cabin temperature sensor
- D. An inner CV joint

71. A rear-wheel-drive vehicle has a vibration that increases with road speed. Inspection finds a dry, loose universal joint. What is the appropriate conclusion?

- A. The engine coolant sensor is responsible
- B. The brake master cylinder is responsible
- C. The worn U-joint can cause the driveline vibration
- D. The A/C evaporator is responsible

72. A differential gear whine changes noticeably between acceleration and coast. What should be evaluated?

- A. Ring-and-pinion tooth contact and bearing setup
- B. Engine injector pulse width only
- C. Brake-fluid moisture only
- D. A/C blower resistance only

73. Automatic-transmission fluid is dark and smells burned after repeated towing in hot weather. What condition is most directly indicated?

- A. The transmission has been operating at excessive temperature
- B. The battery is overfilled
- C. The front toe is perfect
- D. The brake pedal is overboosted

74. During hard acceleration, engine rpm rises rapidly but vehicle speed does not increase proportionally in a manual-transmission vehicle. What is most likely?

- A. The thermostat is stuck closed
- B. The ABS is cycling normally
- C. The alternator is undercharging
- D. The clutch is slipping

75. A manual-transmission vehicle is difficult to shift into first or reverse while stopped, and the vehicle creeps with the clutch pedal fully depressed. What is most likely?

- A. The clutch is slipping only at high speed
- B. The clutch is not fully releasing
- C. The differential ratio is too low
- D. The battery is fully charged

76. A 12-tooth driving gear turns a 48-tooth driven gear. What is the gear reduction ratio, driven gear to driving gear?

- A. 2:1
- B. 3:1
- C. 4:1
- D. 6:1

77. Long-term fuel trim is strongly positive at idle but moves close to zero at 2,500 rpm with no load. Which fault is most likely?

- A. An intake vacuum leak
- B. Excessive fuel pressure
- C. A leaking injector causing richness
- D. A fully restricted exhaust

78. Both banks show strongly negative fuel trim, and measured fuel pressure is higher than specification. What is the most likely relationship?

- A. Low fuel pressure is making the mixture lean
- B. Excess fuel pressure is making the mixture rich
- C. A vacuum leak is adding unmetered air
- D. The catalyst is creating extra oxygen

79. A biased MAF signal reports less airflow than is actually entering the engine while closed-loop oxygen feedback remains active. Which fuel-trim response should result?

- A. Negative fuel trim
- B. Exactly zero fuel trim always
- C. Fuel trim cannot be affected
- D. Positive fuel trim

80. An upstream oxygen sensor appears stuck lean, but adding a controlled enrichment source makes the sensor voltage respond rich immediately. What does this suggest?

- A. The sensor is definitely open-circuited
- B. The catalyst is definitely melted
- C. The sensor can respond and the engine may actually be lean
- D. The starter motor is drawing too little current

81. A purge valve has manifold vacuum on its canister side even when the scan tool commands purge off. What is most likely?

- A. The purge valve is leaking or stuck open
- B. The fuel pump is mechanically locked
- C. The EGR valve is definitely closed
- D. The oxygen sensor heater is overcharging

82. An engine idles roughly and may stall, but runs better when the throttle is opened. The EGR valve is found partially open at idle. What is the likely effect?

- A. Excess charging voltage
- B. Excess tire camber
- C. Excess exhaust dilution at idle
- D. Excess brake-fluid pressure

83. During steady cruise, the downstream oxygen-sensor waveform closely mirrors the upstream sensor on a fully warm system. What can this indicate?

- A. Perfect catalyst operation in every case
- B. Reduced catalytic-converter oxygen-storage efficiency
- C. A seized brake caliper
- D. A worn steering rack mount

84. An EVAP smoke test sends smoke out around the fuel-filler cap even though the cap is fully installed. What should be checked?

- A. The brake-booster pushrod
- B. The transmission clutch pack
- C. The front strut bearing
- D. The cap seal and filler-neck sealing surface

85. Fuel pressure drops rapidly after shutdown, and one spark plug is wet with fuel after the vehicle sits. Which fault is most likely?

- A. A leaking fuel injector at that cylinder
- B. A restricted cabin air filter
- C. A loose wheel bearing
- D. A failed shock absorber

86. A vehicle has poor power at higher rpm. Exhaust backpressure measured ahead of the catalytic converter rises well above normal as engine speed increases. What is most likely?

- A. An open thermostat
- B. A low battery state of charge
- C. A loose tie-rod end
- D. A restricted exhaust or catalytic converter

87. An A/C system has poor cooling, unusually high low-side pressure, and unusually low high-side pressure while the compressor is running. What is most likely?

- A. The condenser has perfect airflow
- B. The compressor is not pumping efficiently
- C. The cabin filter is brand new
- D. The heater valve is fully closed

88. A noticeable temperature drop occurs across a receiver-drier during A/C operation, and frosting begins at that point. What does this suggest?

