

PRACTICE EXAM 18: CANADIAN 310T TRUCK AND COACH TECHNICIAN SIMULATION (135 QUESTIONS)

This practice exam contains 135 multiple-choice questions, each with four options (A, B, C, and D), matching the format of the Interprovincial Red Seal exam for this trade. Allow about four hours and work without manuals or notes. Choose the single best answer for each question. A score of 70 percent, or 95 correct answers, is the pass mark. Check your answers against the key and explanations at the end of the exam.

1. A relay clicks when energized, but the load circuit stays dead. The technician measures battery voltage at terminal 30 and nothing at terminal 87. What is the most likely fault?
 - A. The relay contacts are burned or not closing, so replace the relay
 - B. The coil is shorted, so it should be rewound and tested again
 - C. The battery is overcharged, which prevents any output at terminal 87
 - D. The fuse is too large, which blocks current from the output

2. A tractor cranks normally but will not start, and the dash tachometer reads zero during cranking. The camshaft position signal is present on the scan tool. Which sensor is the most likely cause?
 - A. The coolant temperature sensor, because it controls the cranking speed of the engine
 - B. The boost pressure sensor, because the turbocharger must spin before the engine starts
 - C. A failed crankshaft position sensor, or damage in its wiring and connector
 - D. The exhaust gas temperature sensor, because it sets the injection timing at startup

3. A coach with an electro-hydraulic steering assist pump has a warning for low assist and the pump motor draws very high current. What is a reasonable approach?
 - A. Disconnect the pump permanently, because the coach steers manually without trouble
 - B. Check for pump binding or low fluid and test motor current first

- C. Fill the reservoir with engine oil, since it is thicker and reduces current
- D. Install a larger fuse so that the motor can draw more current

4. An ABS wheel speed sensor shows infinite resistance when measured at its connector with the harness disconnected. The ABS warning lamp stays on. What is the correct repair?

- A. Adjust the air gap to 5 mm, since spacing corrects an open winding
- B. Replace the ABS modulator valve, because it generates the speed signal
- C. Clean the tone ring with a wire brush and retest the same sensor
- D. Replace the sensor, because an open winding cannot generate a speed signal

5. An Allison-type automatic transmission stays in neutral and the shift selector shows no gear. A scan tool finds an open circuit in the selector signal lines. What is the logical repair?

- A. Replace the torque converter, since it picks the gear for the driver
- B. Repair the selector wiring or connector, or replace the selector
- C. Overfill the transmission with fluid so that the selector can engage a range
- D. Replace the driveshaft, because the selector sends its signals through it

6. A technician pours leftover coolant from a drum into an unmarked spray bottle for use at the next bay. What must be done to meet WHMIS 2015 requirements?

- A. Nothing, because the original drum label already covers every container filled from it
- B. Write the date on the bottle and rely on the safety data sheet binder for hazards
- C. Attach a workplace label showing the product name and hazard information
- D. Pour the coolant back into the drum, since small containers cannot be labelled in a shop

7. A trailer landing gear is very hard to crank, and the gearbox feels dry. What is the proper service?

- A. Lubricate the gearbox and screws, and check for bent legs or damaged gears
- B. Use a powerful impact gun to turn it until it frees up

- C. Spray water into the housing to cool and flush the gears
- D. Cut the crank handle shorter to reduce the strain on the operator

8. A proportional hydraulic valve shows maximum coil current on a clamp meter no matter what the controller commands. Which check should come first?

- A. The reservoir breather, because a plugged breather sets the coil current higher
- B. The tire pressures, because they scale the signal sent to the valve coil
- C. Coil resistance, wiring, and controller output, since a shorted driver can hold full current
- D. The cab heater valve, since it shares the same electrical command wire

9. A circuit breaker in a trailer lighting circuit repeatedly opens and recloses every few seconds. What does this behaviour indicate?

- A. An overload or short exists, since the breaker heats, opens, and cools
- B. A normal condition, because automatic breakers are designed to open and close continually
- C. A bad battery, because breakers cycle whenever the charge drops low
- D. A loose fifth wheel, because it feeds current to the breaker circuit

10. With the key on and the engine off, the scan tool shows rail pressure at 0.0 MPa but the sensor signal voltage reads 4.9 V. What does this most likely indicate?

- A. A perfectly normal reading, since pressure only builds after the engine starts
- B. A sensor or circuit fault, since a healthy sensor reads lower at zero pressure
- C. A blocked fuel filter, since restriction raises the sensor reference voltage to the module
- D. An overfilled fuel tank, since the extra weight loads the pressure sensor

11. An air conditioning compressor clutch does not engage. The technician measures battery voltage at the clutch connector with the A/C requested. What is the next step?

- A. Replace the pressure switch, because it supplies voltage to the connector

- B. Recharge the system with extra refrigerant until the clutch finally engages
- C. Replace the relay, even though voltage is already present at the connector
- D. Check the clutch coil resistance, ground, and air gap since power arrives

12. When checking steering free play at the steering wheel with the engine running, a technician sees more movement than the specified limit before the wheels respond. What should be done first?

