

PRACTICE EXAM 21: 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. A front wheel's bearing-play test passes, but the approved brake-pulsation inspection finds rotor thickness variation above limit. Vibration appears only under ordinary braking. What is strongest?

- A. A stationary engine accessory as the braking-surface source.
- B. The measured rotor variation under the braking condition.
- C. A bearing-play failure despite its passing result.
- D. A normal rotor because no warning lamp is on.

2. A diesel actuator's command changes normally, but its linkage does not move. An approved disconnected movement check finds the linkage seized; the actuator itself passes its defined travel test. What is strongest?

- A. Normal commanded mechanism motion.
- B. A failed actuator travel already not supported.
- C. The seized mechanical linkage.
- D. A missing control request already excluded.

3. A brake hose's protective support is omitted after caliper replacement. What should completion restore?

- A. Only straight-ahead clearance.
- B. The hose left loose because it seals initially.
- C. Only the hose's material marking.
- D. The specified retention and clearance throughout operating movement.

4. A torque converter transfers torque through its fluid arrangement before its applicable lockup state. What distinguishes that path from direct mechanical locking?

- A. The fluid coupling permits the designed relative input and output motion.
- B. It provides only a fixed solid-shaft connection in every state.
- C. It has no torque-transfer function before lockup.
- D. Its gears must remain permanently welded together.

5. A fuse replacement follows a wiring repair that removed a short. What should final restoration verify?

- A. The repaired wire's colour alone.
- B. The correct protection and operation of the repaired branch.
- C. Only that the fuse does not open during one brief test.
- D. Only installing a higher-rated fuse.

6. An intake component replacement requires checking a sealing surface for debris. What should precede final tightening?

- A. Extra torque to flatten trapped debris.
- B. The debris left in place if the gasket is new.
- C. The specified clean surface and correct gasket position.
- D. Only checking the mounting-hole count.

7. A replacement module is supplied blank and requires programming for the installed vehicle. What should final repair include?

- A. Only matching the case dimensions.
- B. Only powering the new module.
- C. A stored setup from an unverified unrelated vehicle.
- D. The correct authorized programming and relevant function checks.

8. A stated wire model contains 30 round strands, each 0.20 mm in diameter. Using $\pi = 3.14$, what total metal cross-sectional area results, rounded to two decimals?

- A. 1.88 mm²
- B. 0.94 mm²
- C. 3.77 mm²
- D. 0.31 mm²

9. A rear axle leak is confirmed at a damaged pinion sealing surface. Housing vents pass and oil level meets the stated test condition. What is strongest?

- A. The damaged local sealing interface.
- B. Normal sealing because the vehicle still drives.
- C. A blocked vent already not supported.
- D. Overfilling despite its verified level.

10. A supplied circuit has three parallel loads drawing 2, 3 and 4 A normally. Only 6 A total is measured and one branch is confirmed open. What missing branch current fits that model?

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

11. A driveline repair requires measuring an adjustable bearing's final setting. What should final assembly use?

- A. Only free hand rotation.
- B. The specified method and verified installed result.
- C. A universal torque from a different assembly.
- D. Only the fastener's exterior position.

12. Oil pressure is normal at the supplied gallery test point, but an identified upper-engine feed passage is blocked and that area shows lubrication distress. What is strongest?

- A. A local oil-delivery restriction despite normal gallery pressure.
- B. A universally low pump output already excluded.
- C. A coolant thermostat as the direct oil blockage.
- D. No lubrication fault because one pressure reading passes.

13. A supplied force model applies 3 MPa to a brake piston area of 0.002 m². Ignoring friction, what force is represented?

- A. 3 kN
- B. 12 kN
- C. 6 kN
- D. 0.6 kN

14. A model predicts 900 output revolutions during a test, but the measured total is 855. What percentage shortfall relative to the prediction is represented?

- A. 5%
- B. 15%
- C. 10%
- D. 4.5%

15. A gasoline engine's crank signal is present at the sensor but absent at the controller. The supplied harness check finds an open conductor; reference and ground pass. What is strongest?

- A. A fuel-pressure regulator as the signal-wire cause.
- B. The crank-signal delivery path.
- C. A sensor generating no local signal.
- D. Normal controller input because the sensor works.

16. A diesel sensor replacement has a prescribed cleaning requirement at its mounting bore. What should assembly verify?

- A. The bore accepted because the sensor can be forced in.
- B. Only a higher fastening torque.
- C. Only the new sensor's packaging.
- D. The approved bore condition and sensor installation.

17. Caster describes which alignment relationship in its usual measurement view?

- A. Wheel tilt viewed from the front.
- B. Wheel pointing inward or outward viewed from above.
- C. Steering-axis tilt viewed from the side.
- D. Rim offset relative to its mounting face.

18. The supplied compression-ratio model has 500 cm³ swept volume and 50 cm³ clearance volume per cylinder. What geometric ratio results?

- A. 9:1
- B. 11:1
- C. 12:1
- D. 10:1

19. A brake caliper replacement has different left and right versions. What should installation verify?

- A. Any side accepted if the hose reaches.
- B. Only the new housing's finish.
- C. Restore support and the lead's safe movement route.
- D. Only that its bolt holes fit.

20. A rear brake applies slowly. The supplied upstream pressure response passes, but downstream response across its hose is delayed and the hose fails its restriction check. What is strongest?

- A. A wheel-speed wiring fault as the hose restriction cause.
- B. A common master-cylinder pressure failure already not supported.
- C. Normal wheel response because pressure eventually arrives.
- D. The hose's restricted hydraulic path.

21. A body accessory harness is repaired after water entry. What should restoration verify?

- A. The approved wiring condition, sealing and relevant functions.
- B. Only that the module dries externally.
- C. An open connector retained to improve ventilation.
- D. Only erasing its messages.

22. A suspension fastener is specified for replacement after removal. What should final assembly use?

- A. Any item with a matching visible hex.
- B. The old item if it feels tight.
- C. The specified new fastener and complete tightening method.
- D. The removed fastener with a stronger impact setting.

23. A sunroof drain repair requires a designated outlet route. What should installation restore?

- A. Only an interior dry wipe.
- B. Only the roof's ability to close.
- C. A drain ending inside the body cavity.
- D. The specified routing and controlled water-flow verification.

24. An HVAC blower repair requires checking its drain and wiring routes before housing closure. What should completion verify?

- A. The prescribed clear drain, protected wiring and secure housing.
- B. Only the cover's visible alignment.
- C. Only motor rotation.
- D. A wire trapped under the cover accepted if it still conducts.

25. A network splice is repaired beside a hot component. What should restoration address?

- A. Only a successful cold scan.
- B. The approved route and thermal protection of the repaired path.
- C. Only the splice's outside colour.
- D. Extra conductor tension to hold it against the hot surface.

26. A piston installation procedure specifies directional marking. What should assembly preserve?

- A. Whichever orientation has easiest tool access.
- B. The specified piston orientation and related component arrangement.
- C. The marking ignored if the piston enters the bore.
- D. Only the replacement piston's outside diameter.

27. A transmission line's specified electrical termination supports what intended communication requirement?

- A. Reduce signal reflections under the designed network arrangement.
- B. Encode every sensor's physical position automatically.
- C. Replace the need for any ground connection.
- D. Supply every module's main operating power.

28. A source command reaches the gateway and its forwarded message is present at a destination connector. The destination's supply fails under the actual command load and the function stops. What is strongest?

- A. All message routing failed despite the captured delivery.
- B. A gateway that produces no forwarded traffic.
- C. A source command absence already excluded.
- D. The destination's local power condition.

29. A rich complaint occurs with normal measured fuel pressure. One injector fails the supplied shutoff-leak test, while the other injectors and airflow measurement pass. What is strongest?

- A. Excess common fuel pressure despite its passing result.
- B. A blocked air filter already excluded.
- C. The leaking injector as a fuel-entry lead.
- D. All injectors normal because electrical commands are correct.

30. A diode replacement has a specified installed polarity. What should assembly preserve?

- A. Any orientation that fits the holes.
- B. A reversed diode accepted if no warning appears immediately.
- C. Only the part's outside size.
- D. The prescribed component orientation and circuit checks.

31. A network connector repair requires a particular wire-pair relationship through the splice. What should assembly preserve?

