

PRACTICE EXAM 11: AUTOMOTIVE SERVICE TECHNICIAN (125 QUESTIONS)

Allow four hours. Select one answer, A, B, C or D, for each question. Use the data and assumptions supplied. Complete the paper before reading its answer key. At least 88 correct answers meet a 70% practice threshold; these independent questions are not official examination items.

1. An evaporative-system hose is replaced after finding a damaged quick connector. What should determine the replacement routing?

- A. The route that holds the hose against the exhaust shield.
- B. The route that leaves the connector supporting the hose weight.
- C. The specified attachment points, clearances, and connection checks.
- D. The shortest possible path regardless of the original restraints.

2. An engine specification allows 0.080 mm maximum bearing clearance. Measured clearance is 0.115 mm. How far above the supplied maximum is it?

- A. 0.025 mm
- B. 0.055 mm
- C. 0.045 mm
- D. 0.035 mm

3. After replacing an HVAC actuator, the commanded and actual door positions agree at one endpoint but disagree across mid-travel. The procedure requires calibration and full-travel verification. What is required?

- A. Complete calibration and investigate any remaining travel mismatch.
- B. Replace the compressor because the actuator position differs.
- C. Accept the repair because one endpoint agrees with command.
- D. Raise the blower speed to compensate for the position error.

4. A circuit has 0.24 ohm measured series resistance and carries 5.0 A under the supplied test condition. What voltage drop is calculated?

- A. 1.6 V
- B. 1.2 V
- C. 0.8 V
- D. 2.0 V

5. A body accessory complaint occurs only when a door is nearly closed. What observation should the technician capture?

- A. Only the response after clearing every body fault code.
- B. Only the response with the door fixed fully open.
- C. The specified command and circuit response through the relevant door movement.
- D. Only the response with the door harness disconnected.

6. A brake reservoir contains 380 mL after a specified controlled operation. The procedure calls for adding 120 mL before its final level check. What resulting volume is calculated?

- A. 460 mL
- B. 500 mL
- C. 580 mL
- D. 540 mL

7. A supplied battery test requires at least 85% of a 14.0 kWh reference. Measured delivered energy is 11.2 kWh under the same stated conditions. How many percentage points below the supplied requirement is that result?

- A. 20 percentage points
- B. 10 percentage points
- C. 5 percentage points
- D. 15 percentage points

8. During a specified diesel cranking test, requested rail pressure rises but actual pressure remains low. Supply pressure at the high-pressure pump inlet is below its stated minimum. Which next focus is best supported?

- A. Turbocharger adjustment based solely on the low rail pressure.
- B. Injector replacement based solely on the requested pressure.
- C. Rail-sensor replacement based solely on the engine not starting.
- D. The low-pressure supply path and its measured deficiency.

9. A brake hose replacement requires restoring its locator tab and verifying movement clearances. What should be completed?

- A. The specified orientation and clearance checks through steering and suspension travel.
- B. Only a longer hose selected to remove the need for locating features.
- C. Only an extra retaining tie without checking the permitted hose route.
- D. Only a stationary leak check with the wheels pointing straight ahead.

10. A transmission operates normally cold but loses one clutch's pressure when warm. Main line pressure remains within the supplied range, and other clutch pressures remain normal. Which focus is supported?

- A. The affected clutch's pressure-control and leakage path.
- B. A total main-pump failure affecting every hydraulic circuit.
- C. A battery cable fault established by the warm pressure reading.
- D. A wheel-bearing fault causing the measured clutch-pressure loss.

11. A module does not respond to requests. Its power and ground pass loaded tests, while a scope at its connector shows valid incoming network activity according to the procedure. What is the next justified focus?

- A. An open ground inferred only from the absent diagnostic response.
- B. A main battery cable fault already excluded by loaded testing.
- C. The module's prerequisites, configuration, and internal response.
- D. A complete lack of network traffic at the tested connector.

12. A replacement coil spring has specified upper and lower seat positions and an indexed end location. What must be established before removing the approved compression tool?

- A. Only that the upper mount fasteners can be inserted by hand.
- B. Only that the compressor can be removed without touching the body.
- C. Only that the spring's overall length resembles the removed part.
- D. Correct spring seating and end indexing in the prescribed assembly.

13. A brake-pedal travel diagnostic calls for comparing engine-off and assisted operation under stated conditions. What should the technician record?

- A. Only the brake-fluid colour without measuring pedal response.
- B. The specified pedal response in each controlled test condition.
- C. Only the brake warning light without the required pedal test.
- D. Only the pedal response after repeatedly changing vehicle load.

14. A supplied brake specification gives a minimum finished rotor thickness of 24.0 mm. Its present thickness is 24.7 mm. What total thickness reduction would reach that minimum exactly?

- A. 1.1 mm
- B. 0.9 mm
- C. 0.5 mm
- D. 0.7 mm

15. A replacement camera requires a specified aiming or calibration procedure for the installed application. What should be completed?

- A. The prescribed setup, calibration, and functional verification.
- B. Only centering its housing visually in the mounting opening.
- C. Only clearing the previous camera's fault memory.
- D. Only confirming that an image appears on the display.

16. An HVAC test specifies comparing inlet and outlet temperatures at a controlled operating condition. Inlet air is 29 C and outlet air is 11 C. What temperature decrease is measured?

- A. 22 C
- B. 18 C
- C. 20 C
- D. 16 C

17. A hybrid reports an isolation fault only when a particular approved-test branch is connected. The prescribed isolated comparison passes with that branch excluded. What has been established?

- A. A conclusive failure of every battery cell regardless of test state.
- B. A conclusive tire-pressure cause for the isolation warning.
- C. A branch-related contribution that requires further approved diagnosis.
- D. A safe-to-touch condition for all high-voltage components.

18. What does checking steering-joint movement under the specified loading condition help evaluate?

- A. Tire compound hardness without using a material test.
- B. Brake-fluid moisture without taking a fluid measurement.
- C. Steering-angle calibration without reading the control system.
- D. Joint clearance while the assembly is held as required for the test.

19. A transmission shaft's encoder produces one pulse for each of its 36 teeth. The recorded frequency is 720 pulses per second. What shaft speed is calculated?

- A. 1,200 rpm
- B. 1,400 rpm
- C. 1,600 rpm
- D. 1,000 rpm

20. A suspected wheel-end noise changes when the vehicle is loaded through an approved turning comparison. Driveshaft runout is within specification and the sound localizes near one hub with the prescribed listening method. What is supported?

- A. Immediate replacement of the driveshaft despite its passing checks.
- B. A confirmed engine bearing fault from road-speed noise alone.
- C. Further investigation of that wheel-end bearing and support assembly.
- D. A confirmed transmission software fault from sound location alone.

21. Several modules on one network become unavailable only when a specific branch connector is attached. Isolating that branch restores communication with the remaining modules. What has the test localized?

- A. The fault conclusively to the vehicle's tire-pressure sensors.
- B. The fault to that branch or its connected equipment.
- C. The fault conclusively to every remaining module processor.
- D. The fault conclusively to the diagnostic tool's power cable.

22. A restraint-related connector repair is permitted only with a specified terminal kit and service method. What should be used?

- A. An improvised jumper retained permanently after diagnostic testing.
- B. A general solder method without checking the restraint instructions.
- C. The specified kit and complete approved restraint-system procedure.
- D. A universal connector that happens to fit the available space.

23. What is the purpose of comparing transmission input and output speeds against the selected gear's specified relationship?

- A. To measure clutch lining thickness without other evidence.
- B. To evaluate whether the expected speed relationship is achieved.
- C. To determine the torque of every transmission housing bolt.
- D. To measure the differential lubricant's chemical condition.

24. An alternator is installed with a pulley type specified for the engine's accessory drive. What must be verified?

- A. The specified pulley, belt routing, and drive-system operation.
- B. Only the pulley diameter without checking its required function.
- C. Only the charging voltage without checking the belt arrangement.
- D. Any pulley whose bolt threads engage the alternator shaft.

25. Injector balance testing produces pressure drops of 19, 20, 7, and 19 kPa under identical commands. The procedure requires investigating a cylinder differing by more than 5 kPa from the 19 kPa reference. How far does the third differ?

- A. 7 kPa
- B. 5 kPa
- C. 26 kPa
- D. 12 kPa

26. A steering rack leak assessment requires distinguishing external seepage from fluid collected inside a bellows. What should the inspection establish?

- A. The fluid's source using the prescribed bellows and housing checks.
- B. A hose diagnosis based only on the vehicle's steering effort.
- C. A pump diagnosis based only on fluid found near the rack.
- D. A rack diagnosis based only on a wet surrounding subframe.

27. A diesel high-pressure fuel line is designated single-use in the repair procedure. What should accompany component reassembly?