- A. Tighten the steering wheel nut and test the vehicle again on the road
- B. Inspect the linkage, joints, and steering gear to find the looseness
- C. Inflate the tires to maximum so that the steering feels tighter
- D. Add more steering fluid until the free play finally disappears entirely

13. An ABS code sets only above 60 km/h on one axle, and the sensor tests good at rest. Inspection shows a chipped tooth on the tone ring. What explains this fault?

- A. The missing tooth gives an irregular signal the ECU rejects at higher speed
- B. The tone ring is magnetizing the hub, which reduces the air pressure at speed
- C. The chipped tooth increases braking force and the ECU shuts down the valves
- D. The sensor lead is too long, so it fails only when the wheel turns slowly

14. After a clutch replacement on a truck with an automated manual transmission, the shifts are harsh and the truck creeps wrongly. What should be done?

- A. Fill the transmission with heavier gear oil to soften the shifts
- B. Add shims behind the clutch disc until the pedal feels firm
- C. Run the clutch touch-point calibration routine with the scan tool
- D. Replace the batteries, since shift quality depends on a new battery

15. A power window on a cab door works slowly and intermittently. Voltage is normal at the switch but low at the motor. Where is the most likely problem?

- A. The windshield urethane, because it controls the supply to the window motor
- B. The cab tilt cylinder, because it feeds the window harness with air
- C. The turbocharger, since it reduces system voltage whenever it makes boost
- D. A damaged wire in the flexing door jamb harness, or a poor connector

16. A truck has four 55 W auxiliary lamps wired in parallel on a 12 V circuit. What current do they draw together, to the nearest tenth of an amp?

- A. 4.6 A
- B. 9.2 A
- C. 36.7 A
- D. 18.3 A

17. A technician unplugs the coolant temperature sensor and the scan tool immediately shows minus 40 degrees Celsius. What does this result confirm?

- A. The ECM sees an open circuit, so the harness works; suspect the sensor
- B. The sensor is shorted to ground, so the whole harness must be replaced
- C. The ECM input has failed, because the value should not change when unplugged
- D. The engine is overheating, because the sensor has reached its upper limit

18. An electric truck sets an isolation fault code, which means the monitor sees reduced resistance between the high-voltage system and the chassis. What is the correct response?

- A. Clear the code and return the truck to service, since it is only a warning
- B. Treat it as a hazard, lock out per the maker, and trace the leakage
- C. Spray water on the cables until the isolation code goes away on its own
- D. Bypass the isolation monitor so that the main contactors will close

19. A castle nut on a drag link end is tightened to the specified torque but the cotter pin hole does not line up. What is the correct way to finish the job?

- A. Loosen the nut until the slot lines up and omit the pin
- B. Leave the nut without a pin because the torque is correct
- C. Tighten to the next slot within the allowed range and fit a new pin
- D. Install a bolt through the hole in place of a cotter pin

20. An ABS controller sets a code for low supply voltage, but the batteries test fully charged. Which check is most useful first?

- A. Replace the wheel speed sensors, because they feed power to the module
- B. Drain the air tanks, since air pressure supplies the controller with power
- C. Install a stronger battery so that the cranking amps rise at the controller
- D. Measure voltage at the module power and ground pins while loaded

21. A manual range-shift transmission will not shift out of low range. The shift lever moves normally, and the air supply is correct. Which check is appropriate?

- A. Replace the clutch disc, since range selection is made by the clutch
- B. Add oil to the differential until the range lever starts to move
- C. Test the range solenoid or valve for power, then check the range cylinder
- D. Adjust the wheel bearings to increase the shift force on the lever

22. A solenoid is commanded for 6 milliseconds in every 10 millisecond cycle. What duty cycle does the scan tool display?

- A. 60 percent
- B. 40 percent
- C. 6 percent
- D. 16 percent

23. A heavy-duty engine shows a low-voltage fault on three different sensors at the same time, all of which share a 5 V reference line. What is the most efficient first check?

- A. Replace all three sensors at once, because they have probably worn out together
- B. Test the shared 5 V reference for a short before replacing any sensor
- C. Reflash the ECM, because simultaneous codes always mean corrupted software is present
- D. Replace the battery, because a weak battery lowers every sensor reading equally

24. A new apprentice blows metal dust off a coverall with the shop air hose set at full line pressure. What is the correct way to correct this practice?

- A. Allow it provided the nozzle is held at least a metre from the body at all times
- B. Reduce the regulator to 35 kPa and then continue, since low pressure removes the injury risk
- C. Permit it only while wearing safety glasses, because eye protection prevents every injury
- D. Stop it, because air can drive particles into skin; use a vacuum or brush

25. A trailer ABS lamp flashes a code sequence when the trailer ABS diagnostic function is used. How does the technician use that information?

- A. Ignore the flashing, because it is only a general reminder to the driver
- B. Replace the ABS controller first, because every flash indicates it has failed
- C. Count the flashes, look up the code, and test the identified circuit
- D. Cut the lamp wire so that the flashing stops and the lamp clears

26. A technician needs to verify the relief valve setting on a hydraulic circuit. What is the correct method?

- A. Install a gauge, load the system to relief, and compare with the specification
- B. Hit the valve with a hammer until the system pressure drops
- C. Remove the valve and run the pump without any relief at all
- D. Guess the setting from the noise of the pump under load

27. A front tire shows a feathered edge wear pattern, with ribs worn smooth in one direction and sharp in the other. Which alignment fault is the most likely cause?