- A. The specified separation, twist and support geometry.
- B. A long untwisted loop regardless of instruction.
- C. Both conductors connected to one common terminal.
- D. Only matching insulation colour.

32. A wheel-speed signal is correct at low speed but intermittently disappears as the suspension moves. Harness flex reproduces the fault at a damaged connector; the target inspection passes. What is strongest?

- A. Normal wiring because the sensor works once.
- B. The movement-sensitive connector path.
- C. An engine oil-level issue as the wheel-signal source.
- D. A failed target despite its passing inspection.

33. A wheel fastening method specifies thread condition as part of its torque requirement. What should assembly use?

- A. Only the same numerical torque regardless of condition.
- B. Any lubricant selected for easier work.
- C. That condition and the approved complete tightening process.
- D. Extra torque to compensate for unknown friction.

34. A traction-system diagnostic requires checking the low-voltage supply during the exact readiness attempt. What should testing preserve?

- A. Only the traction battery's capacity label.
- B. The specified load state and measurement timing.
- C. A voltage result from a different operating state.
- D. Only a parked unloaded reading.

35. A driveline fluid repair specifies cleaning the fill area before opening. What should preparation establish?

- A. Open the port first and remove debris afterward.
- B. Only the exterior oil colour.
- C. Only a larger drain container.
- D. The approved cleanliness and fluid-handling condition.

36. A starter control request is present, but the solenoid receives no command voltage. The supplied test confirms voltage before a faulty relay contact and none after it while commanded. What is strongest?

- A. An energized starter motor with mechanical binding.
- B. Normal solenoid feed because the request exists.
- C. The open relay contact path.
- D. A missing driver request already excluded.

37. A supplied running test shows one valve never reaches the expected lift. Its follower is visibly damaged, while the cam drive marks and other valves' travel pass. What is strongest?

- A. The damaged local follower path.
- B. Normal valve movement because other cylinders pass.
- C. All valve springs failing equally.
- D. A common timing-drive misalignment despite its passing marks.

38. An engine has low airflow under the supplied full-load test. Its intake restriction exceeds the stated limit, fuel delivery passes, and removing the confirmed blocked filter through the approved comparison restores airflow. What is strongest?

- A. The intake filter restriction contributes to the loaded complaint.
- B. A crank-position signal fault explaining the changed restriction result.
- C. A fuel shortage already not supported.
- D. Normal original airflow because idle was acceptable.

39. A vehicle's DC-to-DC arrangement supports a low-voltage domain from its designated higher-voltage source. What is its intended role?

- A. Convert external AC charging power into traction-battery input.
- B. Provide the traction motor's inverter drive conversion.
- C. Measure cell conditions as the battery-monitoring function.
- D. Provide the specified converted low-voltage supply.

40. A clutch disc installation tool is misaligned before the pressure plate is secured. What should be corrected?

- A. Only the tool's handle direction.
- B. The specified centring and complete assembly method.
- C. Only tighter cover bolts.
- D. Force the input shaft in to centre the assembly afterward.

41. A traction diagnostic model removes a steady 24 A for 15 minutes. What charge quantity is represented?

- A. 12 Ah
- B. 1.6 Ah
- C. 6 Ah
- D. 24 Ah

42. A starter ground strap is replaced after damage. What should assembly restore?

- A. The specified attachment, routing and loaded return-path checks.
- B. Only the strap's outside width.
- C. Only a tight-looking bolt.
- D. An unsupported route touching moving components.

43. A/C high-side pressure exceeds the supplied test range. Condenser airflow is low, its fan output fails the commanded-speed check, and charge quantity passes. What is strongest?

- A. A confirmed overcharge despite its passed quantity check.
- B. The condenser airflow deficiency.
- C. Normal fan performance because it rotates slowly.
- D. An evaporator-only seal defect as proof of low fan output.

44. A refrigerant pressure sensor matches its supplied calibration when disconnected, but scan pressure is incorrect. Its reference voltage at the connected sensor falls below the stated range under load. What is strongest?

- A. Normal pressure interpretation because the sensor passed one test.
- B. A cabin-temperature door as the electrical reference source.
- C. The connected reference-supply path.
- D. The isolated sensor calibration as a failed result.

45. A raised vehicle becomes unstable after a heavy component is removed. What should happen before further work?

- A. Raise the vehicle higher to increase access.
- B. Continue because the original lifting points were correct.
- C. Ask a worker to counterbalance the body by hand.
- D. Stop and restore the approved support and balance arrangement.

46. A body-system diagnostic requires an accessory command while a technician observes movement. What should the work arrangement provide?

- A. Only a warning code clear.
- B. A hand inside the moving linkage as the indicator.
- C. The specified controlled operating zone and safe observation method.
- D. Unrestricted bystander access during the command.

47. A module replacement disturbs a shared ground point. What should final repair verify?

- A. Only bolt presence.
- B. A communication pass used as proof for every shared load.
- C. Only the replaced module's power lamp.
- D. The restored ground assembly and all relevant affected functions.

48. A hybrid repair has removed covers and interlock connections for access. What must restoration account for before re-energization?

- A. The complete prescribed physical protection and connection state.
- B. An interlock bypass used to produce ready status.
- C. Only the repaired component's tight bolts.
- D. Only cabin accessory operation.

49. A hybrid thermal fault requires distinguishing actual temperature from sensor reporting. What should the diagnostic use?

- A. Only the reservoir's exterior appearance.
- B. The prescribed reference checks and relevant operating data.
- C. A universal temperature assumption from another vehicle.
- D. Only the displayed warning label.

50. A network fault disappears when a water-damaged module is disconnected. Its harness resistance and terminal assignment pass, while reconnecting the same module reproduces the segment collapse. What is strongest?

- A. A wrong harness pinout already not supported.
- B. The affected module's loading of the segment.
- C. A normal module because it was originally installed by the manufacturer.
- D. A mechanical tire mismatch as the resistive fault.

51. A steering pump test passes at the prescribed condition, but assist is poor and a rack movement test confirms internal binding. Belt drive and fluid type pass. What is strongest?

- A. A failed pump output despite its passed test.
- B. A wrong fluid already excluded.
- C. Normal assist because the pump operates.
- D. The rack's mechanical or internal movement condition.

52. A module loses messages during a connector flex test. Its signal and supply remain stable, but ground voltage rises above the supplied loaded limit exactly when the dropout occurs. What is strongest?

- A. Normal module power because the connector is latched.
- B. A disappeared source signal despite the capture.
- C. The module's disturbed ground connection.
- D. A positive supply interruption already not supported.

53. An ABS warning begins after hub installation. The supplied inspection finds the directional encoder facing away from its required sensor interface; sensor supply and wiring pass. What is strongest?

- A. The hub encoder's incorrect installed orientation.
- B. An unrelated rear brake leak as the encoder explanation.
- C. Normal signal geometry because the hub rotates.
- D. A missing sensor supply already excluded.

54. One remote lock request is absent from live data, but local commands operate all doors. The remote's supplied transmission check fails, while the receiving system passes with an approved comparison transmitter. What is strongest?

- A. Normal original remote operation because local locks work.
- B. The original remote's command-generation path.
- C. The receiver as conclusively defective despite the comparison.
- D. A common door-actuator failure.

55. A fuel-system repair requires replacing a damaged quick-connect retainer. What should assembly restore?

- A. The specified retention, seating and required leakage checks.
- B. Only pushing the connection until it looks close.
- C. External wire used instead of the required retainer.
- D. Only a temporary idle inspection.

56. Heater outlet air is inconsistent after coolant service. The supplied checks show normal engine temperature, but an approved air-removal routine restores stable core flow and cabin heat. What is supported?

- A. A permanent lack of engine heat despite its passing condition.
- B. A failed fan command despite unchanged blower performance.
- C. Trapped air contributed to the heater circulation complaint.
- D. A normal original fill based only on reservoir appearance.

57. A window regulator is repaired and the vehicle requires anti-pinch initialization. What should completion include?

- A. Only the window's manual motion.
- B. Repeated closing against a person's hand.
- C. Only a tighter run channel.
- D. The prescribed setup and safe travel checks.