- A. A universal hose selected only by matching its inside diameter.
- B. The old line with extra tightening beyond the specified value.
- C. The specified new line and prescribed installation method.
- D. The old line after bending it to the replacement component.

28. After a starter cable repair, the original loaded voltage drop passes, but the cable rubs a moving linkage through its travel. What remains necessary?

- A. Increase the starter rating to compensate for cable movement.
- B. Correct the routing and verify clearance throughout linkage movement.
- C. Replace the relay because the cable clearance is insufficient.
- D. Release the vehicle because the electrical drop now passes.

29. Heater inlet coolant is hot, outlet coolant remains substantially cooler under the supplied test, and the airflow temperature stays low. The blend door reaches its verified heating position. What path deserves investigation?

- A. A compressor clutch fault as the only possible heating cause.
- B. A blower power loss despite the measured normal airflow.
- C. A blend-door position fault already excluded by the check.
- D. Coolant flow through the heater circuit and core.

30. A selected gear should give a 2.5:1 input-to-output ratio under this coupled test condition. Output is 600 rpm, but input measures 1,850 rpm. How far does measured input exceed the expected speed?

- A. 450 rpm
- B. 350 rpm
- C. 250 rpm
- D. 550 rpm

31. A diagram places two communication buses on opposite sides of a gateway. What should guide selection of electrical test points?

- A. The physical bus topology and the procedure for the specific side.
- B. The assumption that every gateway pin joins one common wire.
- C. The assumption that any bus connector provides equivalent test access.
- D. The assumption that logical messages prove identical electrical signals.

32. A replacement door harness must pass through a flexible boot. What should be restored before operation?

- A. A taut harness that keeps all conductors straight through travel.
- B. A loose boot with extra sealant applied only on its outer face.
- C. A harness route secured against the door's moving hinge surface.
- D. The specified boot engagement, harness slack, and movement clearance.

33. A brake rotor measures 0.09 mm installed runout. Its clean hub alone measures above the supplied hub limit, and changing rotor indexing does not restore an acceptable installed reading. What is supported?

- A. Changing brake fluid because it controls the measured hub runout.
- B. Replacing the master cylinder because rotor indexing had no effect.
- C. Investigation of the hub mounting condition and measured runout.
- D. Replacing only the rotor without addressing the failed hub check.

34. A hoist pad initially contacts an approved reinforced area. As the vehicle rises, a nearby underbody panel starts carrying the pad's edge and the pad tilts. What does this observation require?

- A. Continuing because the vehicle remains approximately level.
- B. Continuing because another pad has a larger contact area.
- C. Continuing because the initial contact point was approved.
- D. Lowering safely and correcting the contact arrangement.

35. A digital pressure transducer is to replace a mechanical gauge for a specified fuel-pressure test. What must be checked before connecting it?

- A. Only whether its housing fits the existing gauge case.
- B. Only whether its cable reaches the diagnostic connector.
- C. Pressure range, fluid compatibility, and the approved connection method.
- D. Only whether its display uses the same number of digits.

36. What does a loaded voltage-drop test evaluate across a circuit connection?

- A. Voltage lost across that path while current is flowing.
- B. The control module's stored calibration identification number.
- C. The battery's available capacity under every temperature condition.
- D. The unloaded insulation resistance of every adjacent conductor.

37. A charging complaint occurs at high accessory load. Alternator output meets its stated value, but the cable drop from output terminal to battery positive exceeds the supplied limit only during that load. What is supported?

- A. A proven battery case leak inferred from the cable drop alone.
- B. A charging-path resistance problem under the loaded condition.
- C. A proven alternator output failure despite its passing measurement.
- D. A proven control-module programming error without further checks.

38. A tire-pressure monitor reports no data from one wheel. An approved activation tool cannot receive that sensor, while the same tool receives the other three under identical conditions. What is supported?

- A. Further investigation of the nonresponding sensor and its application.
- B. A proven network failure independent of the sensor activation test.
- C. A proven low pressure in every tire from one absent response.
- D. A proven receiver failure affecting all four wheels equally.

39. A replacement timing-chain tensioner has a shipping retainer and a specified release step. What should the installer do?

- A. Release the retainer before positioning any chain guides.
- B. Follow the specified installation and retainer-release sequence.
- C. Use cranking vibration to release the retainer automatically.
- D. Leave the retainer installed because the part is new.

40. Why is absence of voltage verified at the prescribed points after completing a high-voltage disable procedure?

- A. To prove that every battery cell contains no stored energy.
- B. To eliminate the need for all specified personal protective equipment.
- C. To replace the manufacturer's isolation and handling sequence.
- D. To confirm the required electrical state at the defined work boundary.

41. A network twisted pair requires a section repair. What should govern the replacement conductors and splice arrangement?

- A. Any two conductors with matching insulation colour.
- B. A larger wire size with no regard for the network design.
- C. The specified wire characteristics, twisting, and repair restrictions.
- D. A single shared conductor replacing both damaged wires.

42. A driveline vibration test calls for separating road-speed effects from engine-speed effects. What test plan best follows that requirement?

- A. Compare approved operating conditions that vary one relationship at a time.
- B. Compare two runs with different speeds, roads, and vehicle loads.
- C. Diagnose the tires solely from vibration during one engine speed.
- D. Diagnose the engine solely from vibration during one road speed.

43. A diesel glow-plug branch carries 8 A while three comparable branches each carry 16 A under the same specified supply condition. Its measured connector drop is much higher than the others. Which cause is supported?

- A. A doubled supply voltage at that branch's connector.
- B. Extra series resistance in that branch's connection path.
- C. An exhaust restriction isolated to the glow-plug branch.
- D. A lower resistance in that branch's glow-plug element.

44. A supplied toe specification is +0.10 degree per wheel. The left wheel reads +0.35 degree. By how much must its reading decrease to reach that target?

- A. 0.15 degree
- B. 0.45 degree
- C. 0.35 degree
- D. 0.25 degree

45. Why must wheel fastener seat geometry match the wheel and specified fastener design?

- A. The highest available tightening torque makes every seat compatible.
- B. The fastener's thread diameter alone guarantees a correct seat fit.
- C. A longer fastener always compensates for a mismatched seat.
- D. The mating geometry establishes the intended contact and clamping arrangement.

46. A differential bearing repair requires setting preload and checking gear contact. What should be completed before release?

- A. Only a free-rotation check without the specified preload test.
- B. Only the backlash reading without checking the contact pattern.
- C. All prescribed adjustments and final contact-pattern verification.
- D. Only the fill procedure without checking assembled adjustments.

47. Two adjacent cylinders have low compression. During a cooling-system pressure test with spark plugs removed, liquid appears in one of those cylinders. What should be investigated next?

- A. The crankshaft-position sensor's signal shielding.
- B. The starter motor's main power cable resistance.
- C. The combustion-chamber boundary to the cooling circuit.
- D. The throttle actuator's commanded opening angle.

48. A network connector terminal is replaced after finding insufficient contact retention. What should be checked before final assembly?

- A. Terminal locking, contact fit, sealing, and strain relief as specified.
- B. Only the diagnostic response before locking the terminal.
- C. Only circuit continuity with the connector lying disconnected.
- D. Only the connector shell's fit against the surrounding trim.

49. A supplied accessory test records a 0.9 V drop across a connection carrying 3.0 A. What equivalent connection resistance does this indicate?

- A. 0.20 ohm
- B. 0.30 ohm
- C. 0.50 ohm
- D. 0.40 ohm

50. A tire circumference is supplied as 2.10 m. At 500 wheel revolutions per minute with no slip, what distance per minute is calculated?

- A. 1,150 m/min
- B. 1,050 m/min
- C. 1,250 m/min
- D. 950 m/min

51. An approved EV repair requires checking the voltage tester before and after the prescribed absence-of-voltage measurement. What should be completed?

- A. Both tester-function checks and the specified boundary measurements.
- B. Only a tester check performed several days before the repair.
- C. Only a scan-tool report that the contactors were commanded open.
- D. Only a visual check that an orange connector has been removed.

52. A service procedure specifies adding 2.4 L to an initially empty assembly, followed by a defined level check. Three measured additions total 0.8, 0.7, and 0.6 L. How much remains to reach the stated initial quantity?

- A. 0.5 L
- B. 0.6 L
- C. 0.3 L
- D. 0.4 L

53. The blower turns normally, but airflow becomes weak after operating for several minutes. Inspection under the prescribed condition finds evaporator ice blocking the passage. What should diagnosis address?

- A. A normal airflow condition because the blower remains audible.
- B. A blower motor open circuit despite continued rotation.
- C. A permanent cabin outlet blockage unrelated to operating time.
- D. The causes of icing and the resulting airflow restriction.

54. A wheel-speed signal drops out at the same wheel angle on repeated slow rotations. Inspection finds damage at the corresponding encoder section, while the circuit checks pass. What is supported?