- A. Incorrect toe setting, which drags the tire sideways across the road
- B. Too much caster, which only affects the wear on the rear tires
- C. A loose battery cable, because it changes the tire contact patch
- D. An oversized steering wheel, because it directly affects the tread wear

28. A 24 V intake heater element draws 8 A when working normally. What resistance should the element measure when cold and disconnected, approximately?

- A. 192 ohms
- B. 3 ohms
- C. 0.33 ohm
- D. 32 ohms

29. At key-on, the trailer ABS lamp on a tractor does not flash briefly as it normally does, although a trailer is connected. What should be suspected?

- A. A leaking brake chamber on the trailer, because it is the lamp power source
- B. An open circuit in the lamp, its wiring, or the trailer ABS power feed
- C. Too much air in the trailer reservoir, which shuts the lamp circuit off
- D. A worn kingpin, since the lamp circuit is built into the fifth wheel plate

30. The inter-axle differential lock lamp does not light when the dash switch is operated, but the lock appears to work. What is the most probable fault?

- A. A seized engine, because the lamp circuit comes directly from the crankshaft
- B. A worn clutch disc, because the lamp relies on the clutch pressure
- C. A flat spare tire, because the lamp checks the spare tire pressure
- D. A faulty lamp, indicator switch, or its wiring, since the lock works

31. A pedal position sensor sets a correlation fault because its two tracks disagree. Which finding best explains this fault?

- A. Both tracks were wired in parallel at the factory to improve pedal accuracy overall
- B. The accelerator pedal return spring is too strong, which changes both tracks equally
- C. One track has an open or high-resistance circuit while the other track reports normally
- D. The throttle uses only a single track, so the second signal is meaningless

32. An A/C system short cycles, with the clutch engaging and releasing every few seconds, and the low-side pressure drops very low each time. What is the most likely cause?

- A. Too much cab heat, since it shuts off the compressor clutch
- B. A low refrigerant charge, which makes the low-pressure switch cycle the clutch
- C. A fully charged battery, which makes the clutch cycle on and off
- D. A loose wheel nut, which causes the compressor clutch to release

33. The headlamps dim whenever the brakes are applied, and the technician finds that several circuits share one corroded ground bolt on the frame. What is the best repair?

- A. Fit a larger bulb in each headlamp to restore the brightness
- B. Replace the headlamp switch, since switches control the brake light ground
- C. Install a stronger alternator belt to increase the lamp supply voltage
- D. Clean the shared ground, restore a solid connection, and protect it

34. A steer axle tire shows cupped or scalloped wear around the tread. What should the technician inspect most closely?

- A. Worn shock absorbers, loose or worn suspension parts, and wheel or tire balance
- B. The fuel injectors, because they cause the tire to hop on the road
- C. The heater core, because heat creates scalloping on the tire tread
- D. The radio antenna, since it creates electrical noise in the tire

35. On an engine with a stuck open thermostat, the scan tool shows coolant temperature stays near 55 degrees Celsius during a highway run in winter. Which symptom is most likely to accompany this?

- A. Coolant boiling over at the radiator cap within minutes of starting
- B. Excessive boost pressure caused by overheated intake air entering the turbocharger inlet
- C. Weak cab heat, slow warm-up, and higher fuel consumption on the road
- D. A sudden loss of oil pressure at idle because the oil is too hot

36. After a front end alignment on a truck with stability control, the system sets a steering angle fault. What is the proper correction?

- A. Replace the front brake chambers because they affect the sensor reading
- B. Calibrate the steering angle sensor with the wheels straight
- C. Deflate the front tires to reset the system and then reinflate them
- D. Disconnect the battery for ten minutes, since the sensor always relearns itself

37. A transmission output shaft speed sensor fails on a truck. Which symptoms are most likely?

- A. Overheated coolant and a boiling radiator within a few minutes of running
- B. A loss of power steering assist and a locked steering wheel
- C. A dead battery and an engine that cannot crank at all today
- D. An erratic speedometer, cruise control unavailable, and poor shifts on an AMT

38. Which splice method gives a durable, sealed repair on a harness wire exposed to road spray?

- A. Twisting the wires together and covering the joint with masking tape
- B. Soldering with acid flux and then leaving the joint uncovered outdoors
- C. A butt connector crimped correctly and sealed with adhesive-lined heat shrink
- D. Wrapping the wires with a hose clamp for strain relief only

39. A cab tilt lamp on the dash stays lit after the cab has been lowered. What should the driver or technician do before moving the truck?

- A. Physically confirm the cab is latched, then inspect the latch and switch

- B. Ignore the lamp, since it is only a courtesy light for the driver
- C. Drive slowly until the lamp goes out on its own
- D. Cover the lamp with black tape and continue the trip as planned

40. After replacing an air suspension height sensor on a vehicle with electronic height control, the ride height reads incorrectly. What should be done?