58. An accessory motor stops after warming. The supplied test finds its internal thermal protector open, while exterior wiring remains continuous and temperature is above its stated operating threshold. What is strongest?

- A. The protector's opening matches the documented thermal condition.
- B. A permanent external harness open.
- C. A missing switch request as the cause of verified overheating.
- D. Normal uninterrupted motor current through an open protector.

59. A repaired engine's lubrication verification is required before extended operation. What should the technician establish?

- A. Only the absence of a warning sound.
- B. The prescribed initial oil-supply and pressure checks.
- C. A long high-speed run used to discover the fault.
- D. Only the engine's ability to start.

60. A hub assembly replacement requires cleaning and a specified fastening sequence. What should installation preserve?

- A. Only the replacement's part number.
- B. More torque applied over trapped debris.
- C. Only the final fastener's torque.
- D. The approved mating condition and complete tightening method.

61. A buckle assembly is replaced following a failed mechanical check. What must final repair use?

- A. A visually similar unverified buckle.
- B. The old latch modified without authorized criteria.
- C. The approved component and complete restraint-verification procedure.
- D. Only a status-lamp check.

62. A fuel flow test collects 750 mL in 15 seconds under its specified condition. What flow rate is represented for the supplied comparison?

- A. 5.0 L/min
- B. 1.5 L/min
- C. 3.0 L/min
- D. 0.75 L/min

63. A steering adjustment changes the required wheel-centre reference. What should final repair verify?

- A. Only code clearing.
- B. A sensor offset used to conceal incorrect linkage geometry.
- C. Only the wheel's appearance.
- D. The specified mechanical centre and any required control setup.

64. A shift complaint is limited to one manual gear. The clutch-release check passes, but the gear's synchronizing test fails under the supplied procedure. What is strongest?

- A. That gear's synchronizing mechanism.
- B. A failed tire-pressure sensor as the selection mechanism.
- C. Normal gear engagement because other selections work.
- D. A common clutch-release shortage already excluded.

65. A power window reverses at the same travel point. The supplied mechanism check finds severe run-channel friction there; supply and motor control pass. What is strongest?

- A. A complete supply absence already excluded.
- B. The localized mechanical restriction contributes to reversal.
- C. Normal unrestricted travel because the motor responds.
- D. An unrelated belt-status switch as the channel-friction cause.

66. A vehicle vibrates after shaft replacement. The supplied inspection finds incorrect joint phasing, while balance and support mounting pass. Correcting phasing reduces the complaint. What is supported?

- A. The phasing discrepancy contributed to the vibration.
- B. A balance defect despite its passing check.
- C. A failed mount already excluded.
- D. Normal original assembly because the shaft fitted.

67. A tire installation procedure specifies pressure-sensor protection during bead work. What should the technician use?

- A. An initial warning-lamp check as a substitute for protection.
- B. Only the tire's outside diameter.
- C. The approved tool position and sensor-service method.
- D. A generic tool path through the sensor area.

68. A temperature-door actuator is installed after case repair. What should final setup include?

- A. Only fitting all screws.
- B. The correct reference position and prescribed initialization.
- C. Only one successful manual movement.
- D. An unknown powered starting position accepted without setup.

69. An engine's geometric compression ratio compares which volumes?

- A. Oil-sump capacity with coolant capacity.
- B. Bore diameter with piston stroke only.
- C. Intake valve lift with exhaust valve lift.
- D. Cylinder volume at BDC compared with volume at TDC.

70. A transfer-case command is present, but its actuator current is high and inspection confirms a jammed shift linkage. Power and grounds pass. What is strongest?

- A. A missing command already excluded.
- B. An electrically open load with no current.
- C. Mechanical restriction in the shift path.
- D. Normal range selection because the actuator is energized.

71. A driveline range gives 2,100 rpm input and 700 rpm output under a no-slip test. What measured reduction results?

- A. 0.33:1
- B. 3.00:1
- C. 2.00:1
- D. 4.00:1

72. A restraint replacement requires a defined waiting period after its prescribed shutdown. What should the technician follow?

- A. The actual deactivation, waiting and verification sequence.
- B. The warning lamp going dark as the entire safe-state proof.
- C. Immediate disconnection because the ignition is off.
- D. A universal wait copied from another vehicle.

73. A supplied network has two 120-ohm terminations but reads 40 ohms after an accessory installation. Three 120-ohm paths are identified in parallel. What does the evidence support?

- A. One missing termination as the cause of lower resistance.
- B. A software code-clearing issue causing the resistive topology.
- C. A normal two-path measurement.
- D. An extra termination path in that installed arrangement.

74. One node reports outdated data while other recipients show changing current values. The actual message is present at that node, and its local data-age counter remains fixed after its supplied refresh test fails. What is strongest?

- A. A complete absence of current traffic on the whole network.
- B. Every source sensor frozen despite changing values elsewhere.
- C. Normal refresh because one earlier value is stored.
- D. The node's processing or refresh function.

75. An engine sealing joint requires a specified sealant bead path. What should installation use?

- A. The approved material, path and preparation conditions.
- B. Only the amount used on a previous engine.
- C. Extra sealant to conceal an unprepared surface.
- D. A wider bead placed across every passage.

76. A capture records 250 bits in 0.001 seconds under the supplied timing model. What average bit rate should be used for comparison?

- A. 500,000 bits/s
- B. 1,000,000 bits/s
- C. 250,000 bits/s
- D. 25,000 bits/s

77. One brake pad wears much faster than its mate. The specified guide-pin movement test fails, while released pressure meets its limit and pad identification is correct. What is strongest?

- A. Retained hydraulic pressure despite its passing result.
- B. The impaired mechanical guide movement.
- C. Normal wear simply because both pads are installed.
- D. A wrong pad specification already excluded.

78. A supplied charging sequence requires battery temperature within its permitted range. The battery is above that range, a thermal warning is present, and charging current is intentionally limited while other prerequisites pass. What is strongest?

- A. The documented temperature-related charging limit.
- B. Normal unrestricted charge acceptance.
- C. A guaranteed failed charger because current is reduced.
- D. An absent charge request already excluded.

79. A replacement CV boot is installed with incorrect clamp position. What should repair verification address?

- A. Only the axle's ability to rotate once.
- B. The specified sealing, clamp engagement and joint movement.
- C. Only the boot's unused condition.
- D. Exterior adhesive substituted without approval.

80. A pressure instrument passes zero but reads 900 kPa on a verified 1,000 kPa reference. Its production reading is accepted only because it lies just below an upper limit. What is strongest?

- A. A zero pass proves accuracy over the full range.
- B. The low production indication guarantees actual pressure is lower.
- C. The reference error must be resolved before judging production acceptance.
- D. A repeated 900 kPa result makes the reference irrelevant.

81. A supplied circuit path carries 20 A and has 0.04 ohm measured resistance under the stated model. What loss is represented?

- A. 0.08 V
- B. 8.0 V
- C. 0.002 V
- D. 0.8 V

82. A charging-control command is correct, but its actuator signal never reaches the generator. The supplied harness test finds an open conductor; generator response passes when tested through its approved direct method. What is strongest?

- A. A missing upstream command already excluded.
- B. A generator that cannot respond despite its passed comparison.
- C. The interrupted control-signal delivery path.
- D. Normal charging control because the requested value is displayed.

83. A brake-fluid service identifies contamination requiring a defined component disposition. What should repair follow?

- A. Only changing the visible reservoir contents.
- B. An arbitrary additive to restore appearance.
- C. Only topping up with correct fluid.
- D. The actual contamination recovery and replacement instructions.

84. A supplied lockup test commands engagement, but measured slip stays above its stated maximum and the relevant apply-pressure test fails. Other transmission apply checks pass. What is strongest?

- A. The converter lockup apply or control path.
- B. A uniform pressure deficiency at every element.
- C. A wheel-bearing fault explaining lockup pressure.
- D. Normal completed lockup because the request exists.

85. A positive-crankcase-ventilation arrangement principally handles which intended path?

- A. Liquid gasoline metered at each injector.
- B. Crankcase vapours routed through the specified ventilation circuit.
- C. Coolant routed through the heater core.
- D. Recirculated exhaust through the EGR valve only.

86. A message appears with its correct identifier but wrong payload after a source-sensor repair. The physical sensor input passes at its pins, while the source module's configured scaling differs from the supplied vehicle definition. What is strongest?