- A. A total vehicle network failure during every wheel revolution.
- B. A hydraulic master-cylinder fault synchronized with the wheel angle.
- C. An encoder-related signal fault at the identified angular location.
- D. A battery supply fault disproved by the stated circuit checks.

55. An EV will not enable propulsion after a connector repair. The specified interlock test fails across the repaired connector but passes in the other tested sections. What is supported?

- A. Investigation of the repaired connector's interlock engagement and circuit.
- B. A normal system state because the connector's outer lock appears closed.
- C. A proven battery-cell capacity failure from the interlock result.
- D. A proven traction-motor winding failure from nonenablement alone.

56. After an axle-seal replacement, leakage reappears. The specified vent test identifies a blocked vent, and the sealing surface remains within its supplied criteria. What additional issue must the repair address?

- A. A larger lubricant fill without addressing the measured vent fault.
- B. A different seal size without addressing the measured vent fault.
- C. A higher housing-bolt torque without addressing the measured vent fault.
- D. The blocked vent and its effect on the assembly's pressure condition.

57. After cylinder-head installation, the engine cannot be rotated through the required hand-rotation check and stops at the same crank angle. What is the appropriate response?

- A. Complete the remaining tightening with the crank locked.
- B. Stop and investigate mechanical timing or assembly interference.
- C. Accept the stop if the camshaft alignment marks look close.
- D. Start the engine so oil pressure can clear the obstruction.

58. What does an oscilloscope time-base setting primarily control when displaying a sensor signal?

- A. The time represented across the horizontal display.
- B. The resistance presented by the measured circuit.
- C. The sensor supply voltage produced by the instrument.
- D. The reference pressure applied to the sensor.

59. An electronic parking-brake repair requires a supported service mode before mechanical work and a defined exit procedure afterward. What should be done?

- A. Clear fault memory without completing the required exit procedure.
- B. Leave the system in service mode because the new parts are fitted.
- C. Retract the mechanism by force instead of entering the required mode.
- D. Follow both service-mode sequences and complete functional verification.

60. A current clamp shows a steady 0.6 A with its jaws closed away from any conductor. The test requires measuring a similar battery drain. What should be resolved first?

- A. The battery's cold-cranking specification label.
- B. The clamp offset and specified zeroing procedure.
- C. The starter's current draw during engine cranking.
- D. The vehicle's alternator output at maximum load.

61. A fuel tank must be lowered after its contents are handled according to the repair procedure. What should the technician establish before releasing its retaining straps?

- A. A lowering path that depends on the hoses carrying the tank.
- B. A temporary support through the fuel filler neck connection.
- C. A suitable support with stable contact and a controlled lowering path.
- D. A support that depends on the electrical connector remaining attached.

62. After pedal release, one caliper retains pressure at the approved test point. Relieving that pressure releases its drag; the piston then moves normally during the specified inspection. What is supported?

- A. A tire-balance fault causing the caliper's retained pressure.
- B. A seized piston conclusively established despite normal movement.
- C. Investigation of retained hydraulic pressure feeding that brake.
- D. A wheel-bearing fault causing hydraulic pressure at the test point.

63. A coolant-system procedure calls for opening a hot engine's pressurized circuit only after the specified cooling condition is reached. What should be done first?

- A. Loosen a different fitting to replace the cooling requirement.
- B. Add cold coolant to replace the cooling requirement.
- C. Use a thicker rag to replace the cooling requirement.
- D. Wait for and verify the required safe opening condition.

64. Two modules report loss of communication with a third. The third module's supply fuse has voltage on one side but none on the other during the required powered test. What should be investigated first?

- A. The fuse and protected supply path to the third module.
- B. Simultaneous internal failure of the two reporting modules.
- C. A required software update inferred from any communication code.
- D. The network termination without addressing the missing supply.

65. What distinction matters when interpreting a wideband air-fuel sensor and a conventional switching oxygen sensor?

- A. Their external connector size defines the reported mixture.
- B. Their signal strategies require different interpretation methods.
- C. Both indicate fuel pressure directly at the supply rail.
- D. Both must always produce the same switching voltage pattern.

66. A heater-core replacement procedure requires restoring a particular coolant bleeding arrangement. What should be performed after the connections are assembled?

- A. The specified fill, bleeding, and heater-operation verification.
- B. Only running the blower at maximum speed with the engine off.
- C. Only filling the reservoir to its maximum mark when cold.
- D. Only checking that the new core fits behind the instrument panel.

67. During an approved suspension test, one damper leaks and allows substantially less controlled movement than its specified comparison. Tire pressures and spring condition meet the supplied checks. What is supported?

- A. A spring replacement solely because the vehicle has a damper leak.
- B. A tire-pressure correction despite the passing pressure measurements.
- C. Further assessment of that damper under the repair criteria.
- D. A steering-rack replacement solely because body movement is excessive.

68. A scale reads 1.240 kg with a refrigerant cylinder attached and 1.065 kg after a controlled transfer. How much mass left the cylinder?

- A. 165 g
- B. 175 g
- C. 185 g
- D. 195 g

69. A shim stack is 1.80 mm. The supplied adjustment procedure requires reducing it by 0.15 mm to reach the target position. What final stack is calculated?

- A. 1.55 mm
- B. 1.95 mm
- C. 1.75 mm
- D. 1.65 mm

70. A lamp connector measures battery voltage unloaded. When the specified lamp is connected, its supply falls to 3 V while the upstream fuse output remains at 12 V. What is supported?

- A. A proven open lamp filament despite current loading the path.
- B. A normal supply path established by the unloaded voltage reading.
- C. Excessive resistance in the supply path between those points.
- D. A proven loss of battery voltage at the measured fuse output.

71. A relay-controlled motor stops intermittently. During failure, coil command and ground are present, but the contact output is absent while contact input remains supplied. What is supported?

- A. A proven missing supply upstream of the relay's contact input.
- B. A fault in the relay's switching path under the failed condition.
- C. A proven missing coil command despite the recorded command.
- D. A motor bearing seizure established by the relay measurements.

72. Cylinder leak-down testing at the specified piston position produces a strong air sound at the throttle opening, with little sound at the crankcase vent. Which fault path deserves further investigation?

- A. Leakage past the intake valve sealing surfaces.
- B. Leakage primarily past the piston ring sealing surfaces.
- C. Leakage primarily through the exhaust manifold flange.
- D. Leakage primarily through the external coolant hose.

73. A clutch slips under load. Hydraulic release pressure remains above its specified released-pedal value, and opening the approved diagnostic point removes that residual pressure and restores engagement. What is supported?

- A. A proven engine output deficiency unrelated to the release circuit.
- B. A clutch friction defect established without considering hydraulics.
- C. A proven final-drive ratio error caused by the differential gears.
- D. A release-system pressure retention fault requiring investigation.

74. The compressor is commanded off because the pressure input reads outside the permitted control range. An approved independent measurement at the relevant point disagrees with that input. What is the justified next focus?

- A. Bypassing the control decision without investigating the pressure data.
- B. The pressure sensing path and its comparison conditions.
- C. Increasing refrigerant charge without resolving the conflicting input.
- D. Immediate compressor replacement based only on absent engagement.

75. Why must restraint-system diagnostic procedures distinguish pyrotechnic circuits from other system inputs?

- A. Permitted test methods differ according to the circuit's hazard and design.
- B. Disconnecting any interior lamp disables all restraint energy.
- C. All circuits permit direct resistance measurement with any meter.
- D. A stored code makes every restraint component safe to handle.

76. A valve clearance measures 0.38 mm and the specified target is 0.23 mm. A 2.60 mm shim is installed; thicker shims reduce clearance by their added thickness. What new shim thickness is calculated?

- A. 2.60 mm
- B. 2.83 mm
- C. 2.75 mm
- D. 2.45 mm

77. An HVAC procedure specifies a total charge of 620 g. A measured controlled transfer has added 455 g. How much remains to reach that supplied mass?

- A. 145 g
- B. 185 g
- C. 205 g
- D. 165 g

78. A power window receives the specified motor supply during an upward command. The disconnected mechanism moves freely, but the isolated motor fails the prescribed functional test. What is supported?

- A. The switch is proven open despite the measured motor supply.
- B. The door hinge is proven defective by the isolated motor result.
- C. The motor requires repair or replacement under the stated criteria.
- D. The regulator is proven jammed despite the free movement check.

79. A replacement driveshaft requires new fasteners with a stated tightening method. What installation practice follows the requirement?

- A. Install the specified fasteners and complete the prescribed tightening.
- B. Apply the wheel-fastener torque because the shaft also rotates.
- C. Reuse the old fasteners and add torque until movement stops.
- D. Choose longer fasteners solely to increase thread engagement.