- A. Add air to the springs repeatedly until the reading finally changes
- B. Replace both air springs because the sensor only affects their height
- C. Calibrate the height sensor with the scan tool at the specified ride height
- D. Disconnect the sensor so the system returns to a normal setting

41. A grid-type intake heater relay is welded closed. What problem is most likely to appear after an overnight park?

- A. A discharged battery from the heater drawing current with the key off
- B. A hydrolocked engine from unburned fuel pooling in the cylinders overnight
- C. A frozen DEF tank from the heater drawing coolant away
- D. A seized turbocharger from oil starving its bearings after the shutdown

42. Which multimeter is the appropriate choice for taking insulation and voltage readings on the high-voltage battery system of an electric truck?

- A. Any meter with a high range, since the category rating only applies to household wiring
- B. A CAT III meter rated at or above system voltage, with fused leads
- C. A 12 V automotive meter with a bright backlight and a large digital display
- D. A test light with an inline fuse, because it will not load the circuit

43. A technician wants to check the seven-way connector on a trailer quickly. Which tool gives the most useful result?

- A. A tape measure used to check the length of the cable run
- B. A tire pressure gauge connected across the pins of the connector
- C. A feeler gauge slid between the connector pins to test them
- D. A trailer tester that powers each circuit and shows lamp and ABS function

44. A cylinder rod shows deep scoring and oil is leaking past the rod seal. What is the proper repair?

- A. Install a new seal only, because the rod surface does not matter
- B. Replace or recondition the rod, fit new seals, and find the cause
- C. Fill the scores with putty and keep the old rod seal
- D. Tighten the gland nut as far as possible to stop the leak

45. A heated air dryer in winter lets moisture reach the tanks. The purge valve cycles normally. Which electrical check is appropriate?

- A. Replace the compressor governor, because it powers the dryer heater circuit
- B. Check the alternator belt, since the dryer is driven by the belt
- C. Raise the system cut-out pressure so the dryer works much harder
- D. Measure the heater circuit current and thermostat operation at the dryer connector

46. A truck with an automated manual transmission cannot find a gear and sets a fault for shift fork position. What is the logical repair path?

- A. Replace the engine control module, since it also holds the shift fork position
- B. Fill the transmission with thinner oil so that the forks move more quickly
- C. Check the position sensor wiring and connector, then calibrate or replace the sensor
- D. Reduce the tire pressures so that the gear position signal will change

47. After a trailer is fitted with LED marker and turn lamps, the tractor's turn signal flashes much faster than normal. What is the usual cause and remedy?

- A. The flasher reads low LED current as a burned bulb; use an LED-rated flasher
- B. The battery is too strong, so a smaller battery should be installed
- C. The LED lamps are wired backward, so the polarity should be changed at every lamp
- D. The turn switch is overheating, so a larger fuse should be fitted

48. The dash oil pressure gauge reads zero, but a mechanical test gauge installed at the sender port reads a steady 350 kPa at idle. What does this show?

- A. The oil pump has failed, since the dash gauge outranks any test gauge
- B. Oil pressure is adequate, and the sender, gauge, or wiring is faulty
- C. The oil filter is blocked, which always makes the dash read zero
- D. The block is cracked, since oil pressure always reads zero in that case

49. During a heater check, the technician finds that one heater hose is hot and the other is cool at operating temperature, with weak cab heat. What does this show?

- A. A normal reading, since heater hoses always differ in temperature a little
- B. A leaking radiator cap, because it cools one hose only at idle
- C. Restricted flow through the heater core or its control valve
- D. A weak battery, since hose temperature depends on electrical power supply

50. A truck's rear air spring loses height overnight, although the air system holds pressure elsewhere. What is the best test?

- A. Spray the bellows, fittings, and lines with soap solution while inflated
- B. Add a heavier shock absorber to hold the corner at ride height
- C. Drive the truck loaded for a day until the spring seals itself
- D. Inflate the spring to double the normal pressure to test it

51. An electric truck will not enter ready mode, and the 12 V auxiliary battery measures 9.5 V. What is the most likely explanation?

- A. The high-voltage battery has an excess charge that blocks the starting
- B. The tires are overinflated, so the truck refuses to enter ready
- C. The radio is switched on, which prevents the system from entering ready
- D. The low 12 V supply cannot power the controllers and contactors

52. A compressor takes much longer than usual to build pressure, and it cycles loaded for most of the day even with the brakes released. What is the most likely general cause?

- A. A lower than normal engine oil pressure, which supplies the air tank
- B. A battery that is overcharged, because the compressor runs from the battery
- C. A dash lamp that is dim, because it controls the air governor
- D. An air leak or a worn compressor that makes it run loaded excessively

53. A technician hears a whine from the clutch area only while pressing the pedal to the floor. What is the most likely source?

- A. A worn or dry release bearing that is loaded with the pedal pushed in
- B. A worn countershaft bearing, which is loaded only with the clutch pedal up
- C. A broken tire stud, since studs only make noise with the pedal pressed
- D. A cracked fuel tank, since the whine is caused by fuel flowing in

54. A multiplexed network goes completely dead, and a technician finds the CAN high wire shorted to battery positive. What is the right approach?