- A. Normal data because the identifier is correct.
- B. The source's scaling or configuration mismatch.
- C. An absent physical input already excluded.
- D. Every receiver failing independently as the only explanation.

87. A supplied ideal blend model mixes equal flows at 18 C and 62 C, with equal heat capacity and no other transfer. What outlet temperature follows?

- A. 44 C
- B. 80 C
- C. 40 C
- D. 31 C

88. A buckle-status switch provides which intended restraint-related input?

- A. Determine seat load as the occupant-classification input.
- B. Detect impact acceleration as a crash-sensor input.
- C. Apply tensioning force to remove belt slack.
- D. Information about the designated buckle state.

89. A connector repair uses a terminal requiring a particular crimp tool. What should the technician use?

- A. The specified conductor preparation and crimp method.
- B. Extra solder substituted without checking authorization.
- C. Ordinary pliers judged only by grip.
- D. A larger wire forced into the terminal.

90. A current clamp is required to be zeroed before a low-current test. What should the technician do?

- A. Use the previous job's zero without checking.
- B. Complete the specified zero and range checks before measurement.
- C. Clamp both supply and return together without reference to the method.
- D. Treat a stable display as proof of correct offset.

91. A suitably rated current clamp is placed around one conductor. What does its intended measurement arrangement determine?

- A. Only the conductor's insulation resistance.
- B. The wire's physical length automatically.
- C. Current flowing in that conductor without opening its path.
- D. The full circuit's pressure drop.

92. A gasoline support-system component is replaced with a required software setup step. What should final repair include?

- A. Only physical installation.
- B. Only erasing messages.
- C. A donor setup copied without comparing configuration.
- D. The actual vehicle's prescribed setup and operating verification.

93. A high-voltage service boundary has been disabled but the prescribed voltage verification is incomplete. What should happen before access?

- A. Proceed because the waiting period ended.
- B. Test an unrelated low-voltage lamp instead.
- C. Complete the prescribed isolation and voltage verification.
- D. Use scan status as the sole safe-state proof.

94. A transmission replacement leaves a cooler line kinked. What must be restored?

- A. The approved line route and relevant circulation checks.
- B. Only the transmission's mounting bolts.
- C. A shorter road test to avoid the kink's effects.
- D. Only a cold fluid level.

95. An automotive rectifier diode is intended to provide which electrical characteristic?

- A. Preferential current conduction in its designed direction.
- B. Fixed resistive loss without directional conduction.
- C. Magnetic movement of a relay's load contacts.
- D. Storage of charge as a capacitor function.

96. A technician will use a portable electric tool near drained fuel residue. What should preparation establish?

- A. Only the tool's mechanical power rating.
- B. The residue hazards and approved ignition controls.
- C. A shorter task duration as the only precaution.
- D. Only an open workshop door.

97. A diesel injector's electrical command and rail pressure pass, but its supplied contribution test is low and an approved return-flow comparison is excessive at that injector. What is strongest?

- A. A common pressure absence already excluded.
- B. A missing injector command despite its passing check.
- C. Normal injector contribution because the engine runs.
- D. The injector's internal delivery or leakage condition.

98. A diesel cylinder's main injector introduces fuel principally into what intended combustion setting?

- A. The cylinder's appropriately compressed air under its injection strategy.
- B. The exhaust-aftertreatment dosing path instead of the main cylinder.
- C. The intake's carburetor mixing passage as in a different fuel system.
- D. The lubrication return path rather than the combustion chamber.

99. A vehicle wanders during braking. A control-arm bushing shows excessive movement in its supplied loaded test, while static toe and tire pressure pass. What is strongest?

- A. A pressure mismatch already excluded.
- B. A rotor thickness measurement as proof of bushing health.
- C. Normal suspension proved by one static alignment result.
- D. The bushing's load-dependent geometry change.

100. A battery's terminal voltage passes its specified test, but the supply at a control unit collapses only during command. Its fuse output stays stable; a connector between those points fails the loaded drop test. What is strongest?

- A. Normal unit supply because the fuse is powered.
- B. The local connector in the unit's feed path.
- C. A battery-voltage failure despite its passed measurement.
- D. A software label alone as proof of a control-unit defect.

101. Specified bearing clearance describes which installed relationship?

- A. The installed clearance between a valve stem and its guide.
- B. The meshing clearance between two timing gear teeth.
- C. The required space between the bearing surface and its journal.
- D. The end clearance between a piston ring and its groove.

102. A driveline seal's lip and mating surface form what required installed relationship?

- A. The specified fluid-retaining contact interface.
- B. The bearing's preload adjustment relationship.
- C. The spline's permitted mechanical sliding freedom.
- D. The meshing clearance of the gear teeth.

103. A supplied charging model delivers 350 V and 160 A. What electrical power should be compared with its requested level?

- A. 21.9 kW
- B. 56 kW
- C. 112 kW
- D. 5.6 kW

104. A refrigerant service procedure defines the charge by specified mass. What should filling use?

- A. A fixed extra amount for stronger cooling.
- B. Only an approximate pressure at an uncontrolled temperature.
- C. The quantity recovered from an unverified previous fill.
- D. The approved measured charge and required verification conditions.

105. An EV thermal repair specifies a pressure-test limit for the particular circuit. What should verification use?

- A. Only a full reservoir mark.
- B. Only the absence of a visible drip while parked.
- C. That circuit's approved method and test conditions.
- D. A higher generic engine-cooling pressure.

106. A cabin water leak occurs during a controlled sunroof test. Water backs up in a confirmed blocked drain and enters the body, while the perimeter bond check passes. What is strongest?

- A. A perimeter bond failure despite its passing test.
- B. Normal drainage because the roof glass closes.
- C. The blocked water-management path.
- D. A refrigerant release as the water source.

107. A shaft fastener procedure specifies a torque-plus-angle method. What should tightening follow?

- A. Only a higher final torque estimate.
- B. The actual staged torque and angle sequence.
- C. Any impact setting that feels equally tight.
- D. Only the first stage's reading.

108. A diesel return-line repair specifies particular hose material and clamps. What should installation use?

- A. The old damaged line kept for a short trial.
- B. Any hose matching only the outside diameter.
- C. Extra clamp force on an unverified material.
- D. The approved hose, fittings and fastening arrangement.

109. A shaft-speed noise persists during neutral coasting but disappears when the vehicle is stationary at matching engine rpm. Its centre support has failed the supplied roughness test. What is strongest?

- A. The road-speed-related support condition.
- B. Normal support because the engine test is quiet.
- C. A clutch fault proven by the shaft roughness.
- D. An engine-rpm-only accessory fault.

110. A service torque wrench has been dropped and its inspection status is uncertain. What should happen before critical assembly?

- A. Compare it only with hand feel.
- B. Use it if the display still lights.
- C. Resolve its condition and required calibration status.
- D. Set extra torque to compensate for possible damage.

111. A scope probe attenuates voltage 10:1, and automatic scaling is disabled. The displayed trace is 0.65 V. What actual input voltage follows from that stated setup?

- A. 0.065 V
- B. 0.65 V
- C. 65 V
- D. 6.5 V

112. A belt buckle reports latched, but the prescribed mechanical check shows it does not retain the tongue. The switch follows its supplied electrical test correctly. What is strongest?

- A. A mechanical buckle-retention fault remains despite correct switch behaviour.
- B. A normal latch because its status says closed.
- C. A failed switch as the only supported defect.
- D. Complete buckle acceptance from the electrical pass.

113. A suspension inspection specifies loaded and unloaded checks at different points. What should the technician use?

- A. Only a visual wheel angle.
- B. The defined support states and measurements for each check.
- C. Only whichever state shows least movement.
- D. One universal pry-force method for every joint.

114. A condenser replacement procedure specifies protection from contamination before connections are made. What should assembly preserve?

- A. Only keeping the mounting bolts dry.
- B. The ports left open throughout storage for inspection.
- C. The required capped, clean internal condition and seal preparation.
- D. Only the outside paint finish.

115. A ride-height report changes sharply after impact. The supplied inspection confirms a fractured spring and a displaced seat at that corner, while pressure and wheel dimensions pass. What is strongest?