- A. Normal unrestricted refrigerant flow
- B. An engine ignition misfire
- C. A restriction inside the receiver-drier
- D. A loose wheel-lug nut

89. The blower motor operates only on its highest speed. Lower speed selections are inoperative. Which component is a common suspect?

- A. The engine oil pump
- B. The rear differential gears
- C. The blower resistor or electronic speed-control module
- D. The brake proportioning valve

90. The engine is fully warm, but both heater hoses remain relatively cool and cabin heat is poor. What should be checked first?

- A. The alternator diode trio
- B. Coolant flow to the heater core
- C. The rear wheel bearing
- D. The EVAP vent filter

91. The A/C clutch is commanded on. Battery voltage and a good ground are present at the clutch connector, but the clutch does not engage. What is most likely?

- A. An open or failed clutch coil or excessive air gap
- B. A low engine compression cylinder
- C. A misadjusted rear toe angle
- D. A leaking brake wheel cylinder

92. Cabin airflow is weak at every blower speed, but the blower motor sound and speed change normally with the switch. What is a likely cause?

- A. A slipping clutch disc
- B. A failed wheel-speed sensor
- C. A weak fuel-pressure regulator
- D. A restricted cabin air filter or airflow path

93. When measuring amperage with a digital multimeter, how is the meter normally connected to the circuit?

- A. In series so circuit current flows through the meter
- B. In parallel across battery posts for every test
- C. Across a fuse with the meter on resistance
- D. Directly across a powered motor on ohms

94. Why is backprobing a connector generally preferred to forcing an oversized test probe into the terminal face?

- A. It intentionally increases terminal tension
- B. It reduces the chance of spreading or damaging terminals
- C. It bypasses the need for circuit diagrams
- D. It guarantees every sensor is good

95. A service procedure specifies that certain torque-to-yield cylinder-head bolts must be replaced after removal. What is the correct practice?

- A. Reuse the old bolts until they break
- B. Tighten the bolts with an impact gun only
- C. Substitute any bolt with the same thread pitch
- D. Install new specified bolts and follow the tightening procedure

96. Before working underneath a vehicle raised with a floor jack, what should be done?

- A. Rely on the hydraulic jack alone
- B. Place stands under thin floor sheet metal
- C. Support the vehicle at approved points with properly rated stands
- D. Leave the transmission in neutral on a slope

97. Before clearing diagnostic trouble codes for an intermittent complaint, what information should be saved?

- A. Only the radio station presets
- B. Stored codes, freeze-frame data, and relevant scan information
- C. Only the current odometer color
- D. Only the tire sidewall brand

98. When cleaning an engine gasket surface, why should aggressive abrasive discs that shed material be used cautiously or avoided when prohibited by the service procedure?

- A. Abrasive debris can enter the engine and damage precision surfaces
- B. They always increase fuel octane
- C. They improve bearing clearance automatically
- D. They eliminate the need for torque specifications

99. A fastener must be tightened to a precise specification. Which tool is most appropriate for the final tightening step?

- A. An adjustable wrench used by feel
- B. A hammer and drift
- C. A test light
- D. A calibrated torque wrench of suitable range

100. A flammable solvent is being used for parts cleaning. What is the safest general practice?

- A. Use it beside welding sparks for faster drying
- B. Store it in an open container near a heater
- C. Keep it away from ignition sources and follow ventilation and handling requirements
- D. Spray it on energized electrical connections

Practice Exam 11: Answer Key and Explanations

- 1. C** — The positive crankcase ventilation system is intended to remove blow-by gases from the crankcase. If the passages or valve are restricted, pressure can build and force oil past otherwise serviceable seals and gaskets. Ignition, thermostat, and wheel-bearing faults do not create widespread crankcase pressure or explain repeated oil seepage. That pattern directly supports the mechanical diagnosis.
- 2. A** — Worn main or connecting-rod bearings increase internal oil leakage, especially when the oil is hot and thin. At idle, the pump may not maintain normal pressure through the excessive clearances, while higher speed raises pump output. Cabin filtration, oxygen-sensor circuits, and parking-brake cables cannot create this oil-pressure pattern. That pattern directly supports the mechanical diagnosis.
- 3. B** — A pressure loss without an external leak indicates an internal cooling-system path should be investigated. A spark plug or combustion chamber that looks steam-cleaned can identify the cylinder receiving coolant through a head-gasket or casting leak. Fuel return, alternator, and steering faults cannot account for disappearing coolant during a static pressure test.
- 4. D** — With an exhaust restriction, gases cannot leave the engine freely as flow increases. Manifold vacuum may begin normally, then fall during a sustained higher-speed test as backpressure builds. Battery charge, axle-nut torque, and brake-caliper leakage do not cause a progressive manifold-vacuum decrease while the vehicle is stationary. That pattern directly supports the mechanical diagnosis.