80. A diesel particulate-filter differential-pressure sensor reports a high value with its engine stopped and both pressure ports vented to the same atmosphere. What should be investigated?

- A. The filter's soot restriction based on this stopped-engine value.
- B. The sensor circuit, offset, and specified zero-condition checks.
- C. The exhaust flow rate based on this equal-port condition.
- D. The turbocharger's boost efficiency based on this reading.

81. Why does a wet compression test sometimes help investigate a low cylinder reading on an applicable engine?

- A. It directly measures the valve spring's installed force.
- B. It directly measures the head gasket's coolant flow.
- C. It isolates the crankshaft sensor from its wiring.
- D. It can temporarily change leakage at the piston-ring interface.

82. After an ignition coil repair, the original misfire is absent during the same load condition, but a newly installed connector repeatedly loses contact when moved. What remains necessary?

- A. Erase the new fault memory without examining the connection.
- B. Correct the connector fault and repeat the relevant verification.
- C. Replace every coil because any connector movement is abnormal.
- D. Release the vehicle because the original misfire is currently absent.

83. A supplied diagram shows two 120 ohm terminating resistors in parallel. With the specified network isolated for resistance testing, what equivalent resistance is calculated?

- A. 240 ohm
- B. 120 ohm
- C. 60 ohm
- D. 90 ohm

84. What does checking both air temperature and airflow help distinguish during an HVAC performance assessment?

- A. Thermal conditioning performance from air-delivery performance.
- B. Cabin filter part number from blower motor manufacturing date.
- C. Refrigerant chemical identity from compressor lubricant identity.
- D. Heater-core wall thickness from evaporator fin thickness.

85. A battery enclosure service procedure requires new specified seals and a defined enclosure integrity test. What should be completed before release?

- A. Only tightening every enclosure fastener beyond its stated value.
- B. Only confirming that the vehicle can enter its ready state.
- C. Only a visual inspection of the new seal while it is unpackaged.
- D. The prescribed seal installation and enclosure integrity verification.

86. After a power-door-lock repair, all doors respond to the command, but the repaired door's latch-status input still reports open when mechanically latched during the required check. What remains necessary?

- A. Resolve the latch-status discrepancy and repeat system verification.
- B. Accept the repair because lock movement alone now occurs.
- C. Replace the remote transmitter because one status remains wrong.
- D. Disable the status input because the latch physically closes.

87. After replacing a brake hose, the hydraulic leak test passes, but the hose twists tightly at full steering lock during the required clearance check. What must be corrected?

- A. The fluid brand because the hose twists only at full lock.
- B. The hose's installed orientation or routing before final release.
- C. The rotor thickness because steering lock affects the hose.
- D. The wheel balance because hydraulic sealing already passes.

88. A supplied hybrid charging calculation uses an average 230 V and 12 A with unity power factor for this exercise. What electrical input power is calculated?

- A. 2,300 W
- B. 3,680 W
- C. 2,760 W
- D. 3,220 W

89. A throttle body replacement procedure includes an adaptation step after installation. What should be completed?

- A. Only moving the throttle plate through its travel by hand.
- B. Only disconnecting the battery for an estimated period.
- C. Only clearing all codes before connecting the throttle body.
- D. The prescribed adaptation under its required vehicle conditions.

90. A sensor reports high temperature. Its supplied resistance chart predicts a higher resistance at the independently measured actual temperature than the isolated sensor measures. Wiring passes the specified checks. What is supported?

- A. A normal sensor because every temperature sensor uses one curve.
- B. A confirmed instrument error based solely on the high reported value.
- C. A sensor characteristic inconsistent with the supplied temperature reference.
- D. A confirmed open signal conductor despite the passing wiring checks.

91. Following replacement of a diesel fuel filter, the procedure requires a defined priming sequence before starting. What should be completed?

- A. Repeated extended cranking instead of the priming sequence.
- B. High-pressure line loosening while the engine is cranking.
- C. Immediate road operation to remove trapped air under load.
- D. The specified priming and leak checks before the start attempt.

92. A starter-control diagnostic requires measuring the relay command during the actual no-crank event. What is the appropriate approach?

- A. Infer the command solely from the battery's resting voltage.
- B. Capture the specified command and reference during the reproduced event.
- C. Measure only after the engine has successfully started.
- D. Infer the command solely from the relay's case temperature.

93. What information determines whether a portable exhaust extraction hose is suitable for a running vehicle inside the shop?

- A. Its rated application and the required capture arrangement.
- B. Its diameter compared with the nearest air hose.
- C. Its flexibility compared with a coolant hose.
- D. Its length compared with the vehicle wheelbase.

94. A replacement HVAC line specifies new seals and a defined evacuation and leak-test sequence. What should be completed?

- A. Only checking the removed line for the original leak location.
- B. The specified seals, connection method, and complete verification sequence.
- C. Only tightening the connection until the line cannot be moved.
- D. Only charging the system until outlet air feels cold.

95. A cylinder-head repair specifies a particular tightening sequence and torque-angle stages. What should guide assembly?

- A. A single tightening stage based on bolt diameter alone.
- B. One final torque value taken from a similar engine.
- C. The removal sequence reversed without checking the procedure.
- D. The specified preparation, fasteners, sequence, and tightening stages.

96. A purge valve is commanded closed during an approved test. Applying the specified test vacuum to its isolated passage does not hold, while a known-good comparison valve holds. What is supported?

- A. The tested valve's coil resistance must be exactly zero.
- B. The engine's manifold pressure must exceed atmospheric pressure.
- C. The tested valve is not sealing under the defined closed condition.
- D. The fuel tank pressure sensor must be permanently biased.

97. A repaired ground connection has required surface preparation and a specified protective treatment applied after fastening. What should be completed?

- A. The required contact preparation, fastening, and subsequent protection.
- B. A continuity check replacing all specified mechanical preparation.
- C. Fastening over existing corrosion to preserve the original surface.
- D. Protective coating between the contact faces before fastening.

98. A gasoline fuel-pressure test requires a controlled pump command with the engine stopped. What should the technician do before interpreting the result?

- A. Compare any pressure reading with a running-engine memory value.
- B. Follow the specified connection, command conditions, and pressure reference.
- C. Use the pump sound alone as the pressure measurement.
- D. Open a supply union to judge pressure by the discharge distance.

99. A steering pull changes direction when the specified front tire-position comparison is performed. Alignment measurements remain within the supplied range. What should be investigated?

- A. A fixed alignment fault conclusively proven by the unchanged readings.
- B. A brake-fluid boiling fault based solely on the change in pull.
- C. A steering-column fault unaffected by the tire comparison.
- D. A tire-related contribution to the pull under this comparison.

100. A wheel hub bearing is pressed into a housing using a specified installation tool. What should guide the pressing arrangement?

- A. Apply force through the prescribed race and support the assembly as specified.
- B. Apply force through any seal face that matches the press ram.
- C. Apply force through the rolling elements whenever tool access is easier.
- D. Apply force through the axle threads without checking the bearing design.

101. A network fault occurs when a harness bends near a repaired splice. Resistance testing of that isolated section changes from the specified low value to open circuit during the same movement. What is supported?

- A. A normal resistance change caused by diagnostic-tool polling.
- B. A permanent software fault unrelated to harness movement.
- C. An intermittent conductor or splice fault in that section.
- D. A termination requirement that changes whenever the harness bends.

102. A battery replacement procedure requires a supported registration function for this vehicle. What must accompany the physical installation?

- A. Only clearing unrelated fault codes after tightening the terminals.
- B. Only an alternator free-speed test before reconnecting the battery.
- C. A guessed registration using another vehicle's battery profile.
- D. The specified registration and related charging-system verification.

103. What does an approved high-voltage isolation-monitoring system evaluate in its specified operating context?

- A. The electrical isolation relationship between the high-voltage system and chassis.
- B. The tread wear of the tires supporting the vehicle.
- C. The exact remaining service life of every battery cell.
- D. The torque applied to every battery enclosure fastener.

104. A driveshaft vibration began after replacement of a two-piece shaft. The support bearing is secure, but the indexed joint orientation differs from the supplied assembly marks. What should be checked first?

- A. The clutch master cylinder solely because vibration is present.
- B. The required shaft phasing and indexed assembly relationship.
- C. The axle ratio solely because the shaft was replaced.
- D. The brake fluid condition solely because road speed increases.

105. A power-cable terminal repair specifies a crimp tool, terminal type, and pull verification. What should be performed?

- A. An oversized terminal filled with solder instead of the specified crimp.
- B. A hand squeeze with pliers followed only by continuity testing.
- C. The specified preparation, crimp, and mechanical retention check.
- D. A partial crimp leaving strands outside to improve heat dissipation.

106. A supplied differential specification states an acceptable backlash range of 0.12 to 0.18 mm. A reading is 0.21 mm. How much reduction is required to reach the upper limit?