- A. The damaged local spring-support arrangement.
- B. Calibration alone as the physical support repair.
- C. A pressure fault despite verified measurements.
- D. A smaller wheel already not supported.

116. A new vibration starts after wheel service. The supplied centring inspection fails at one mounted wheel, but the balancer reading for that assembly passes off the vehicle. What is strongest?

- A. A mandatory engine fault because the wheel was balanced.
- B. The wheel's installed centring relationship.
- C. Normal installed wheel condition proved by the bench balance alone.
- D. A brake-fluid type error as the mounting geometry.

117. A transmission temperature report is very high, but an approved independent temperature check is normal. Its sensor is within the supplied curve; the wiring is shorted to the documented high-report response. What is strongest?

- A. The independent temperature proving severe overheating.
- B. A sensor-curve failure despite its passing result.
- C. Normal reporting because a value is displayed.
- D. The signal-path short rather than actual overheating alone.

118. The A/C condenser performs which principal heat-transfer role?

- A. Control a door's temperature-mixing angle.
- B. Increase pressure through compressor action.
- C. Reject refrigerant heat to its designed surrounding medium.
- D. Absorb cabin heat as the evaporator function.

119. A spring seat repair disturbs a nearby sensor lead. What should final inspection include?

- A. The repaired support and the lead's protected movement route.
- B. The lead pulled tight to avoid loose loops.
- C. Only the spring's exterior height.
- D. Only a parked continuity reading.

120. A disconnected brake-assist unit can retain energy in its accumulator. What must servicing account for?

- A. A disconnected connector proving every pressure volume is empty.
- B. Only the reservoir's exterior fluid mark.
- C. Only the stopped pump motor.
- D. Stored hydraulic pressure beyond electrical shutdown.

121. A mass-airflow sensor provides which principal engine-management quantity?

- A. Fuel pressure inside the rail.
- B. Information related to the intake air mass flow.
- C. Oxygen content measured in the exhaust.
- D. Coolant temperature at the thermostat.

122. A tire's measured diameter is 640 mm in the supplied ideal circle model. Using $\pi = 3.14$, what circumference results for comparison with rotation data?

- A. 2,009.6 mm
- B. 640 mm
- C. 4,019.2 mm
- D. 1,004.8 mm

123. A steering repair's supplied shim model requires reducing a 0.50 mm shim by 0.08 mm. What final thickness follows?

- A. 0.58 mm
- B. 0.25 mm
- C. 0.42 mm
- D. 0.08 mm

124. Two lamps share a feed that passes loaded checks. Both become dim when their common ground joint heats; its voltage loss exceeds the supplied limit. Individual lamp loads pass an approved comparison. What is strongest?

- A. Normal return condition because both lamps still glow.
- B. Two independent lamp defects as the only explanation.
- C. A shared positive feed already not supported.
- D. The shared ground connection.

125. An exterior electrical connection requires a seal and protective cap after testing. What should completion include?

- A. Only the successful uncovered test.
- B. The specified environmental protection and retention.
- C. Only a code clear.
- D. The cap omitted for easier future access.

Practice Exam 21: Answer Key and Explanations

1. B — The symptom depends on braking and the rotor fails the relevant surface-variation criterion while bearing play passes. Investigate that measured condition and its cause. Warning-lamp status does not certify rotor geometry, and a different stationary operating source is not supported by the supplied comparisons.

2. C — The command and actuator test pass, but the linkage physically fails its independent movement check. Restore the mechanical path before attributing non-response to the actuator alone. An operating drive cannot move a seized connection normally, so control evidence must be separated from the component it is meant to position.

3. D — The hose needs the prescribed mechanical protection as well as fluid sealing. Restore its support and verify clearance over the required movement range. Material identification and a stationary leak-free state cannot establish that an unsupported line avoids strain or contact during steering and suspension operation.

4. A — The converter's fluid path transmits torque while allowing its designed relative motion, unlike the applicable mechanically locked relationship. That is distinct from a permanently solid shaft. Diagnose the actual operating state; the general function does not establish that converter slip is acceptable under every commanded lockup condition.

5. B — The branch needs its designed protective device and the required operating verification after the short is corrected. A higher rating can conceal another condition without restoring the intended protection. Colour and one brief non-opening result cannot establish the complete repaired circuit meets its service requirements.

6. C — The gasket needs the approved mating condition, not merely unused material. Remove debris and position the seal correctly before assembly. Mounting holes identify one feature but cannot establish sealing geometry, and greater bolt load does not make a contaminated interface acceptable.

- 7. D** — The blank replacement needs the prescribed data and checks for the actual configuration. Physical fit and power do not establish assigned network functions. An unrelated setup can describe other equipment, so complete the authorized process and verify communication rather than treating any programmed state as correct.
- 8. B** — Each strand has a 0.10 mm radius, so its area is 3.14 times 0.10 squared. Multiply by thirty strands to obtain 0.942 mm², rounded to 0.94 mm². The calculation concerns metal area only; insulation thickness does not enter the supplied conductor model.
- 9. A** — The observed leak coincides with a damaged mating surface at the identified seal while the supplied pressure-relief and level checks pass. Restore the complete interface under the axle repair criteria. Continued drive does not establish fluid retention, and a new seal alone may not correct an unacceptable shaft surface.
- 10. D** — The normal total is nine amperes from the three supplied branches. Subtract the measured six amperes to obtain three amperes missing, matching the stated branch model. This narrows the expected missing path but actual localization still uses the approved branch tests rather than total current alone.
- 11. B** — The adjustable bearing's acceptance depends on its actual procedure and measured setting. Free movement and exterior position do not establish the intended load relationship. Use the specified method rather than transferring a torque from another design that may achieve a different mechanical condition.
- 12. A** — The blocked passage prevents local delivery even though the upstream pressure point passes. Evaluate the affected lubrication path and damage under the engine procedure. One pressure reading describes its location, not guaranteed flow through every downstream branch, so it cannot override the identified local restriction.
- 13. C** — Convert three megapascals to three million pascals and multiply by the stated 0.002 m² area to obtain 6,000 N, or six kilonewtons. This is ideal piston force, not complete wheel braking torque. Actual acceptance uses the prescribed brake test and its relevant operating factors.
- 14. A** — Subtract 855 from the predicted 900 to obtain forty-five missing revolutions. Divide by nine hundred and multiply by one hundred to obtain five percent. This quantifies the supplied comparison; measurement validity and the relevant driveline tests are still needed before identifying the physical cause of the shortfall.
- 15. B** — The sensor produces a local waveform, but the identified open prevents its delivery to the controller. Restore and verify that electrical path. A functioning sensor does not prove the module receives its information, while the fuel regulator operates in a different path from the measured conductor interruption.
- 16. D** — The sensor needs the specified mounting condition to establish its intended fit and operating relationship. New packaging does not describe the bore, and force cannot make contamination or damage acceptable. Prepare the location under the service method and verify the installed assembly rather than relying on insertion alone.

- 17. C** — Caster describes the side-view steering-axis relationship, while front-view wheel tilt is camber and top-view pointing is toe. Rim offset is a separate wheel dimension. Use the vehicle's measurement procedure; recognizing these definitions does not establish one universal acceptable angle for every suspension design.
- 18. B** — At bottom dead centre, total volume is 500 plus 50, or 550 cm³. Divide that by the fifty-cubic-centimetre clearance volume to obtain eleven to one. Dividing swept volume alone by clearance gives ten, but omits the chamber volume included in the larger total.
- 19. C** — Physical mounting fit does not establish the caliper's complete side-specific arrangement. Verify its actual orientation and hydraulic restoration requirements before acceptance. A hose that can reach may still be routed incorrectly, and new external condition cannot prove the required drainage, bleeding or connection relationship.
- 20. D** — The controlled comparison places the delay across the hose, reinforced by its failed restriction test. Restore that path under the brake procedure and verify response. Eventual pressure does not establish correct timing of delivery, and the upstream pass narrows a common pressure-source explanation.
- 21. A** — The repair must address the actual electrical and environmental condition after exposure. Restore its prescribed protection and verify affected functions. Exterior dryness and cleared messages do not establish internal contact integrity, while leaving the connector open removes the intended barrier rather than completing the sealing repair.
- 22. C** — The procedure requires a particular replacement and assembly method, not merely an externally similar fastener. Feel cannot establish the specified installed load or reuse suitability. Use the designated new part rather than applying extra force to a removed component that the instructions do not authorize for reuse.
- 23. D** — The drain needs the approved discharge destination as well as an open tube. Restore that route and reproduce the relevant water check. Roof closure cannot establish water management, and an interior outlet can move the leak rather than resolve the entry and disposal path.
- 24. A** — The housing repair must preserve water management and electrical protection as well as airflow generation. Restore each required route before closure. Motor rotation and visible alignment cannot prove a trapped conductor remains undamaged or that condensate has an effective discharge path.
- 25. B** — The repaired path must remain protected under its operating environment, not only communicate while cold. Restore routing and the specified thermal barrier. Appearance cannot establish that exposure, and pulling the wire tightly against heat can worsen the condition rather than provide approved retention.
- 26. B** — Directional marking belongs to the engine's installation requirements and must be interpreted using the actual component instructions. Bore fit alone cannot establish the correct relationship of all

piston features. Convenience and one diameter measurement do not authorize reversing the intended orientation.