- 5. D** — Air heard at the oil filler or crankcase during a leak-down test is passing from the combustion chamber past the piston and rings. Intake-valve leakage is heard at the intake, exhaust-valve leakage at the tailpipe, and a cooling-system leak may create bubbles in the radiator or reservoir rather than crankcase airflow.
- 6. B** — Starter current rises when a piston approaches compression because the starter must work harder. A consistently lower peak at one cylinder position means that cylinder offers less compression resistance than the others. The test does not directly diagnose alternator output, injector restriction, or brake-booster leakage, although follow-up testing is required to find the cause.
- 7. C** — Uniformly low compression across the engine suggests a condition affecting valve events or all cylinders together. If a wet test does not improve the readings, widespread ring leakage is less likely. Incorrect cam timing can reduce effective compression on every cylinder, while one injector or one electrical ground cannot create equal mechanical readings.
- 8. A** — A healthy cylinder contributes torque at idle, so disabling it should produce a noticeable rpm drop. If disabling one cylinder causes little or no change, that cylinder was already weak because of ignition, fuel, or mechanical trouble. The balance test does not establish alternator or cooling-fan condition and does not identify a strong cylinder.
- 9. B** — If valve timing is one tooth off, every cylinder can fill and compress less effectively, producing low but even compression and reduced manifold vacuum. The symptom appearing immediately after timing-belt work strengthens that suspicion. Brake, EVAP, and wheel-alignment conditions cannot change valve-event timing or lower compression evenly across the engine.
- 10. A** — Valve components expand as they heat. If mechanical lash is too small, thermal expansion can eliminate the running clearance and hold a valve slightly open, reducing compression and causing a hot misfire. Tight lash does not increase ring clearance, control alternator field current, or change fuel octane, so those choices do not fit the symptom.
- 11. C** — Persistent white exhaust with a sweet odor and unexplained coolant loss strongly suggests coolant is entering a cylinder and being vaporized during combustion. A head-gasket or casting leak can create that path. A rich mixture usually produces dark exhaust, while belt slip and shock-absorber wear do not consume coolant or create sweet exhaust vapor.
- 12. D** — The water pump draws coolant from the radiator through the lower hose. A softened hose, or one missing an internal support where required, can collapse as pump suction increases and restrict coolant flow. A stuck-open thermostat tends to cause slow warm-up, while battery and rear-brake faults do not flatten a radiator hose.
- 13. C** — Cooling-system pressure raises the boiling point of the coolant. A weak cap releases pressure too soon, reducing the system margin against boiling and allowing coolant to move into the overflow container prematurely. The cap does not directly thicken engine oil, raise fuel pressure, or change brake-pedal effort, so those symptoms require separate causes.

14. B — A thermostat stuck open allows coolant to circulate through the radiator before the engine reaches normal temperature. Highway airflow can then remove heat faster than intended, causing slow warm-up and weak cabin heat. An exhaust restriction, starter fault, or brake caliper problem does not normally keep coolant temperature consistently below the intended operating range.

15. A — Excessive connecting-rod bearing clearance can produce a deep metallic knock that becomes pronounced as cylinder load increases. The same excessive clearance can also contribute to reduced oil pressure by increasing internal leakage. Vacuum leaks, CV joints, and cabin filters create different symptoms and do not explain a load-sensitive internal knock with low oil pressure.

16. D — Fan operation with the A/C command proves the motor and at least part of the fan power circuit can operate. If temperature alone never requests the fan, the engine-temperature sensing or control path becomes the priority. Starter, fuel-level, and rear wheel-speed circuits do not determine normal temperature-based cooling-fan engagement. That pattern directly supports the mechanical diagnosis.

17. B — Heavy combustion-chamber deposits can increase effective compression and create hot spots that encourage detonation or preignition under load. That can produce pinging even when commanded spark timing is otherwise reasonable. Carbon inside the chamber does not alter brake-fluid properties, tire rolling resistance, or the mechanical pulley ratio of the charging system.

18. C — Many engines rely on an anti-drainback valve in the filter to keep oil passages filled after shutdown. If the wrong filter is installed or the valve leaks, oil can drain back and delay pressure on restart. EGR operation, stabilizer links, and refrigerant charge cannot create repeated startup oil-pressure delay and valvetrain noise.

19. A — A valve with insufficient lash or a seat-related problem may seal when cold but remain slightly open after thermal expansion, reducing hot compression. Comparing cold and hot readings can reveal that temperature-dependent mechanical fault. Fuel filters, batteries, and tire tread do not change cylinder sealing in the described way and cannot explain the compression loss.