- A. 0.06 mm
- B. 0.03 mm
- C. 0.09 mm
- D. 0.12 mm

107. A power tailgate stops at the same position. Motor current rises, and inspection finds a displaced trim edge contacting the mechanism at that position. The approved unobstructed test operates normally. What is supported?

- A. A normal obstruction that requires no repair if reopening succeeds.
- B. A proven motor winding failure despite normal unobstructed operation.
- C. A physical interference condition at the identified travel position.
- D. A proven network outage during every tailgate movement.

108. A manual-transmission input shaft seal is replaced. What should precede installation of the new seal?

- A. Inspection of the sealing surface and the specified depth and orientation.
- B. Reversing the seal lip to move it away from the lubricant.
- C. Filling the damaged shaft groove with general-purpose adhesive.
- D. Installation at any depth that keeps the seal inside the bore.

109. A gateway receives a valid input status from one network but broadcasts an incorrect corresponding status on another. Both network waveforms meet the supplied criteria. What should be examined?

- A. A proven total loss of power to the input module.
- B. A proven open circuit on both physical networks.
- C. A proven failure of every receiving module simultaneously.
- D. Gateway interpretation, configuration, and the specified data mapping.

110. A relative-compression current trace changes greatly when a booster pack is connected, but the engine cranking speed also changes. What is the best interpretation of the comparison?

- A. The changed cranking condition prevents a direct amplitude comparison.
- B. The booster comparison alone proves the starter has an internal short.
- C. The changed current level proves one injector has excessive leakage.
- D. The booster comparison alone proves all cylinders have equal sealing.

111. After a branch harness repair, normal communication returns at rest, but the original movement test still causes dropout at the repaired connector. What does the result mean?

- A. The movement test is irrelevant once fault memory is cleared.
- B. The repair is complete because stationary communication returned.
- C. The module software is proven defective by any repeated dropout.
- D. The intermittent condition remains and requires further repair.

112. Why must a replacement constant-velocity joint boot and lubricant match the specified application?

- A. A larger lubricant amount always compensates for a worn joint.
- B. Their external dimensions alone establish lubricant compatibility.
- C. Their material, quantity, and operating compatibility affect joint service.
- D. Any axle grease provides identical performance in every joint.

113. A tire installation specifies a direction of rotation and a particular valve-service kit. What should be verified?

- A. Only tire orientation with the old damaged valve seal reused.
- B. Correct tire orientation and the specified valve components and installation.
- C. Only valve replacement with the tire direction ignored.
- D. Only balancing before checking either installation requirement.

114. A high-voltage coolant component replacement requires specified filling and a supported bleeding routine. What should the repair include?

- A. Only driving the vehicle until any trapped air clears itself.
- B. The required safe work state, filling, bleeding, and verification.
- C. Only checking the replacement part's connector engagement.
- D. Only filling the reservoir without completing the required routine.

115. A gasoline injector replacement procedure requires new sealing rings and a specified lubricant. What installation practice is appropriate?

- A. Substitute a thicker seal to compensate for insertion resistance.
- B. Use adhesive to secure the seals before inserting the injector.
- C. Fit the specified new seals using the approved lubricant and insertion method.
- D. Reuse compressed seals if they remain attached to the old injector.

116. A nonpyrotechnic seat-position input in a restraint system stays at one value. The approved simulator changes the reported value through the expected range at the specified connector, while the original input does not. What is supported?

- A. The central module cannot read any input under any condition.
- B. The test proves the vehicle's restraint inflators are defective.
- C. The test proves every seat wire is open beyond the connector.
- D. The original input assembly or its local connection needs investigation.

117. A specified axle backlash test requires restraining one member while moving another. What should the technician establish before measuring?

- A. The prescribed restraint, contact position, and measurement direction.
- B. A reading taken across an unrelated flexible rubber coupling.
- C. A reading obtained by flexing the indicator mounting bracket.
- D. A reading while both measured members rotate together freely.

118. A replacement module requires coding followed by a configuration verification. What should the technician complete?

- A. Only confirming that the replacement appears on the scan tool.
- B. The specified coding and checks for the installed vehicle equipment.
- C. Only copying a configuration from an unrelated vehicle.
- D. Only clearing the module's stored faults after connecting it.

119. A ride-height sensor signal changes smoothly with manual movement, but its linkage is detached and the reported height stays constant during suspension motion. What is supported?

- A. A linkage fault preventing the sensor from following the suspension.
- B. A sensor output failure disproved by the smooth manual response.
- C. A tire-pressure error inferred from the detached linkage.
- D. A hydraulic brake leak inferred from the constant height reading.

120. Why does tire pressure need the specified reference condition when compared with a supplied inflation specification?

- A. The wheel's offset defines one universal pressure for all vehicles.
- B. Pressure is unaffected by temperature whenever a valve cap is fitted.
- C. The tire's tread depth automatically corrects every pressure reading.
- D. Pressure changes with tire temperature and operating condition.

121. After steering-rack replacement, the mechanical alignment meets specification, but the required steering-angle zero check fails with the wheels in the specified straight-ahead condition. What remains necessary?

- A. Adjust tire pressure to replace the steering-angle reference procedure.
- B. Replace every suspension joint because the zero check failed.
- C. Resolve the prescribed steering-angle calibration and reference check.
- D. Release the vehicle because mechanical alignment alone is acceptable.

122. A 1.5 m harness segment has excessive attenuation. Replacing it with the specified temporary test segment restores the waveform and communication, with the modules unchanged. What conclusion is supported?

- A. Both unchanged modules necessarily require replacement.
- B. The test proves that all other vehicle networks are defective.
- C. The test proves the original segment has correct impedance.
- D. The original segment's physical condition requires investigation.

123. A parked vehicle's current falls from 0.42 A to 0.04 A when one branch is isolated under the approved test. How much current was associated with that branch under this comparison?

- A. 0.42 A
- B. 0.38 A
- C. 0.34 A
- D. 0.46 A

124. A sealed connector repair specifies a new wire seal matched to conductor insulation diameter. What should be selected?

- A. The specified seal size and compatible terminal assembly.
- B. A seal chosen solely by the connector's external width.
- C. The largest seal available to make insertion easier.
- D. The old torn seal with extra grease filling its gap.

125. A gasoline engine's fuel trims become strongly positive at idle but approach normal at elevated unloaded speed. Fuel pressure meets its specified test value. Which possibility is most consistent?

- A. A uniformly rich mixture across both stated operating conditions.
- B. A fuel-pressure failure already disproved by the stated test.
- C. An intake air leak with a greater relative effect at idle.
- D. A restriction that affects only maximum fuel delivery demand.

Practice Exam 11: Answer Key and Explanations

1. C — Routing is part of the repair because heat, movement, and unsupported loads can damage a new hose or connection. Restore the required restraints and clearances, then verify engagement and system integrity. Minimizing length alone does not establish a suitable installed path.

2. D — Compare the measured clearance with the supplied upper limit by subtraction. The excess is 0.035 mm. This identifies a failed dimensional check under the stated specification; it does not by itself identify whether the journal, bearing selection, or housing geometry caused the excessive clearance.

3. A — Agreement at one endpoint does not verify the actuator's relationship throughout travel. Complete the specified calibration and check the full range, investigating remaining linkage or feedback discrepancies. Changing unrelated components or blower speed does not resolve the observed position mismatch.

4. B — Apply Ohm's law by multiplying current by the stated series resistance. The result is 1.2 V across that resistance under the supplied condition. This calculated loss must be compared with the circuit's relevant specification before deciding whether the measured path is acceptable.

5. C — The diagnostic observation must reproduce the movement associated with the complaint. Capture the required command and electrical response using the approved method while the door passes through that position. A fully open, disconnected, or freshly cleared condition may hide the intermittent fault.

6. B — Add the specified 120 mL to the measured 380 mL to obtain a calculated 500 mL. Use the approved fluid and complete the final level check in its required condition. The numerical total does not replace the reservoir's actual permitted level or contamination controls.

7. C — The measured energy is 80% of the supplied reference, which is five percentage points below the stated 85% requirement. This identifies a failed comparison under matching conditions. An actual service decision must also follow the manufacturer's complete test method and consider the other relevant system evidence.