27. A — Termination supports the designed signal behaviour by limiting reflections in the specified electrical arrangement. It is not a universal module supply or substitute for ground. Use the actual topology and requirements; the general function does not establish one resistor value or location for every vehicle network.

28. D — The command is delivered through the gateway to the destination, but that recipient's power condition fails when its function is requested. Restore the local supply before judging routing. Present traffic cannot make an underpowered load operate or prove that its connection carries the required operating demand.

29. C — The identified injector passes unwanted fuel under the specified closed-state test while competing checks pass. Investigate that leakage and its affected cylinder. Electrical command correctness does not establish physical shutoff, and a normal rail pressure does not prevent a defective injector from supplying unintended fuel.

30. D — The diode's directional role depends on its installed polarity. Follow the specified orientation and verify the actual circuit operation. Physical fit and an initial absence of warnings do not establish that the intended conduction path is correct, especially when the component can be mounted in more than one direction.

31. A — The pair's electrical and physical arrangement forms part of the approved repair. Restore the specified geometry and support rather than selecting only by colour. Joining the separate conductors changes their intended paths, while an unapproved long loop can depart from the network's prescribed construction.

32. B — The dropout follows a controlled connector movement while the target passes, localizing a delivery or contact fault rather than a fixed target defect. A low-speed pass does not establish the circuit remains stable across suspension travel. Restore and verify the path under the relevant movement condition.

33. C — The specified thread condition defines the tightening basis along with the numerical value and sequence. A changed friction condition can alter resulting load. Resolve it under the procedure rather than inventing an allowance, because matching a number alone does not prove the intended joint assembly was achieved.

34. B — The readiness attempt can impose a different condition from an unloaded parked check. Measure the required supply at the defined time and points. Traction capacity does not establish control-voltage delivery, and a value obtained under another state cannot automatically verify the prerequisite for this diagnostic sequence.

35. D — The preparation limits contamination entering the fluid boundary when it is opened. Complete it and use the specified handling method. Container size helps collection but cannot protect an unclean fill opening, while cleaning afterward may leave material already introduced into the assembly.

- 36. C** — The request reaches the relevant control stage, but the verified contact path does not pass voltage onward. Investigate that switch path rather than treating an upstream request as proof of solenoid supply. A mechanically bound energized motor describes a different condition from the supplied absent command feed.
- 37. A** — The travel failure is localized to a valve with a confirmed damaged follower, while the common drive relationship and other valves pass. Investigate that local motion path. A shared timing explanation is less consistent with the specific physical damage and the unaffected components' normal movement.
- 38. A** — The restriction measurement fails and the controlled comparison restores the relevant airflow while fuel delivery passes. That supports the filter-path contribution under load. An idle pass cannot establish full-load intake performance, and the observed change is not explained by an unrelated position-signal fault.
- 39. D** — The DC-to-DC arrangement provides the designated low-voltage supply from its specified source. External charging conversion, motor-drive conversion and battery monitoring are different roles. Assess the actual output and vehicle operating state rather than assuming every power-electronic device uses one architecture or produces a constant value in all conditions.
- 40. B** — The assembly needs the prescribed centring relationship before closure. Correct the tool and method rather than using the transmission shaft as an improvised forcing device. Greater bolt load does not establish alignment, and handle direction alone cannot prove the disc is positioned correctly.
- 41. C** — Convert fifteen minutes to one quarter of an hour and multiply by twenty-four amperes to obtain six ampere-hours. This calculates the supplied model's charge quantity, not energy without a voltage basis. Any actual traction measurement must remain within the authorized diagnostic procedure and established safe-work arrangement.
- 42. A** — The replacement must provide the designated electrical and physical relationship, including its operating load path. Appearance and width do not establish contact quality or routing protection. Verify the loaded return under the procedure rather than assuming any attached strap safely restores the original grounding arrangement.
- 43. B** — The pressure complaint accompanies inadequate heat-rejection airflow and a failed fan response while charge quantity passes. Restore and verify that air path under the diagnostic method. Some rotation does not establish the required output, and a passed charge test weakens the supplied competing excess-charge explanation.
- 44. C** — The sensor passes its isolated response check, but the actual operating reference fails when connected. Investigate that supply path before using the calibration pass to accept the complete installed measurement. A sound sensor element can still report incorrectly if its required electrical operating condition is not maintained.
- 45. D** — The component removal changed the supported mass distribution and exposed an unstable condition. Reassess and restore suitable support before continuing. Correct initial lifting points do not

prove stability after the load changes, and additional height or manual counterbalancing cannot establish the required secure arrangement.

46. C — The diagnostic can operate mechanical parts, so establish the prescribed movement boundary and observation arrangement. A fault-code operation does not control physical access. Keep the relevant path clear while checking commanded response rather than using a person in the mechanism as a substitute for observation.

47. D — The shared connection can affect more than the replaced module. Restore it as specified and check the relevant functions rather than accepting a single indication. Bolt presence does not prove contact, and one passing communication path cannot establish that every load using the ground receives its required electrical condition.

48. A — Restore the actual system's covers, barriers and required connections through its defined sequence. Mechanical fastening and working accessories do not establish that complete state. Ready status obtained by defeating an interlock cannot serve as acceptance evidence for an arrangement that remains outside the prescribed repair condition.

49. B — The method must establish the physical and reported conditions under the actual vehicle's test requirements. A warning identifies a detected condition but not every cause. Compare the designated evidence rather than assuming reservoir appearance or another model's typical temperature proves this system's measured state.

50. B — The repeated connection comparison localizes the collapse to the module with documented damage while the stated harness checks pass. Continue its approved assessment rather than assigning the fault to an unrelated mechanical system. Original installation does not establish current component health after an exposure event.

51. D — The independent rack check identifies binding while the upstream pump and related checks pass. Investigate that local condition rather than extending pump operation into acceptance of the whole steering path. Correct pressure generation cannot guarantee free mechanism movement at a component that separately fails its test.

52. C — The dropout coincides with a failed loaded ground condition while source signal and positive supply stay stable. Investigate that local return path. Housing latching cannot prove contact quality at every terminal, and the captured evidence more strongly supports ground disturbance than a missing shared message.

53. A — The encoder's orientation fails the specific installation requirement at the affected interface while its electrical supply path passes. Restore and verify the actual signal arrangement. Hub rotation proves a mechanical motion exists but does not establish that the sensor faces the signal-generating feature as prescribed.

54. B — The doors operate locally and with the approved transmitter comparison, while the original remote fails its transmission check. This separates its command source from the receiving and actuator paths. Local lock operation does not prove the customer's remote sends the expected request.

55. A — The connector needs its designed engagement and retention before its service checks. A near-seated appearance does not prove correct locking. Temporary operation and improvised external wire cannot establish that the approved retainer relationship is restored under the fuel system's operating conditions.

56. C — The controlled air-removal process changes the relevant flow and heat result while the engine temperature is normal. That supports an air-related circulation contribution. A full-looking reservoir cannot establish the condition in every passage, and the comparison does not justify a separate blower diagnosis without evidence.