20. D — Loss of timing-belt drive stops the camshaft from opening and closing valves in the correct relationship to piston movement. With little compression, the starter encounters less resistance and cranking speed increases. Brake assist, alternator-belt tension, and tire pressure cannot remove compression from all cylinders or cause this sudden fast-cranking condition.

21. A — Open-circuit voltage can show state of charge, but it does not prove the battery can deliver high current. Excessive voltage collapse during a correctly performed load test indicates weak capacity or high internal resistance. The result does not by itself prove anything about alternator-belt adjustment, a starter relay, or headlamp resistance.

22. C — A large positive-side voltage drop during cranking means substantial voltage is being lost between the battery post and starter terminal. Corroded connections, damaged cable strands, or poor terminal contact are likely. Because the battery remains stable, the test points to the cable path rather than an ignition, HVAC, or wheel-bearing fault.

23. D — The large B terminal provides battery power to the starter, while the S terminal is the control signal that commands solenoid engagement. If B power is present but S voltage never appears during START, the fault lies upstream in the control path, such as a switch, relay, interlock, wiring, or module command.

24. B — Pulling a fuse removes power from the devices on that branch. When the abnormal key-off current falls to a small value after one fuse is removed, the affected branch has been isolated for further diagnosis. The test does not prove battery capacity or identify a particular component until the loads and wiring on that circuit are checked.

25. A — A charging system must maintain regulated voltage while supplying normal electrical loads. If voltage collapses toward battery voltage only when demand rises and the belt drive is sound, the alternator may not be producing adequate current. Thermostat, alignment, and wheel-cylinder faults do not explain a load-dependent charging-voltage loss at the battery.

26. B — The alternator stator generates alternating current that the rectifier diodes convert to direct current. A failed diode can leave excessive AC ripple even when average charging voltage appears plausible. Ball joints, heater cores, and purge valves do not affect rectification, so they cannot explain an abnormal alternating component superimposed on the charging output.

27. C — Multiple unrelated sensors losing the same reference voltage points toward a shared circuit problem rather than simultaneous sensor failures. A shorted sensor or damaged reference wire can pull the 5-volt supply low for every device on that branch. Transmission, cooling, and steering faults cannot collapse a shared electronic reference supply.

28. D — A good ground path should lose very little voltage while current is flowing. A 1.5-volt drop means significant voltage is being consumed by resistance between the load and battery negative, reducing voltage available to the motor. The reading does not indicate an ideal ground, nor does it diagnose battery state of charge or refrigerant level.

29. A — With a ground-side controlled relay, one coil terminal is supplied battery voltage and the other should be pulled near ground when commanded. Seeing battery voltage on both coil terminals means there is essentially no voltage across the coil, so current cannot flow. The ground-control circuit, driver command, or related wiring needs diagnosis.

30. D — Many three-wire position sensors operate from a regulated reference and return a signal that varies through most of that range. A smooth increase from low voltage at closed throttle to high voltage at wide-open throttle is consistent with normal operation. Shorts, open grounds, or starter faults would produce different and usually less orderly behavior.

31. B — A negative-temperature-coefficient thermistor changes resistance inversely with temperature. As the coolant gets hotter, sensor resistance falls, allowing the control module to infer temperature from the resulting circuit voltage. Infinite or unchanging resistance suggests a circuit fault, while polarity reversal is not a normal thermistor characteristic and would not describe temperature sensing.

32. C — A Hall-effect sensor uses supplied power and ground to switch its output as a target passes the sensing element. The module therefore receives a digital high-low waveform representing position and speed. Hydraulic pressure and vacuum are not electrical outputs, and a constant zero signal with correct power and ground would suggest a sensor or signal-circuit problem.

33. A — If the fuse opens with the load disconnected, the load itself is no longer in the current path, yet excessive current still flows. A powered wire contacting ground before the unplugged component is therefore a strong possibility. Suspension, engine-oil level, and transmission-filter conditions cannot directly blow an electrical fuse in this manner.

34. C — When multiple loads share a symptom and also share a ground, that common point becomes an efficient place to test. Proper power at each lamp does not guarantee a low-resistance return path. Corrosion or looseness at the shared ground can make both lamps dim, while thermostat, A/C, and alignment faults are unrelated.

35. D — A typical high-speed CAN network uses a termination resistor at each end of the bus. Two equal 120-ohm resistors connected across the same pair of conductors appear as about 60 ohms when measured in parallel with power removed. This value is unrelated to battery-cell, starter-brush, or alternator-phase resistance. The measured circuit behavior supports that diagnosis.

36. B — Ohm's law states that current equals voltage divided by resistance. Dividing 12 volts by 4 ohms gives 3 amperes, so that is the expected current for the stated circuit. The other values result from reversing or multiplying the quantities incorrectly. Real circuits may vary slightly with temperature and supply voltage.