- 8. D** — The measured inlet deficiency provides an upstream condition that can limit high-pressure generation. Investigate supply according to the procedure before condemning downstream components. A command value and a no-start symptom alone cannot distinguish injector leakage, sensing error, or pump failure.
- 9. A** — A hose must remain correctly located through the assembly's operating travel as well as seal under pressure. Restore the specified orientation and inspect the required clearances. A stationary leak test cannot establish that the hose avoids twisting, stretching, or contact during movement.
- 10. A** — Normal main and other clutch pressures make a localized control or leakage path more consistent with the evidence than a total pump failure. Investigate the affected circuit under the warm condition. The supplied pressure measurements do not link the fault to a wheel bearing or battery cable.
- 11. C** — The measurements establish functional supply paths and arriving traffic under the stated tests. Investigate module-specific enable conditions, configuration, and response before a replacement decision. Lack of diagnostic response alone is not evidence of an open ground when the loaded ground test passes.
- 12. D** — The spring must engage its intended seats and indexed locations while the assembly is controlled by the approved tool. Confirm those relationships before releasing compression according to the procedure. Similar length or available fastener access does not verify the spring's assembled load path.
- 13. B** — The comparison addresses how the pedal and assistance behave under defined conditions. Record the specified response while maintaining the required setup. Changes in load or observations unrelated to pedal travel cannot substitute for the procedure's controlled comparison.
- 14. D** — Subtract the supplied minimum finished thickness from the current measurement. The difference is 0.7 mm in total thickness. This arithmetic does not authorize machining: the procedure's other criteria, measurement uncertainty, and required finished condition must also be considered before selecting a repair.
- 15. A** — An available image establishes a limited function but does not verify the required geometric reference or calibration. Complete the specified setup and calibration for the vehicle's installed system, then perform the required verification. Visual centering and code clearing cannot replace that procedure.
- 16. B** — Subtract outlet temperature from inlet temperature to obtain the stated air-temperature decrease. The difference is 18 C. Interpret it only with the supplied operating conditions and acceptance criteria, since airflow, humidity, and system control state can affect the performance result.
- 17. C** — The controlled branch comparison narrows the fault contribution but does not identify every possible defect inside that branch. Continue the approved isolation diagnosis with the required safe work state. A diagnostic result is not itself permission to touch high-voltage conductors or a complete battery-cell diagnosis.
- 18. D** — The loading condition determines how movement at the joint can be observed and interpreted. Apply the manufacturer's support and measurement method rather than assuming that every unloaded

movement is a defect. The physical clearance check does not replace fluid, calibration, or material testing.

19. A — Divide the recorded pulses per second by 36 pulses per revolution to obtain 20 revolutions per second. Multiplying by 60 gives 1,200 rpm. The calculation assumes the supplied pulse relationship and a valid captured signal; use the specified diagnostic method to confirm the waveform.

20. C — The load-sensitive change and local sound evidence support examining the indicated wheel end. The passing driveshaft check reduces support for that specific proposed cause but does not replace a complete diagnosis. Confirm the bearing or adjacent component through the required inspection before replacement.

21. B — The repeatable restoration after branch isolation localizes the influence to that branch and attached equipment. It does not yet identify a particular module or wire. Follow the topology and approved checks within that boundary instead of replacing components that communicate normally when it is isolated.

22. C — Follow the specific permitted repair because restraint-system connectors and wiring have defined requirements. Use the approved kit and the complete isolation, handling, and verification sequence. A convenient substitute or temporary diagnostic connection cannot establish a compliant permanent repair.

23. B — The selected gear establishes an expected relationship between input and output rotation under the defined operating conditions. Comparing measured speeds can reveal a ratio discrepancy, but interpretation depends on clutch state and the test procedure. It does not directly measure lubricant chemistry or component dimensions.

24. A — Pulley function and belt arrangement are part of the accessory drive design, not merely attachment details. Verify the correct assembly and operation along with charging performance. Thread engagement or diameter alone cannot establish that a substitute pulley meets the application requirements.

25. D — The third injector's drop is 7 kPa compared with the supplied 19 kPa reference, a difference of 12 kPa. That exceeds the stated investigation threshold. A smaller drop suggests different delivered flow under the test, but the cause still needs confirmation through the specified diagnostic sequence.

26. A — Fluid can travel from its source, so location alone may not identify the leaking component. Use the specified inspection to establish whether it originates inside the bellows, at a hose connection, or elsewhere. Steering effort is another observation and does not independently locate leakage.

27. C — The single-use designation is an explicit service requirement associated with the connection and line design. Install the specified replacement using the required alignment and tightening method. Extra torque, reshaping, or an unspecified substitute cannot demonstrate that the repaired high-pressure connection meets its requirements.

- 28. B** — Electrical performance is one aspect of the repair; the observed contact creates a continuing mechanical routing defect. Restore the prescribed supports and clearance through the actual motion range. A passing voltage drop does not validate a cable path that can be damaged in operation.
- 29. D** — The verified blend position reduces support for an air-mixing explanation. The coolant temperature pattern and poor heat delivery direct attention to flow through the heater circuit under the defined condition. Further tests must distinguish restriction, trapped air, and other applicable flow causes.
- 30. B** — The supplied ratio and output speed predict an input of 1,500 rpm. The measured 1,850 rpm exceeds that expectation by 350 rpm, identifying a failed relationship under the stated coupled condition. Further diagnosis must distinguish an actual coupling fault from any measurement or test-condition problem.
- 31. A** — A gateway can transfer information between distinct networks without making their physical conductors one common circuit. Identify the actual side and its topology before selecting test points. Logical message relationships do not establish that electrical measurements are interchangeable across the gateway.
- 32. D** — The flexible section must accommodate door movement while maintaining its intended protection and routing. Restore boot engagement and the specified slack, then verify clearance through travel. A taut path or contact with the hinge can create a new intermittent or damaged connection.
- 33. C** — The independently failed hub measurement identifies a mounting contribution that a rotor-only replacement may not correct. Investigate the hub and bearing assembly according to the procedure. Fluid and master-cylinder condition cannot explain the measured geometric runout at the hub face.
- 34. D** — The changing contact and pad tilt show that the actual load path differs from the intended reinforced support. Initial placement does not validate the arrangement through lifting. Lower the vehicle using the safe procedure and establish stable contact before resuming the lift.
- 35. C** — The transducer must withstand the test pressure and be compatible with the fluid and approved fittings. Display convenience and cable reach do not establish measurement suitability. Check the operating instructions and connection method before applying pressure to the instrument.
- 36. A** — A loaded drop test evaluates the connection or path under actual current flow, which can reveal resistance not apparent in a simple continuity check. Interpret the reading against the applicable conditions and criteria. It does not directly establish battery capacity or calibration identity.
- 37. B** — The alternator measurement passes while the cable path loses excessive voltage under the relevant load. Investigate that connection path before condemning the alternator. The test establishes an electrical loss between measured points, not a programming defect or physical battery leak.
- 38. A** — The comparison demonstrates that the tool receives the other sensors under the same conditions, narrowing attention to the nonresponding wheel sensor or its application. Confirm the appropriate activation method and sensor identity. No response does not by itself prove tire pressure or the exact internal sensor failure.

- 39. B** — The retainer controls the tensioner during installation and must be handled in the prescribed sequence. Premature release may interfere with positioning, while leaving it installed can prevent proper operation. Confirm timing and tensioner engagement using the manufacturer's required checks before starting the engine.
- 40. D** — Verification confirms the required condition at the specified points for the planned work. It complements the disable procedure and prescribed controls rather than replacing them. A de-energized work boundary does not mean that all battery cells have lost their stored energy.
- 41. C** — The pair's physical characteristics are part of signal transmission, so repair requirements extend beyond electrical continuity. Preserve the specified conductor arrangement and permitted splice geometry. Colour matching or arbitrary larger conductors cannot establish that the repaired network retains its intended behavior.
- 42. A** — Controlling the comparison helps identify which rotating relationship follows the vibration. Use the approved road or workshop method and record conditions consistently. Changing several variables at once obscures the relationship, while a single observation cannot reliably separate engine and vehicle-speed influences.
- 43. B** — The lower current combined with a comparatively high connector voltage drop supports additional series resistance in the connection path. Confirm the measured path and inspect it under the approved method. Lower element resistance or higher supply voltage would not explain this combined evidence in the same way.
- 44. D** — Subtract the supplied target from the measured left-wheel toe. The required decrease is 0.25 degree. This determines the reading change, not the number of adjuster turns; use the alignment procedure and verify the final readings and steering position afterward.
- 45. D** — The fastener seat and wheel interface must mate as designed to establish proper contact and clamping. Matching threads alone does not prove seat compatibility. Use the specified parts and tightening method; extra length or torque cannot correct an incompatible contact geometry.
- 46. C** — Preload, backlash, and gear contact describe different aspects of the assembled differential. Follow the specified sequence and verify each required result. Free rotation and correct lubricant level do not prove that the bearing loading and gear mesh are properly established.
- 47. C** — Liquid entering the cylinder during a cooling-system pressure test links the chamber to a cooling passage. A gasket or other boundary defect requires confirmation through the specified diagnostic process. Electrical starting and throttle faults do not account for the observed liquid transfer under pressure.
- 48. A** — The repair must retain stable contact in its assembled operating condition. Confirm terminal locking and fit, seal integrity, and the required strain relief before final verification. A disconnected continuity reading cannot establish retention or sealing, and an unlocked test connection is incomplete.