- A. Replace every module, since a shorted wire always damages all of them
- B. Cut the CAN high wire, since the network works with one wire only
- C. Locate and repair the short on the CAN high wire, then retest
- D. Add a second battery to raise the network voltage above the short

55. A viscous-type fan drive controlled by a PWM solenoid stays fully engaged at all engine temperatures. What should the technician check first?

- A. The fan belt tension, because a loose belt locks the fan on
- B. The ECM command and solenoid circuit, then the fan drive itself
- C. The fuel pressure, because the fan is driven from the injection pump
- D. The cab filter, since a dirty filter commands the fan to full speed

56. A technician finds a leaf spring pack with a broken main leaf and an axle that has shifted toward the rear. What is the correct repair?

- A. Wrap the broken leaf with wire and put the truck back into service
- B. Weld the broken leaf together and keep the old U-bolts in place
- C. Replace the damaged spring pack, check the centre bolt and U-bolts, and realign
- D. Replace only the leaf on the broken side and ignore the centre bolt

57. A magnetic pickup type speed sensor is being tested while the engine cranks. Which reading would confirm that it is producing a signal?

- A. A steady 5 V DC reading that does not change with speed
- B. An AC voltage reading on the meter that rises with cranking speed
- C. A reading of zero ohms across its two connector pins at rest
- D. A reading of battery voltage at both pins when it is unplugged

58. A technician is about to unplug a connector from an engine control module on a bench vehicle. Which precaution protects the module from electrostatic damage?

- A. Wipe the pins with a dry shop rag to remove any static charge before unplugging
- B. Spray the connector with contact cleaner so that any charge flows away
- C. Pull the connector quickly while the ignition is on so the module sees no gap
- D. Touch a grounded metal part first and keep fingers off the connector pins

59. A refrigerated trailer unit with an electric standby motor is plugged in, but the compressor runs with very little cooling and a noisy sound. Which fault should be checked?

- A. Incorrect three-phase rotation, which makes the compressor run backwards
- B. A too-full diesel tank, since standby mode burns diesel fuel only
- C. A flat landing gear, since the compressor is driven through the legs
- D. A cold cab heater, because standby mode relies on the cab heat

60. A technician installs a new high-pressure hose on a hydraulic line. Which practice is correct?

- A. Twist it a quarter turn to keep it tight in place
- B. Bend it as sharply as possible to save space around the fitting
- C. Let it rest on the exhaust pipe so that it stays warm
- D. Route it without twist, keep the bend radius, and clamp it

61. A truck's stop lamps stay on constantly and the cruise control will not engage. What is the most probable fault?

- A. A seized air compressor, because it controls the stop lamp circuit
- B. A misadjusted brake pedal switch that shows the pedal as applied
- C. A failed tone ring, because it signals when the brakes are applied
- D. A weak brake chamber spring, because it holds the lamp circuit closed

62. When draining a manual transmission, the technician finds fine grey paste on the magnet and no chunks. What does it most likely represent?

- A. Normal wear material, so change the oil on schedule and keep watching
- B. An immediate failure, so the whole transmission must be scrapped and replaced
- C. Sand from the road, which means the transmission breather is loose
- D. Brake dust, which proves that the brakes are about to fail

63. Which condition is required when adjusting valve lash on an overhead valve train using the maker's setting method?

- A. The valve must be fully open while the lash is set with the gauge
- B. The engine must run at high idle with the feeler gauge in place
- C. The cam follower must rest on the base circle for the valve being adjusted
- D. The rocker arms must be removed and measured on a separate bench

64. A tandem drive truck tracks slightly sideways, and a measured thrust angle is off. A torque rod bushing is found badly worn. What is the correct repair?

- A. Add more air pressure to the tires on one side only
- B. Tighten the steering wheel nut harder until the truck tracks straight
- C. Replace the worn bushings and rods, then align the axle to specification
- D. Switch the front tires to the rear and ignore the bushings

65. Why should a standard incandescent test light not be used to probe circuits that feed electronic control modules?

- A. It produces a magnetic field that can erase the module software
- B. It always reads too low because the bulb adds voltage to the circuit
- C. It is only suited to 120 V household circuits and does not work on trucks
- D. It draws enough current to damage a sensor circuit; a high-impedance meter is safer

66. A DPF differential pressure reading is very high at idle on a truck whose filter was recently serviced. Which cause should be checked first?

- A. The turbocharger wastegate, because it controls the exhaust back pressure at idle
- B. Plugged or swapped sensor lines, or a sensor fault, before blaming the filter
- C. The engine oil level, since low oil raises the exhaust back pressure
- D. The DEF concentration, because poor DEF always increases the filter pressure drop

67. A hub seal leaks gear oil onto the brake shoes of one drive axle wheel end. What is the correct repair?

- A. Replace the seal and the contaminated shoes on both ends of the axle
- B. Wash the shoes with solvent and return them to service on the leaking side only
- C. Sand the lining surface and install a new seal on the leaking end only
- D. Add a heavier grade of axle oil so the leak slows down over time

68. A driveline vibrates mainly under hard acceleration, and the slip yoke splines are dry and rusted. What is the likely mechanism?