37. B — Voltage drop across a resistance is current multiplied by resistance. Multiplying 50 amperes by 0.02 ohm gives 1.0 volt. That is excessive for many high-current connections even though 0.02 ohm appears numerically small. The other choices come from incorrect arithmetic or from confusing resistance, current, and voltage relationships. The measured circuit behavior supports that diagnosis.

38. A — Series resistance adds directly, so the total resistance is 2 plus 4, or 6 ohms. Applying Ohm's law, 12 volts divided by 6 ohms equals 2 amperes. The other answers do not match the total series resistance. Current is the same through each resistor in this simple series circuit. The measured circuit behavior supports that diagnosis.

39. C — A master cylinder can leak internally past its cup seals without losing fluid externally. Under steady pedal force, pressure then bypasses within the cylinder and the pedal gradually sinks. Wheel bearings, air filters, and alternator diodes cannot create this hydraulic symptom. External lines and calipers should still be inspected before condemning the master cylinder.

40. D — A vehicle generally pulls toward the side producing greater braking force. If the right front is operating normally but the left front is weak because of a hydraulic, friction, or mechanical problem, the right side can slow more strongly and pull the vehicle right. Balanced tires and battery state do not create a brake-only directional pull.

41. B — Rotor thickness variation or lateral runout can make caliper piston position and hydraulic pressure change as the rotor turns, producing a repeating pedal pulsation. The frequency follows wheel speed, which explains why it increases with road speed. Fuel pressure, thermostat operation, and battery terminals do not create a wheel-speed-related brake-pedal pulse.

42. A — If opening the bleeder releases the brake, hydraulic pressure was being trapped upstream of the caliper or wheel cylinder. An internally damaged flexible hose can act like a one-way restriction, allowing pressure in during application but preventing quick return. Shock absorbers, oxygen-sensor heaters, and exhaust shields do not trap brake hydraulic pressure.

43. C — ABS interprets a wheel-speed signal that suddenly falls below the others as an impending lockup and may reduce pressure at that wheel. A damaged tone ring, excessive air gap, corrosion, or sensor fault can cause the dropout. Engine lubrication, A/C clutch operation, and fuel-cap sealing cannot create a single wheel-speed signal loss.

44. A — Vacuum-assisted brakes require an adequate vacuum supply at the booster. If engine vacuum is normal but vacuum is missing at the booster, the hose, fittings, or one-way check valve may be restricted, disconnected, or leaking. Axle ratio, transmission cooling, and cabin filtration cannot interrupt the booster vacuum supply or explain the hard pedal.

45. D — Hydro-boost brake assist and power steering can share hydraulic flow from the power-steering pump. A pump, drive, fluid, or flow problem can therefore reduce assist in both systems at the same time. Ignition, EVAP, and rear-defogger faults do not provide hydraulic assist and would not explain the paired symptoms. The braking symptom supports that hydraulic diagnosis.

46. C — Friction material contaminated by gear oil or grease can behave unpredictably and cannot be restored reliably by normal adjustment. The source of the leak must be repaired and contaminated friction parts serviced according to procedure. Removing ABS protection, blaming master-cylinder size, or changing tire pressure does not correct an oil-soaked brake lining.

47. D — The parking brake uses a mechanical cable or linkage independent of the normal hydraulic application. If service braking and rear adjustment are correct but parking-brake travel is excessive, cable stretch, adjustment, routing, or linkage movement should be inspected. Engine compression, alternator ripple, and A/C pressure have no direct effect on parking-brake lever travel.

48. B — Conventional brake hydraulic seals are designed for the specified brake fluid, not petroleum products. Oil, power-steering fluid, or similar contamination can swell and soften rubber components and may require extensive hydraulic-system service. Normal moisture absorption can lower boiling performance but does not typically produce the same oily appearance and widespread seal swelling.

49. B — When brake fluid boils, compressible vapor forms in a system that normally relies on nearly incompressible liquid. Pedal travel increases and hydraulic force at the brakes falls, creating a soft pedal and fade. ABS modulation is intermittent and controlled, while tire scrub and charging ripple do not place vapor inside the brake hydraulic circuit.

50. C — A floating caliper must slide so clamping force is distributed across both pads. If a guide or slide pin seizes, the caliper cannot center normally and one pad may remain applied or do more work than the other. Tire wear, cylinder compression, and fuel pressure are unrelated to caliper sliding movement.

51. D — Hydraulic pressure equals applied force divided by piston area. Dividing 100 pounds by 0.5 square inch gives 200 pounds per square inch. The smaller piston area increases pressure for the same input force. The other choices result from multiplying incorrectly or failing to divide by the stated piston area. The braking symptom supports that hydraulic diagnosis.

52. A — Pushing caliper pistons back for pad replacement creates extra clearance until the pistons move outward again. Pumping the brake pedal seats the pads against the rotors and restores normal pedal height before the vehicle moves. Throttle position, ABS disconnection, and tire deflation do not safely restore the required friction-component position.