57. D — The repaired window needs the defined control reference and verification, with the operating path kept safe. Manual movement does not establish initialization. Increasing channel friction or using a person in the closing path cannot substitute for the approved anti-pinch test method and can introduce a new hazard.

58. A — The protector's state agrees with the supplied thermal condition and explains interruption despite intact exterior wiring. Investigate why the motor reached that state under the diagnostic method. Its operation does not automatically prove the whole assembly is healthy; a load or internal defect can still be causing the excess heat.

59. B — Startup is not complete evidence that each required lubrication condition is established. Perform the specified initial checks before the dependent operating stage. Quiet operation and a running engine cannot replace the intended supply verification, and extending operation does not correct an unverified preparation requirement.

60. D — The hub needs its intended seating and load distribution as well as correct component identity. Prepare the mating surface and complete the sequence. A new part and one torque reading cannot prove the installed geometry, while extra load does not make debris beneath the assembly acceptable.

61. C — The replacement must match the vehicle's restraint requirements and be verified as prescribed. A lamp check does not establish every mechanical belt condition, and visual similarity cannot authorize a different component. Follow the approved repair rather than improvising a latch alteration for a safety-critical load path.

62. C — The collection gives fifty millilitres per second. Multiply by sixty and divide by one thousand to obtain three litres per minute. Use the same defined test condition when comparing it with a requirement. The arithmetic does not authorize any open fuel collection outside the approved procedure and containment controls.

63. D — The mechanical reference must be correct before its related control setup is accepted. Verify both under the vehicle procedure. A visually centred wheel and cleared code do not establish the linkage relationship, and calibration cannot automatically authorize geometry that remains outside the prescribed state.

64. A — The fault is localized by its own synchronization test while the common clutch release passes. Investigate the relevant gear-selection components rather than condemning a shared release condition

not supported by the results. Other gears working does not establish this gear's speed-matching function is acceptable.

65. B — The reversal occurs at a repeatable position with confirmed run-channel resistance while electrical checks pass. Investigate that mechanical path and required initialization under the vehicle procedure. Motor operation does not establish low friction, and the evidence supports a local travel issue rather than total loss of supply.

66. A — The identified phasing departure agrees with the controlled change in vibration after correction, while competing checks pass. Restore and verify the complete shaft arrangement. Fit between mounting points is not proof of correct rotational geometry, and improvement does not independently eliminate every possible secondary source.

67. C — The installation method must avoid damaging the sensor and restore any required service parts. Exterior tire dimensions do not define that tool path. A warning lamp checked afterward cannot replace the preparation intended to preserve the actual sensor hardware during the repair.

68. B — The actuator needs its specified relationship to the door and controller before normal operation. Fasteners and manual motion do not establish its electronic references. Complete the actual initialization and final travel checks rather than assuming a component that can move starts from the correct installed state.

69. D — The geometric ratio relates the cylinder's largest and smallest total volumes at the two dead-centre positions. Bore-to-stroke comparison is a different shape relationship. Valve lift and fluid capacities do not define compression ratio, so the actual chamber volume must be included with swept volume.

70. C — The command reaches an adequately supplied actuator, but current and the failed movement check support a mechanical restriction. Energization does not establish that the linkage reaches its selected position. Restore the jammed path and verify the actual range instead of treating electrical activity as completed selection.

71. B — Divide the twenty-one-hundred-rpm input by the seven-hundred-rpm output to obtain a three-to-one reduction. Use the stated shafts and no-slip condition when comparing this result with the range specification. Adding downstream axle gearing would answer a different relationship from the one measured here.

72. A — The vehicle procedure defines the required preparation for the affected restraint system, including retained energy considerations. Follow its sequence rather than borrowing a time from another design. Lamp and ignition states are observations, not complete evidence that the prescribed service boundary is safe to access.

73. D — The identified third equal parallel path reduces resistance below the stated two-path arrangement, matching the lower observation. Resolve the accessory's network connection under the approved instructions. A missing path would move the resistance in the opposite direction, and software clearing does not change the measured resistor topology.

- 74. D** — The current information reaches the affected node, but its specified refresh behaviour fails locally. Investigate its processing or configuration under the vehicle method. A stored earlier value does not prove ongoing updates, and the other recipients' changing information weakens a shared source freeze explanation.
- 75. A** — The joint needs the prescribed material and placement so its intended sealing interfaces and passages remain correct. More sealant is not automatically better and cannot establish acceptable preparation. Follow the actual engine's bead path rather than transferring a method from a different arrangement.
- 76. C** — Divide two hundred fifty bits by 0.001 seconds to obtain 250,000 bits per second. This evaluates the supplied capture interval rather than assuming a universal network speed. Keep the time unit consistent; treating the millisecond-sized interval as a full second would understate the rate by one thousand.
- 77. B** — The caliper's mechanical guide fails while the supplied release and identification checks pass. Assess that movement path as the stronger lead for unequal wear. The presence of both pads does not establish balanced operation, and wear alone should not override tests that distinguish hydraulic retention from mechanical restriction.
- 78. A** — The observed limiting matches a stated prerequisite and warning while other conditions pass. Assess why the battery is outside range through the thermal diagnostic method, rather than condemning the charger solely from lower current. A commanded limit can reflect protective strategy as well as the underlying condition that caused it.
- 79. B** — The boot and clamp must preserve their intended engagement during joint movement, not merely cover it initially. Restore the component procedure and verify the relevant motion. A new part and one rotation cannot prove sealing throughout service, while unapproved adhesive changes the specified retention arrangement.
- 80. C** — The instrument fails a known nonzero reference despite passing zero, so its production reading is not established as accurate. Resolve the measuring condition before acceptance. One correct point or repeatable error cannot prove the full operating response, especially when that error can affect a limit comparison.
- 81. D** — Multiply twenty amperes by the stated 0.04 ohm path resistance to obtain 0.8 V loss. The calculation uses both quantities from the supplied operating model. Compare the result with the actual criterion before accepting the path; no universal automotive voltage-loss limit is asserted by this arithmetic.
- 82. C** — The control request exists and the generator responds through the approved comparison, but the open conductor interrupts its normal delivery. Restore that path. A displayed target is not evidence that the physical component receives it, and the generator test weakens an internal non-response explanation.
- 83. D** — The instructions govern how the contaminated system is restored, including any affected components. A correct-looking refill does not establish that retained fluid or exposed seals meet the

required condition. Follow the prescribed scope rather than treating colour or one drained container as proof of complete recovery.

84. A — The lockup request is not achieved in the supplied slip measurement, and its own pressure path fails while others pass. Investigate that localized control or apply circuit. A correct command cannot establish completed mechanical behaviour, and the evidence does not support a uniform fault affecting every transmission state equally.

85. B — The ventilation arrangement manages the engine's designated crankcase vapour path. EGR, liquid injection and coolant heating use different circuits. Diagnose its actual routing and control requirements rather than assuming a ventilation component performs every engine gas-flow or fluid-management function.

86. B — The identifier establishes which message is being received, not whether its payload matches the required interpretation. The verified input and failed scaling comparison focus investigation on the source's configuration. Correct receivers can all display the same wrong value if the transmitted data was formed incorrectly.

87. C — The equal-flow model gives equal weighting to eighteen and sixty-two degrees, so their mean is forty degrees Celsius. The no-other-transfer assumption is part of the problem, not a general vehicle guarantee. Compare the result with observations only under the stated model and conditions.

88. D — The buckle switch provides its designated latch-state information. Occupant-load classification, crash detection and pretensioning are related restraint functions but belong to different devices or paths. The switch report does not establish webbing strength or mechanical retention, so required physical belt checks remain distinct from the electrical status test.

89. A — The approved crimp depends on the matched terminal, conductor and tooling method. Strong hand grip does not establish its geometry or retention. A larger wire or unapproved solder changes the connection construction rather than providing the specified electrical and mechanical acceptance evidence.

90. B — Zero and range preparation establish how the clamp's reading represents the intended current. Stability alone does not prove its offset is correct. Follow the prescribed conductor arrangement as well, rather than combining paths that can change the measured result from the quantity requested by the diagnostic method.

91. C — The clamp measures current associated with the selected conductor through its sensing arrangement. It does not directly determine insulation resistance or wire length. Correct conductor placement, range and zeroing still matter; clamping an unintended path can produce a valid-looking reading of a different quantity.