- A. The splines are too smooth, so they slip against the shaft constantly
- B. A seized slip joint cannot change length, so the joints load and vibrate
- C. The splines have too much grease, so they twist in the opposite direction
- D. The splines are made of rubber, so they stretch with acceleration

69. Water is found pooled on the cab floor near an electronic module after heavy rain. What should the technician examine?

- A. The brake lining thickness, because it affects the cab water level
- B. The tire pressure, because it causes water to enter through the floor
- C. Door and body seals and cowl drains for blockage, then the module and connectors
- D. The fuel filter, because it leaks water into the cab floor area

70. The cab blower works only on the highest speed. What is the most probable cause?

- A. A failed resistor pack or speed control module for the lower speeds
- B. A worn blower motor bearing that only runs at high speed
- C. A low engine coolant level that stops the lower blower speeds
- D. A flat tire that reduces the airflow on the lower speeds

71. A technician needs to measure signal voltage in a weatherproof connector without damaging it. Which method is preferred?

- A. Push a sharp pin through the wire insulation and seal the hole with tape
- B. Cut the wire and splice a test lead into the circuit permanently
- C. Spread the terminal open with a screwdriver so the meter probe fits
- D. Use a backprobe adapter or breakout lead that fits the terminal

72. A fifth wheel is found with cracked mounting plate welds and dry, scored top plate. What should the technician do?

- A. Add grease on top of the cracks and continue to use it
- B. Remove it from service for repair, then lubricate it per the maker
- C. Weld a thin strip over the cracks without removing the unit
- D. Leave it alone, since dry plates make the coupled trailer more stable

73. An oil analysis report shows low viscosity and a fuel dilution level well above the limit on a truck that idles for long periods. What is the most likely reason?

- A. Long idling and incomplete combustion, possibly with injector leakage, diluting the oil
- B. A normal result, because diesel oil thins by about half in service
- C. Coolant leakage, since coolant always shows up as fuel in the analysis
- D. Overfilling with oil, because extra oil creates extra fuel in the sample

74. During an ABS self-check at key-on, a technician hears a quick clicking from the modulator valves. What does this indicate?

- A. A leaking air line, since leaks always make a rapid clicking sound
- B. A faulty brake lining, because the linings test themselves at key-on
- C. A failed compressor, since it clicks at key-on to signal low pressure
- D. A normal valve test as the ABS controller checks each solenoid at power-up

75. A driveshaft vibrates at highway speed after the truck sat in wet mud. The shaft looks undamaged. What is a reasonable first step?

- A. Replace the transmission, since caked mud always damages the gearbox internals
- B. Add extra air pressure to the tires to balance the driveshaft
- C. Remove the mud, then inspect for a missing weight and check the joints
- D. Weld a larger weight to the shaft without taking any measurement

76. While a journeyperson is away from the bay, an apprentice proposes bypassing a repeatedly blown fuse with a length of wire to finish the job on time. What should the journeyperson say on returning?

- A. Explain that the fuse protects the wiring, remove the wire, and trace the overload before the vehicle leaves
- B. Allow the wire for the test drive, then install the correct fuse before delivery
- C. Choose a larger fuse so that it stops blowing and note the change on the repair order
- D. Ignore it, since the fuse was probably faulty and replacement is inexpensive

77. A refrigeration unit on a trailer builds frost on the evaporator coil and cooling drops steadily. What function should the technician check?

- A. The kingpin condition, since frost builds up from the kingpin
- B. The tire inflation, since frost depends on the tire pressure
- C. The fifth wheel grease, because grease prevents any frost
- D. The defrost system, including its heater, sensor, and controller

78. Oil analysis of a hydraulic system shows a particle count far above the maker's cleanliness target. What should the technician do?

- A. Add fresh oil on top of the dirty oil and keep working
- B. Remove the filters so that the pump can move the oil freely
- C. Find the contamination source, change the fluid and filters, and flush
- D. Raise the relief valve setting to push the particles through faster

79. A technician measures the voltage across a closed battery disconnect switch while the engine is cranking and finds 0.9 V. What does this show?

- A. A healthy switch, since some drop is needed to protect the starter
- B. Excessive resistance in the switch contacts, which should be cleaned or replaced
- C. A weak starter, since the switch drop depends only on starter wear
- D. A good battery, because any reading above zero proves it is charged

80. A technician has both hub-piloted and stud-piloted wheels in the shop. What is the correct practice for the wheel nuts?

- A. Mix the two nut types on one wheel because they look similar
- B. Use impact tools at full power and skip the torque sequence
- C. Lubricate the studs with oil and tighten to the dry torque value
- D. Use nuts matching the wheel system and tighten in sequence to torque

81. A technician notices cavitation pitting on the outside of a wet cylinder liner. What condition most directly contributes to this damage?