53. D — Toe error makes the tires scrub sideways as they roll, often producing a feathered feel across tread ribs. Caster more strongly affects directional stability and steering return, while steering-axis inclination is generally not adjusted as a tire-wear setting. Ride height can influence alignment, but the feathered pattern specifically points strongly toward toe.

54. C — A worn shock or strut may allow the wheel to bounce instead of staying controlled against the road. Repeated loss and recovery of contact can create cupped or scalloped tread wear, often worsened by imbalance. Correct balance and alignment reduce wear, while an engine air filter has no mechanical connection to tire damping.

55. A — Positive caster helps create a self-centering action in the steering geometry. Too little positive caster can reduce directional stability and make the wheel return sluggishly after a turn. Fuel pressure, alternator ripple, and brake-fluid level do not establish steering-axis geometry, so they cannot directly cause poor steering return-to-center. The chassis pattern supports that diagnosis.

56. B — A vehicle can tend to pull toward the side with more positive camber when the cross-camber difference is large enough. Because tire influence was reduced by the swap, the alignment difference becomes more meaningful. Camber does not cause engine misfire or transmission slip, and the stated geometry does not predict a mandatory left pull.

57. A — Excessive negative camber tips the tops of the tires inward and concentrates load toward the inner shoulders, producing inside-edge wear. Positive camber tends to wear outer shoulders, while caster mainly affects stability and steering effort rather than direct shoulder loading. Steering-axis inclination is generally a diagnostic angle, not the primary wear adjustment.

58. B — Bump steer occurs when suspension travel changes toe because the steering linkage and control-arm geometry no longer move through compatible arcs. Altering ride height can create that condition even with the steering wheel stationary. Brake fade, fuel trim, and charging ripple describe unrelated systems and cannot explain a wheel-direction change caused by suspension movement.

59. D — The stabilizer bar resists body roll by transferring load between the left and right suspension. Worn links or bushings can allow extra movement and produce clunks as the suspension changes direction over bumps. Injector seals, starter brushes, and A/C pressure switches do not control body roll or create a suspension clunk at the wheels.

60. C — Foamy power-steering fluid indicates aeration. Air may enter through a low fluid level, suction-side leak, or incomplete bleeding, and the pump can groan because it is moving a mixture of fluid and air. Fuel octane, alternator field control, and brake-shoe adjustment cannot directly aerate the steering hydraulic fluid. The chassis pattern supports that diagnosis.

61. C — A wheel or tire imbalance produces centrifugal force that increases with wheel rotational speed and often becomes most noticeable within a particular road-speed range. Because the vibration follows vehicle speed rather than engine rpm, rotating components at the wheels deserve priority. Misfire, thermostat, and battery faults do not match this road-speed relationship.

62. B — Loose tie-rod ends allow the steering linkage and wheel toe to change without a corresponding steering-wheel command. That can create wander, imprecise response, and uneven tire wear. The play should be corrected before alignment. Fuel pressure, A/C refrigerant pressure, and engine-oil dilution are controlled by unrelated systems and do not result from tie-rod looseness.

63. D — Rear wheel alignment establishes the thrust line the vehicle tends to follow. If the rear thrust angle is off, the driver may hold the front wheels at an angle to travel straight, leaving the steering wheel off-center. Starter, valvetrain, and brake-fluid conditions cannot alter the geometric direction in which the rear axle or wheels push the vehicle.

64. A — Wheel-bearing loads change as vehicle weight shifts during gentle steering, so a damaged bearing may become louder or quieter depending on which side is loaded. Measurable hub play strengthens that diagnosis. Thermostats, fuel regulators, and blend doors do not support wheel rotation and cannot create hub looseness with a road-speed growl.

65. C — Low transmission fluid can allow the pump to draw air and delay hydraulic pressure buildup, especially after fluid drains back during a long shutdown. Correct fluid level and leak diagnosis should precede internal disassembly. Alignment, spark-plug gap, and brake-booster components cannot directly prevent an automatic transmission from building engagement pressure.

66. A — When multiple ranges that use different friction elements all slip and line pressure is low everywhere, a common hydraulic source should be investigated. The pump, filter supply, pressure regulator, or major internal leak can affect every range. A single clutch, one CV joint, or the parking brake would not normally lower line pressure system-wide.

67. B — Normal forward operation shows the transmission can produce pump pressure and drive through many common components. Loss of reverse only therefore points toward elements used specifically for reverse, such as a clutch, band, servo, valve-body passage, or control command. Thermostat, lighting, and strut faults cannot selectively eliminate reverse gear engagement.

68. D — The torque-converter clutch normally applies during steady cruise. Light brake-pedal input commonly commands it to release without significantly changing road speed. If the shudder disappears exactly when TCC release is commanded, the converter clutch or its apply control becomes a strong suspect. Wheel bearings, thermostats, and battery cables do not respond this way to TCC commands.