- 49. B** — Divide voltage drop by current to calculate resistance under the stated loaded condition. The result is 0.30 ohm. Compare that result with the accessory circuit's supplied criteria and verify the measurement points before concluding whether the particular connection requires repair.
- 50. B** — Multiply the supplied circumference by revolutions per minute to obtain distance travelled per minute under the stated no-slip assumption. The result is 1,050 m/min. This is a kinematic calculation for the given circumference, not an independent verification of the tire's real loaded rolling radius.
- 51. A** — The tester must be known functional around the actual measurement, and the measurement must cover the prescribed boundary. Follow the complete verification sequence. A historic check, contactor command, or visual disconnection cannot substitute for the specified electrical confirmation.
- 52. C** — The three additions total 2.1 L. Subtract this from the specified 2.4 L initial quantity to obtain 0.3 L remaining. Complete the defined level check afterward; the initial fill calculation does not replace verification under the manufacturer's required level-check conditions.
- 53. D** — The observation links reduced air delivery to an ice restriction that develops during operation. Diagnose the applicable control, sensing, and airflow causes using the specified procedure. Audible blower operation does not prove that air can pass through the iced heat exchanger.
- 54. C** — The repeatable angular dropout and matching physical damage connect the signal fault to the encoder area. Confirm the applicable sensor gap and encoder criteria before repair. Circuit checks and the localized repeating pattern do not support a total network or hydraulic explanation.
- 55. A** — The failed section-specific interlock test localizes an enablement condition at the repaired connection. Verify the correct internal engagement and circuit using the approved procedure. A closed outer lock does not override the electrical result, and propulsion nonenablement alone does not identify motor or cell failure.
- 56. D** — The repeated leakage has an identified pressure-control deficiency that the seal replacement did not correct. Restore the vent according to the procedure and verify the assembled system. Arbitrary changes in seal size, fill, or bolt torque do not address the measured blocked passage.
- 57. B** — A repeatable hard stop during the prescribed hand check indicates potential interference that must be resolved before powered operation. Alignment appearance alone cannot validate the assembled geometry. Review timing, component placement, and the procedure rather than using starter force to overcome the obstruction.
- 58. A** — The time base determines how much signal duration appears across the screen. Choosing it appropriately reveals transitions or repeating cycles relevant to the test. Voltage range and circuit loading are separate considerations, while a sensor's physical input is not created by this display setting.
- 59. D** — The service mode controls the mechanism for the repair, and its exit sequence restores the prescribed operating state. Follow both steps and verify function according to the procedure. Physical installation and cleared memory do not demonstrate that the mechanism has returned to normal control.

- 60. B** — An offset comparable to the expected measurement can overwhelm the actual drain reading. Establish the clamp's correct zero and operating condition before interpreting the vehicle current. Alternator and starter tests address different operating conditions and cannot correct the instrument's baseline error.
- 61. C** — The tank needs a support intended to carry its weight throughout removal. The filler connection, wiring, and hoses are service connections rather than lifting points. Establish stable contact and a clear lowering path before transferring the load from the straps.
- 62. C** — The drag changes when retained pressure is removed, and the piston passes the stated movement check. This supports investigating the hydraulic pressure path rather than immediately condemning a seized piston. The test localizes a pressure-related condition but still requires checks to identify its specific upstream cause.
- 63. D** — A change of opening location or improvised protection does not remove stored pressure and heat. Follow the specified cooling and opening sequence, including confirmation of the safe condition. The technician must control the release hazard before creating an opening in the system.
- 64. A** — The fuse measurement identifies a supply discontinuity that can make the third module unavailable to others. Investigate the fuse and why its circuit lost continuity before interpreting the reporting modules as faulty. Communication codes often identify the missing participant without proving that the reporters failed.
- 65. B** — Different sensor designs report exhaust mixture information through different operating strategies. Apply the relevant manufacturer's data and test method rather than expecting identical switching voltages. Neither sensor directly measures supply-rail pressure, and connector dimensions are not a diagnostic interpretation rule.
- 66. A** — Air remaining in the circuit can affect circulation and heat delivery, so the prescribed fill and bleeding procedure is part of the repair. Confirm the required heater operation and leak checks afterward. Reservoir level or physical fit alone does not establish a properly restored coolant path.
- 67. C** — The damper observations directly match the component's control function, while the supplied tire and spring checks pass. Apply the damper's relevant inspection and replacement criteria. The evidence does not justify substituting unrelated replacements for investigation of the identified movement-control deficiency.
- 68. B** — Subtract the final cylinder reading from the initial reading to obtain the transferred mass. The difference is 0.175 kg, equivalent to 175 g. This calculation depends on stable weighing conditions and does not establish that the transferred amount matches a vehicle's specified charge.
- 69. D** — The stated adjustment requires subtraction from the existing stack. Reducing 1.80 mm by 0.15 mm gives 1.65 mm. After assembling the selected shims, verify the actual position and any related preload or contact requirements because stack calculation alone is not the final setting check.
- 70. C** — The loaded voltage collapses downstream while the upstream point remains normal, locating a substantial loss along that supply path. Investigate the intervening connections and conductor. The

unloaded reading cannot establish current-carrying performance and does not outweigh the localized loaded result.

71. B — The measurements distinguish a commanded coil from an absent switched output with supply still available at the contact input. Investigate the relay and its contact-terminal path under the procedure. They do not establish motor bearing condition or support the supply losses excluded by the test.

72. A — At the specified test position, the intake valve should seal the combustion chamber from the intake passage. Air heard there directs attention to that sealing path. The weak crankcase evidence makes ring leakage less supported, while an external hose or manifold flange does not explain this chamber-to-intake route.

73. D — The change in engagement after relieving abnormal residual release pressure links the slip to the hydraulic release condition. Investigate the prescribed pressure-retention causes. Friction components may still need assessment, but the evidence does not justify ignoring the reproduced hydraulic influence.

74. B — The control response follows the reported input, while the independent measurement conflicts with it. Resolve the sensing circuit, sensor, and measurement conditions before concluding that the compressor failed. Altering charge or bypassing control does not establish which pressure representation is accurate.

75. A — Restraint systems contain circuits with different functions and handling requirements. Use the manufacturer's approved diagnostic method for the particular circuit, especially where pyrotechnic devices are involved. Stored codes or unrelated electrical disconnections do not establish a safe condition for arbitrary testing.

76. C — The clearance must decrease by 0.15 mm, so the shim must increase by that amount under the stated geometry. Adding 0.15 mm to 2.60 mm gives 2.75 mm. Recheck clearance after installation because the calculation is a selection step, not the final verification.

77. D — Subtract the mass already transferred from the supplied total requirement. The remaining amount is 165 g. Use the approved charging method and verify the applicable system conditions; the arithmetic does not authorize substituting pressure or outlet temperature for a measured charge.

78. C — The supplied tests separate the mechanical mechanism from the motor and establish command supply during the fault. The failed isolated motor test therefore supports action on that component. The evidence does not support a jammed regulator or an open switch under the tested condition.

79. A — The shaft connection's fasteners and tightening method are specific to its joint design. Restore the intended clamping and alignment with the prescribed parts and procedure. Rotation is not a basis for substituting another assembly's torque, and extra tightening cannot validate reused restricted fasteners.

80. B — With both ports at the same pressure, a true differential is not expected. The reported value therefore directs attention to the sensing system and its baseline test, not a flow restriction conclusion.

Check the applicable electrical and calibration conditions before evaluating filter pressure during operation.

81. D — The approved small oil addition can alter sealing at the cylinder wall and rings, providing another clue when compared with the original result. Interpretation still requires the complete procedure and other evidence. The test does not directly measure spring force, coolant movement, or sensor wiring.

82. B — Verification must cover the actual repaired assembly, including a connection that demonstrably interrupts contact. The absent original symptom does not eliminate this newly observed defect. Correct it using the approved method and repeat the operating condition and connection checks before considering the repair complete.

83. C — For two equal resistors in parallel, the equivalent resistance is half the individual value. The supplied pair therefore gives 60 ohm. This is a calculation for the stated isolated topology; actual diagnostic acceptance must follow the vehicle's test conditions and specifications.

84. A — A complaint may involve the temperature of delivered air, its volume, or both. Measuring these conditions separately helps organize diagnosis using the applicable HVAC procedure. Neither measurement directly identifies refrigerant chemistry or component manufacturing details.

85. D — The seal must function in the assembled enclosure, so follow the installation method and required integrity test. Unpackaged appearance cannot verify that boundary, and propulsion readiness addresses a different condition. Extra tightening beyond the procedure is not a substitute for the specified sealing verification.