- A. Depleted coolant additive and vibration forming vapour bubbles that collapse on the liner
- B. Over-tightened cylinder head bolts that crush the wall of the liner
- C. Excess oil pressure that forces oil right through the liner wall
- D. Using distilled water, which always lowers the boiling point of the coolant

82. Before flashing new software into an engine control module, what step helps prevent a failed programming session?

- A. Run the engine at full throttle so that the alternator output is maximum
- B. Connect a stable support supply that keeps voltage steady throughout
- C. Disconnect the battery completely so that the module has no power supply
- D. Remove the module fuse after the update begins to save the program

83. A truck with air disc brakes has a pad wear sensor circuit that is open. What will the technician most likely see?

- A. Immediate loss of all brakes, because the sensor controls the air pressure
- B. A stuck compressor, because the sensor controls the governor cut-in point
- C. A wear warning, so pad thickness and the circuit get checked
- D. No change at all, since the sensor circuit is purely decorative

84. A truck with a two-piece driveshaft has a vibration and a clunk on takeoff, and the center support bearing rubber is cracked and torn. What is the right repair?

- A. Add grease to the rubber cushion until it fills the crack
- B. Remove the center bearing and run the shaft unsupported from now on
- C. Tighten the support bracket bolts beyond the specification to hold it
- D. Replace the center bearing and cushion, then check alignment and joints

85. A technician is asked why a battery electric truck has a separate coolant loop for its traction battery. What is the best explanation?

- A. The loop creates electricity from hot coolant to feed the drive motor
- B. The loop replaces the brakes by carrying heat away from the wheels
- C. Cells need a narrow temperature range, so the loop heats or cools them
- D. The loop dries the cab air for the comfort of the occupants

86. After a tire rotation, a tire pressure monitoring system shows the wrong wheel positions. What is the usual remedy?

- A. Replace all the tires, since the sensors are built into the tread
- B. Run the relearn or sensor location procedure with the correct tool
- C. Disconnect the battery for a day, since the sensors relearn on their own
- D. Raise the tire pressures to maximum so the system reorders them

87. A starting aid that sprays ether into the intake is used on an engine with a working grid heater. What is the danger?

- A. The heater can ignite the ether, causing an intake fire
- B. The ether will dissolve the heater element and lower its resistance
- C. The ether will freeze the intake manifold and crack the casting
- D. The ether will thicken the engine oil and prevent the engine cranking

88. A technician must open an A/C system on a truck for a hose repair. Which practice is correct?

- A. Vent the refrigerant outside, since it disappears harmlessly in the air
- B. Recover the refrigerant with approved equipment as a certified technician
- C. Pour the refrigerant into a drain so that it can evaporate
- D. Cut the hose with the system charged so the pressure clears it

89. At key-on, a warning lamp that should light for a bulb check does not light, and it also does not light when the fault is present. What does this suggest?

- A. That the system is working perfectly, because no lamp means no faults
- B. That the battery is overcharged and the module has switched itself off
- C. An open bulb or wiring fault, so the lamp cannot warn anyone
- D. That the tires are overinflated and the related sensors are inactive

90. An electrically heated automatic drain valve on a reservoir freezes open in cold weather. Which check applies?

- A. Measure the heater element circuit for current and check the connector
- B. Replace the reservoir, because newer tanks include a built-in heating coil
- C. Tighten the drain valve further, because tight valves never freeze open
- D. Install a longer air hose to the valve to warm the air

91. A truck's differential lock engages slowly and sometimes not at all. The technician hears air escaping near the axle shift unit. What is the likely cause?

- A. Too much oil in the differential, which always blocks the air supply
- B. A tire with a slow leak, which controls the lock air
- C. A worn clutch pedal pad that reduces the pressure on the lock
- D. A leaking shift cylinder diaphragm or seal that loses shift pressure

92. A click-type torque wrench slips from a bench and strikes the concrete floor. What should be done before it is used again?

- A. Use it as normal, since click wrenches are built to survive drops without error
- B. Set it to its highest value to relax the spring, then store it away
- C. Remove it from service and verify its calibration, since impact can shift the setting
- D. Spray the head with penetrating oil and continue using it for noncritical fasteners

93. A reefer trailer display shows low fuel although the tank is nearly full. Which fault should be checked first?

- A. The fuel level sender, its wiring and connector, and the display input
- B. The kingpin lock, because the lock assembly measures the fuel level
- C. The landing gear gearbox, which senses the diesel level in the tank
- D. The trailer brake chamber, since it sends the fuel signal to the unit

94. A solenoid operated hydraulic valve does not shift. The coil shows battery voltage at its connector but the resistance is infinite. What is the cause?

- A. A good coil, since infinite resistance is normal for a solenoid
- B. An open coil winding, so the coil should be replaced and retested
- C. A short in the coil, because shorts always read infinite ohms
- D. A leaking cylinder, because the oil leak opens the coil winding

95. On a turbocharged engine, the boost sensor reads 160 kPa at wide-open throttle, but the mechanical gauge shows 95 kPa. The ECM reduces power. What is the most probable cause?

- A. A new turbocharger that is producing too much power for the ECM
- B. A boost gauge that always reads 65 kPa low, which is normal
- C. Excess oil in the intake, which makes the pressure sensor read accurately
- D. A contaminated boost sensor sending a signal above the true pressure

96. On a drive axle wheel end with oil lubrication, the sight glass shows milky oil. What does that most likely mean?

- A. Normal cold-weather oil colour, which needs no attention or follow-up at all
- B. Too much grease, which will simply drain away on its own
- C. A new bearing, since all new bearings turn the oil white
- D. Water contamination, so find the cause and inspect the seals and bearings

97. After installing a new windshield with urethane adhesive, a customer asks to take the truck immediately. What should the technician say?