69. B — Outer constant-velocity joints operate at large articulation angles during turns. Wear in the joint tracks can produce a repeating click or pop that is strongest under power with the steering near full lock. Inner tie rods, alternator diodes, and heater valves perform unrelated functions and do not create a power-dependent clicking synchronized with front axle rotation.

70. D — Inner CV joints plunge as the suspension and powertrain move and carry high torque during acceleration. Wear can create a shudder or vibration under load that decreases when torque is removed. Mirror motors, brake switches, and cabin sensors do not transmit engine torque to the wheels and cannot create an acceleration-dependent driveline shudder.

71. C — A universal joint must rotate smoothly while transmitting driveshaft torque through changing angles. Dry or loose bearing caps can create cyclic movement, vibration, and eventually serious driveline damage. The symptom follows road and driveshaft speed, supporting the diagnosis. Coolant sensors, master cylinders, and evaporators do not rotate with the driveshaft or create U-joint looseness.

72. A — Ring-and-pinion gears contact different areas of the tooth faces during drive and coast loading. Incorrect backlash, pinion depth, bearing preload, or worn gear surfaces can therefore produce a whine that changes with torque direction. Injector pulse width, brake-fluid moisture, and blower resistance do not determine differential gear contact or road-speed gear noise.

73. A — Automatic-transmission fluid degrades when exposed to excessive heat. Dark color and a burned odor after heavy towing suggest the unit has been operating above a healthy temperature because of load, slipping, low fluid, restricted cooling, or another fault. Battery electrolyte, wheel toe, and brake assist do not produce burned transmission fluid.

74. D — A slipping clutch cannot transmit all available engine torque to the transmission input shaft. Engine speed can flare while road speed increases slowly, especially in higher gears or under heavy load. Thermostat, ABS, and alternator conditions do not mechanically disconnect engine speed from transmission input in the specific way described.

75. B — If the clutch continues to transmit torque with the pedal depressed, the transmission input shaft keeps turning and makes engagement difficult, particularly in first or reverse. Creeping confirms incomplete release or clutch drag. High-speed clutch slip, axle ratio, and battery state do not explain continued torque transfer with the clutch pedal down.

76. C — Gear ratio is found by dividing the number of teeth on the driven gear by the number on the driving gear. Forty-eight divided by twelve equals four, so the driven gear turns once for every four driving-gear revolutions, a 4:1 reduction. The other ratios do not match the stated tooth counts.

77. A — An intake vacuum leak adds unmetered air that represents a large percentage of total airflow at idle, so the PCM must add fuel and positive trim becomes high. At higher airflow, the same leak is a

smaller percentage and trim often improves. Excessive pressure or leaking injectors usually drive trim negative rather than positive.

78. B — Negative fuel trim means the control module is subtracting fuel because feedback indicates a rich mixture. Fuel pressure above specification can increase injector flow for a given pulse width and create that condition on both banks. Low pressure and vacuum leaks tend to cause positive trim, while a catalyst does not create excess fuel delivery.

79. D — If the MAF reports less air than is actually entering, the PCM initially commands too little fuel. Oxygen feedback then detects the lean result and the PCM adds fuel, driving short- and long-term trim positive. Negative trim would indicate fuel is being removed, and a biased airflow signal can clearly influence mixture correction rather than leaving trim fixed.

80. C — A deliberate enrichment test checks whether the sensor can recognize a richer exhaust mixture. If the signal responds promptly, the sensor and much of its circuit are capable of changing state, so an actual lean condition or upstream air leak deserves attention. A permanently open sensor would not respond normally to the induced mixture change.

81. A — When purge is commanded off, a normally closed purge valve should isolate manifold vacuum from the EVAP vapor line. Vacuum appearing on the canister side indicates leakage through the valve or a control problem keeping it open. Fuel-pump seizure, EGR position, and oxygen-sensor heater operation do not create vacuum across a closed purge valve.

82. C — EGR flow is normally limited or absent at idle because the engine has little tolerance for exhaust dilution when airflow is low. A valve stuck partly open can displace combustible mixture, causing rough idle or stalling, while the engine may tolerate the flow better off idle. Charging, alignment, and brake pressure are unrelated to exhaust dilution.

83. B — A healthy catalyst stores and releases oxygen, so the downstream sensor often changes more slowly and with less amplitude than the upstream sensor. If both waveforms closely track each other under appropriate monitor conditions, catalyst oxygen-storage capacity may be reduced. Brake and steering faults cannot make downstream exhaust oxygen behavior mirror the upstream sensor.

84. D — Smoke escaping around an installed fuel cap identifies a leak at or near the cap-to-filler sealing interface. A damaged cap gasket, incorrect cap, debris, or a damaged filler-neck sealing surface can cause the EVAP leak. Brake, transmission, and suspension components do not seal fuel vapor at the filler opening and cannot explain visible smoke there.