86. A — Lock actuation and latch-status reporting are separate observed functions. The remaining incorrect status must be investigated using the prescribed input and connection checks. Physical latch closure does not validate its reported condition, and disabling the input does not constitute verification of the repair.

87. B — The clearance check exposes an installation defect under actual movement even though the connection seals. Correct the permitted routing and orientation, then repeat the required travel and hydraulic checks. Sealing performance does not establish that the hose is protected from twisting in service.

88. C — For the stated unity-power-factor exercise, multiply voltage by current to calculate input power. The result is 2,760 W. This simplified calculation does not establish battery charging power, which can differ because of conversion losses and the charging system's actual operating conditions.

89. D — The adaptation establishes the control system's required relationship with the replacement assembly. Follow the prescribed conditions and verify completion rather than relying on a guessed reset method. Hand movement and code clearing do not demonstrate that the applicable adaptation was successfully performed.

90. C — The isolated resistance conflicts with the supplied curve at a separately measured temperature, directing attention to the sensor's characteristic. Verify measurement conditions and part application

before replacement. The stated wiring results do not support an open conductor, and sensor curves are application-specific.

91. D — Priming restores the required fuel supply condition after the circuit has been opened. Complete the prescribed sequence and inspect for leakage before starting. Uncontrolled cranking or opening high-pressure connections is not a substitute for the applicable service procedure.

92. B — The relevant control condition may differ between the fault event and normal operation. Capture the required signal and reference while reproducing the no-crank condition, using the approved connection method. Resting battery voltage or a warm relay cannot establish the command present during failure.

93. A — Extraction equipment must suit the exhaust temperature, operating conditions, and connection arrangement. Capturing gases at the source requires a functional system rather than a hose selected by convenient dimensions. Confirm the equipment instructions and shop controls before running the engine indoors.

94. B — The repaired boundary must be assembled and verified according to the procedure before final operation. Correct seals and connection preparation are part of that process. A tight-feeling line or cool air cannot demonstrate moisture removal, charge accuracy, or leak integrity.

95. D — The specified method establishes clamping under the design's fastener and joint conditions. A similar engine or nominal bolt diameter cannot replace that sequence. Verify the required preparation and fastener reuse restrictions, then perform each stage with suitable equipment.

96. C — The isolated comparison controls the test condition and shows that the valve fails to seal when closed. This supports a valve sealing investigation rather than assumptions about unrelated sensors. Electrical resistance and manifold pressure would require their own measurements and are not established by the vacuum result.

97. A — The connection requires conductive contact and durable protection in the sequence given by the procedure. Prepare and fasten it correctly, then apply the specified treatment where directed. Coating between contact faces or retaining corrosion can undermine the loaded path even when continuity is detected.

98. B — The pressure result is meaningful only under the procedure's defined operating condition and reference. Secure, approved connections and controlled commands are required. A remembered value from another condition or the sound of the pump cannot replace a measured pressure comparison.

99. D — Changing tire positions changes the pull while the measured alignment remains acceptable, supporting investigation of tire characteristics under the approved method. It does not automatically identify a particular internal tire defect. Follow the prescribed confirmation rather than treating a passing alignment as proof that tires cannot contribute.

100. A — The prescribed tool and support direct installation force through the intended parts of the bearing and housing. Loading rolling elements or seals during pressing can damage the assembly. Follow the procedure rather than choosing a contact surface solely because it is convenient.

101. C — The isolated physical test reproduces an open circuit at the same movement that causes the communication symptom. This strongly supports a wiring or splice defect in the tested section. Network software and polling cannot explain an open reading during the specified isolated resistance test.

102. D — Registration can be part of the vehicle's battery-management service requirements. Enter the correct replacement information using the prescribed function and verify the required results. An unrelated profile or code clearing cannot establish that the system recognizes the installed battery correctly.

103. A — Isolation monitoring concerns the separation of the high-voltage electrical system from chassis according to the design's strategy. Interpret its results using the applicable procedure and system state. It does not directly determine cell life or mechanical fastener torque.

104. B — The changed indexed orientation is directly related to the replaced rotating assembly and can alter its intended joint relationship. Verify phasing and the manufacturer's installation requirements before broader diagnosis. Secure support alone does not validate the shaft's assembled orientation.

105. C — The connection must provide both the specified electrical path and mechanical retention. Use the required tool and preparation, then verify the completed crimp as directed. Continuity alone cannot establish durable retention, and changing the termination design is not equivalent to following the repair method.

106. B — Subtract the upper acceptable value from the measured backlash to find the minimum reduction needed to reach that boundary. The difference is 0.03 mm. Actual adjustment must follow the specified method and maintain the other required bearing and tooth-contact conditions.

107. C — The localized contact and successful unobstructed comparison link the stop to physical interference. Correct the installation condition and verify travel and protective operation as specified. Automatic reopening may be a control response, but it does not make the interfering trim condition acceptable.

108. A — The seal's orientation, installed depth, and running surface determine whether it can perform as intended. Inspect the surface and follow the specified installation method. Adhesive repairs or an arbitrary lip direction are not substitutes for the permitted repair of a damaged sealing area.

109. D — The incoming status and valid physical signals narrow the problem to how information is translated or configured through the gateway. Review the prescribed mapping and prerequisites. The evidence does not establish open networks, missing input-module power, or simultaneous receiver failure.

110. A — Current waveforms depend on the test conditions as well as the engine's mechanical resistance. Changing cranking speed and the supply arrangement prevents a simple amplitude comparison. Establish consistent conditions and assess the relevant repeating pattern before making a cylinder or starter diagnosis.

111. D — The same movement still reproduces the original operating failure, so the repair has not passed its relevant verification condition. Investigate connector engagement and the affected conductors

using the approved method. Stationary communication and cleared memory do not outweigh a reproducible remaining fault.

112. C — Joint lubricant and boot requirements relate to the joint's operating conditions and materials. Use the specified kit and quantity rather than assuming all axle greases are interchangeable. More lubricant does not repair worn surfaces and can create an incorrect assembled condition.

113. B — The assembled wheel must satisfy both the tire's orientation requirement and the valve system's installation requirements. Complete those checks before the final balance and leakage verification. Passing one aspect does not establish that the other was assembled correctly.

114. B — The component repair includes restoring the coolant circuit as well as observing the high-voltage work requirements. Complete the prescribed fill and supported bleeding routine, then verify the required conditions. Reservoir level or connector engagement alone does not establish circulation through the repaired circuit.

115. C — Injector seals must suit the joint and installation method. Reusing compressed seals or choosing a thicker substitute can affect fit and sealing. Use the specified parts and lubricant, avoid damage during insertion, and perform the required fuel-leak verification before release.

116. D — The approved substitution demonstrates that the downstream system can report the expected range from that connector. Investigate the original input and its local connection according to the procedure. This test addresses a defined nonpyrotechnic input and does not establish inflator condition or every harness conductor's state.

117. A — The specified restraints and contact geometry distinguish the intended free movement from other motion in the assembly. Establish those conditions before reading the indicator. Uncontrolled rotation or flexing the instrument mount can add displacement that does not represent the required backlash measurement.

118. B — Appearance on the scan tool establishes a limited communication result, not correct configuration. Perform the coding applicable to the vehicle's installed equipment and verify the required functions. Clearing faults or importing an unrelated configuration can leave important operating relationships unresolved.

119. A — The sensor can respond when moved, but the detached linkage prevents suspension motion from reaching it. Restore and verify the specified linkage before condemning the sensor. The evidence directly identifies a missing mechanical relationship rather than a brake or tire-pressure condition.

120. D — Use the reference condition specified for the vehicle and tire application because operating temperature can affect the reading. A comparison taken under a different condition may be misleading. Valve caps, tread depth, and wheel offset do not establish an equivalent pressure reference.

121. C — Mechanical alignment and the control system's steering reference are related but separate verification requirements. The failed zero check must be resolved through the prescribed calibration and associated checks. Tire pressure or unrelated joint replacement cannot substitute for the required reference condition.

122. D — The controlled substitution changes only the suspect segment and restores both signal behavior and operation. That supports investigating the original wiring's characteristics and connections. It does not identify every defect within that segment, but it contradicts acceptance of the original physical path.

123. B — Subtract the remaining current from the original current to quantify the change associated with branch isolation. The result is 0.38 A. This localizes a contribution under the test conditions, but further checks are needed to identify which device or unintended operating state within the branch causes it.

124. A — Seal selection depends on the conductor and connector design so the assembled interface closes correctly. Use the specified compatible components and insertion method. Extra grease or a larger opening does not replace a suitable sealing fit around the insulation.

125. C — An intake leak can represent a larger proportion of total airflow at idle than at higher speed, fitting the changing correction pattern. Confirm the leak with an approved test. The supplied evidence does not support a uniformly rich condition or a pressure fault under the measured condition.