92. D — The replacement process includes the specified control setup as well as assembly. Complete it and verify the intended operation. A donor can represent different equipment, and cleared messages do not demonstrate that the controller correctly recognizes or operates the newly installed component.

- 93. C** — The incomplete verification leaves the required work boundary unestablished. Follow the vehicle's actual approved method and qualified-person requirements before access. A wait or software indication is part of available information but does not independently replace the prescribed electrical confirmation at the specified points.
- 94. A** — The cooler path must remain suitable after installation, including its specified geometry and verification. Correct mounts and a cold level do not demonstrate flow through a kinked line. Restricting test duration does not repair the physical obstruction or establish normal thermal operation.
- 95. A** — The diode's directional conduction supports its role in rectification or circuit control. Charge storage, ordinary resistance and relay contact motion describe different electrical behaviours. Follow the actual testing method because connected parallel paths can affect observations and prevent an in-circuit reading from isolating the diode's own condition.
- 96. B** — Fuel residue can retain an ignition exposure after liquid drainage. Assess the actual material and work conditions before operating the tool. Its power rating and task duration do not establish a suitable atmosphere, while ventilation must follow the approved controls rather than an assumption about an open door.
- 97. D** — The low contribution coincides with a failed injector-specific return comparison while common command and pressure conditions pass. Follow the injector's prescribed diagnostic path. A running engine does not prove each cylinder receives the intended delivery, and valid command is not acceptance evidence for the injector's hydraulic internals.
- 98. A** — The diesel injector meters fuel into the designed cylinder environment for combustion. Exhaust dosing can exist for a different purpose, but it is not the stated normal power-producing event. Sump and brake paths cannot substitute for the engine's intended fuel introduction and compression conditions.
- 99. D** — The bushing fails under the condition associated with the complaint even though static toe passes. Investigate that movement and restore the mechanical locating relationship. A settled alignment reading cannot demonstrate that wheel geometry remains correct when a loose support deflects during braking load.
- 100. B** — The voltage remains valid upstream but fails downstream under load, with a matching connector-loss result. Restore that local path before condemning the control unit. An energized fuse does not establish delivery beyond its output, and a sound battery cannot compensate for excessive loss at a later connection.
- 101. C** — Bearing clearance describes the required space at the journal-and-bearing interface. Timing-gear mesh, valve-guide fit and piston-ring groove clearance are other engine relationships with separate methods and criteria. Use the actual prescribed assembled measurement rather than treating a passing clearance at one interface as evidence that every engine fit is correct.
- 102. A** — The seal forms the specified fluid-retaining contact at its mating surface. Gear mesh, bearing preload and spline movement are other driveline relationships. Correct selection, placement and surface

condition all matter; a fitted seal alone does not prove the entire interface meets the required operating condition.

103. B — Multiply 350 V by 160 A to obtain 56,000 W, or fifty-six kilowatts. This is delivered electrical power under the stated model. Compare it with the relevant request and operating limits; the arithmetic alone cannot identify whether any difference comes from vehicle limits, equipment or measurement conditions.

104. D — The prescribed mass and conditions define the actual filling method. An arbitrary pressure observation or additional amount cannot establish that quantity. Recovered mass can reflect a previous incorrect fill or leak, so it is evidence to interpret rather than automatic authorization for the same final charge.

105. C — The circuit's components and procedure define its test conditions. Use them rather than applying a different system's pressure basis. Reservoir level and a parked visual check do not establish the prescribed leak result, while increasing pressure without authorization can create an exposure beyond the assembly's approved service method.

106. C — The test identifies accumulation at a blocked drain and a visible entry route, while the competing bond check passes. Restore and verify the specified water path. Closed glass does not prove that the system can handle water at its drainage points, and the observed route should guide the repair.

107. B — The prescribed stages define the assembly method for the actual fastener and joint. Complete both as instructed rather than replacing angle with an unverified torque estimate. Feel and an impact setting cannot establish that the required sequence and installed loading relationship were achieved.

108. D — The return circuit requires its specified wetted material and installation, not only a visual diameter match. A tighter clamp cannot establish fluid compatibility or restore damaged hose. Assemble approved components and complete the relevant checks before accepting the repaired fuel path.

109. A — The road-motion comparison and failed support test point toward that rotating driveline area rather than a stationary engine-rpm source. Confirm its acceptance under the prescribed method. Quiet engine operation at rest narrows the comparison but does not by itself certify every moving shaft component.

110. C — The dropped tool needs assessment under its inspection and calibration requirements before providing assembly evidence. A working display does not establish accurate torque response. Hand feel and an arbitrary allowance cannot quantify damage or restore the verified relationship required for the critical fastener.

111. D — The probe reduces the signal to one tenth before the unscaled display. Multiply the 0.65 V trace by ten to obtain 6.5 V actual input. Dividing would apply attenuation a second time, while accepting the display unchanged would ignore the specified probe setup.

112. A — The physical retention requirement fails while the separate status switch behaves as specified. Restore the mechanical buckle condition under the restraint procedure. A signal describes its assigned

input but cannot independently certify the load-retaining latch, so these two checks must not be treated as interchangeable.

113. B — The prescribed support states make each observation meaningful for its particular joint or locating path. Follow them rather than selecting a state that hides movement. Visual angle and an arbitrary universal force cannot establish the measured condition required by the actual component's inspection method.

114. C — The replacement's internal state matters before it joins the refrigerant circuit. Preserve the specified caps and cleanliness, then prepare the seals as directed. Exterior finish and bolt condition do not establish that exposed passages have remained free from material that can enter through open ports.

115. A — The fractured spring and displaced seat directly affect support at the changed corner, while the supplied tire checks pass. Restore the approved mechanical arrangement before final geometry or calibration work. Software cannot replace a broken load-support component or establish correct height through an unacceptable seat condition.

116. B — Bench balance and vehicle mounting are different conditions. The failed installed centring check can create a problem despite an acceptable off-vehicle result. Restore and verify the actual wheel relationship before treating balance as complete proof of its installed motion or selecting an unrelated engine cause.

117. D — The independent physical condition and passing sensor test conflict with the displayed high report, while the wiring fault matches its supplied response. Investigate that signal path. A displayed number does not prove physical overheating when the diagnostic evidence identifies how the reported value becomes distorted.

118. C — The condenser transfers refrigerant heat to the medium intended by the system, usually its external air path. Evaporator absorption and compressor pressure increase are different cycle roles. A temperature door changes cabin airflow routing, not the condenser's heat-rejection function, so these observations must be distinguished during diagnosis.

119. A — The final repair must restore both the mechanical support and wiring disturbed by access. Verify the lead's intended slack and protection through movement. One stationary electrical pass cannot establish that tension or abrasion will not interrupt it later, and a tight route may create rather than remove exposure.

120. D — Electrical shutdown does not necessarily release pressure already stored in the accumulator. Use the specified depressurization and verification requirements before opening the affected boundary. A connector state controls one energy path but cannot independently establish the condition inside every pressurized volume.

121. B — The sensor provides intake air-mass information under its design and calibration. Rail pressure, coolant temperature and exhaust oxygen are different inputs from separate sensing paths. Accurate airflow interpretation still depends on the actual installation and test condition, so a signal alone does not identify every mixture-control fault.

122. A — Multiply the stated diameter, 640 mm, by 3.14 to obtain 2,009.6 mm ideal circumference. The stem specifies a circular model rather than a measured loaded rolling circumference. Do not add another factor of two, because diameter already includes twice the radius.

123. C — Subtract the required 0.08 mm reduction from the starting 0.50 mm thickness to obtain 0.42 mm. This calculates the supplied repair model and does not authorize machining a particular shim unless its service procedure permits it. The resulting installed condition still needs the required measurement and verification.

124. D — The two loads share a failed return connection while their individual operation and feed pass. Restore and verify the common ground. Partial light output does not establish an acceptable electrical path, and the simultaneous evidence more strongly supports one shared joint than unrelated load replacements.

125. B — The final installation must restore the protection temporarily disturbed for testing. A successful open test does not establish suitability for later moisture and contamination exposure. Replace the specified cap and seal rather than treating convenient access as authorization to leave an exterior boundary unprotected.