85. A — Residual fuel pressure can fall because of a leaking injector, pump check valve, regulator, or external leak. A wet spark plug identifies fuel entering one specific cylinder after shutdown, making that injector the leading suspect. Cabin filters, wheel bearings, and shock absorbers cannot deliver gasoline into a parked engine cylinder or reduce rail pressure.

86. D — Exhaust backpressure should remain low enough for cylinders to clear efficiently. If pressure ahead of the converter rises excessively as flow increases, a restriction in the converter or downstream

exhaust can limit breathing and reduce high-rpm power. Thermostat, battery, and steering faults do not create elevated exhaust pressure upstream of the converter.

87. B — A weak compressor cannot create the normal pressure difference between suction and discharge. The low side remains higher than expected while the high side remains lower, and cooling suffers because refrigerant is not being compressed effectively. Condenser airflow, cabin filter condition, and heater-valve position do not by themselves produce this reduced pressure differential pattern.

88. C — A restriction causes refrigerant pressure to drop at the restricted point, which can also produce a localized temperature decrease and frosting. A receiver-drier should not normally act as a major metering device, so a sharp temperature change across it suggests restriction. Ignition and wheel-lug conditions cannot create refrigerant cooling at the drier.

89. C — Traditional blower systems route lower speeds through resistor elements while high speed may bypass them; newer systems use an electronic control module. Failure of the lower-speed control path can therefore leave only high speed. Engine oil pumps, differential gears, and brake valves do not regulate blower-motor speed and cannot explain this selection-specific symptom.

90. B — If both heater hoses stay cool while engine coolant is hot, hot coolant is not reaching or circulating through the heater core. A closed coolant valve, blocked passage, low coolant, air pocket, or circulation problem should be investigated. Alternator, wheel-bearing, and EVAP faults do not prevent hot engine coolant from entering the heater circuit.

91. A — Correct power and ground at the clutch connector show the control circuit is delivering the command to the clutch. If engagement still does not occur, the coil may be open or weak, or the air gap may be excessive. Engine compression, rear toe, and brake leakage do not prevent an energized compressor clutch from pulling in.

92. D — If the blower changes speed normally but little air reaches the vents, the problem is more likely a restriction in the air path than a motor-control fault. A clogged cabin filter, blocked evaporator face, or duct obstruction can reduce airflow at every speed. Drivetrain, ABS, and fuel-pressure faults do not restrict HVAC air movement.

93. A — An ammeter must become part of the current path, so the circuit is opened and the meter is connected in series using the correct fused input and range. Connecting an ammeter directly across a voltage source can create a short and blow the meter fuse. Resistance mode should not be used on an energized circuit.

94. B — Forcing a large probe into a connector can spread the female terminal, weaken contact tension, and create an intermittent fault that did not exist before testing. Proper backprobing or approved breakout leads preserve terminal integrity. The method does not replace circuit information and cannot guarantee that a sensor or component is functioning correctly.

95. D — Torque-to-yield fasteners may be intentionally stretched into a controlled range during installation. If the manufacturer specifies replacement, reusing them can produce incorrect clamp load or

failure. Correct new fasteners, lubrication requirements, sequence, torque, and angle steps should be followed. Impact tightening or random substitutes cannot reliably reproduce the designed clamping force.

96. C — A hydraulic floor jack is a lifting device, not a dependable sole support for a person working underneath. Properly rated stands placed at approved support points provide stable mechanical support after the vehicle is raised. Thin sheet metal can collapse, and leaving the vehicle unsecured on a slope adds movement risk rather than controlling it.

97. B — Stored codes and freeze-frame data preserve evidence about the conditions present when a fault was detected. Recording them before clearing helps build a test plan and allows later comparison if the problem returns. Radio presets, display details, and tire branding do not preserve the electronic operating conditions needed to diagnose an intermittent drivability or electrical fault.

98. A — Aggressive abrasive cleaning can remove parent metal, alter surface finish, and release particles that enter oil passages or bearings. Those effects can create sealing or lubrication failures after an otherwise correct repair. The appropriate scraper, chemical method, or approved surface tool should be selected according to the service procedure rather than chosen only for speed.

99. D — A calibrated torque wrench applies a measured tightening torque within its intended range, helping achieve the specified clamp load when the service procedure calls for torque control. Tightening by feel is not repeatable, and a hammer, drift, or test light cannot measure fastener torque. Tool condition and the specified sequence also matter.

100. C — Flammable solvent vapors can ignite from sparks, flames, hot surfaces, or electrical arcs. Keeping the product away from ignition sources, providing required ventilation, using approved containers, and following the safety data and shop procedure reduce fire and exposure risk. Welding, open heated storage, and spraying energized circuits increase rather than control the hazard.