- A. The safe drive-away time must pass, since the adhesive needs time to cure
- B. The truck can leave at once, since modern urethane cures instantly on contact
- C. The truck may leave if the owner drives below 30 km/h for the first week
- D. The truck can leave once the glass looks clear and the wipers move

98. In the circuit drawings, a technician sees a symbol with a lever drawn open and the label normally open. How does this contact behave with the relay or switch at rest?

- A. It conducts at rest and opens only when the device is operated
- B. It does not conduct and closes only when the device is operated
- C. It conducts in both positions, so it cannot control a circuit
- D. It stores voltage at rest and releases it when the key is turned

99. With the brakes fully applied, a technician coats a brake chamber with soap solution and sees bubbles at the clamp ring. What does this indicate?

- A. Normal sealing, because bubbles prove the chamber is airtight under load
- B. A leaking brake drum, since the drum is sealed by the clamp ring
- C. A leaking diaphragm or a loose clamp ring on the chamber
- D. A good diaphragm, because bubbles form only when the seal is intact

100. A technician checks a ring and pinion tooth contact pattern and finds it concentrated at the toe of the gear tooth. What does this mean?

- A. The gear set is perfect, because a toe pattern is always the target
- B. The oil is too thin, because thin oil only leaves marks at the toe
- C. The pattern is off; adjust pinion depth or backlash to move it
- D. The axle shaft is too long, because it pushes the pinion to the toe

101. A VGT turbocharger actuator position feedback signal does not follow the commanded position, but the actuator moves freely by hand. Which step should come next?

- A. Replace the turbocharger assembly, because the vanes are always the cause
- B. Install a larger fuel filter, since restricted fuel limits vane movement
- C. Add engine oil, since the vanes move only when the oil level is high
- D. Check the actuator supply, ground, and signal wiring, then the feedback sensor

102. A technician measures resistance in a circuit that is still connected to the battery, and the meter gives an unstable reading. What is the correct approach?

- A. Leave the power on and use the highest range for greater accuracy
- B. Disconnect the power and isolate the component before measuring resistance
- C. Add a second battery so that the meter has more voltage to read
- D. Reverse the meter leads and average the two readings taken

103. A technician considers regrooving a tire for use on a steer axle. Which statement is the correct guidance?

- A. Steer tires must not be regrooved unless marked regroovable and rules allow
- B. Any tire may be regrooved to any depth at any position
- C. Regrooving is required on every steer tire at 6 mm of tread
- D. Regrooving is only allowed on the inner dual of a trailer

104. An exhaust gas temperature sensor circuit is open. What will the ECM most likely do?

- A. Increase the boost pressure to compensate for the missing exhaust signal
- B. Raise the idle speed permanently so that the exhaust runs hotter
- C. Disable the cooling fan so that the exhaust cools more slowly
- D. Set a fault and may limit regeneration or derate to protect the aftertreatment

105. Frost forms on the line leaving the evaporator and the A/C blows weak, lukewarm air. Which fault is the most likely?

- A. A cab filter that is too clean, which freezes the line
- B. A tire that is badly overinflated, which freezes the evaporator coil
- C. A restricted expansion device or low airflow that makes the evaporator freeze
- D. A fuel filter with too much flow, which cools the line

106. On a wedge brake, the technician finds that the plunger adjustment has reached its limit and the lining still has thickness left. What does this suggest?

- A. The lining is too thick for the drum, so more shoe adjustment is needed
- B. A worn plunger or wedge component that should be inspected and replaced
- C. The brake chamber is too large, so a smaller one should be installed
- D. The tire inflation is too low, so the adjuster is moving too far

107. Gear oil is leaking from several axle seals on a truck that was recently serviced. The axle breather is found packed with dirt. What is the correct action?

- A. Clean or replace the breather, then check the seals and oil level
- B. Drain the axle completely and run it dry to relieve the pressure
- C. Seal the breather hole with silicone to keep all dirt out
- D. Add heavier gear oil and continue driving the truck as usual

108. A fuel level sender checks fine at empty but the gauge reads full at all times. A sender resistance sweep shows a steady 5 ohms as the float is raised. What should the technician conclude?

- A. The gauge is the only fault, so replacing the sender will not help
- B. The sender is stuck or shorted at one value, so it should be replaced
- C. The fuel tank is leaking, which holds the sender at 5 ohms
- D. The battery is weak, which changes the resistance of the sender

109. A steering wheel shimmies at one speed range, and the front tires are balanced. The tie rod ends and drag link are tight. What should the technician check next?

- A. The air conditioning compressor, because it vibrates the steering wheel at speed
- B. The fuel filter, since a dirty filter will cause steering shimmy
- C. The washer fluid level, because low fluid makes the wheel shake
- D. Wheel and tire runout, a loose wheel bearing, and steering gear mounting

110. A customer states that an intermittent no-start occurs only on cold mornings. After testing, the technician finds a corroded battery ground lug with a 1.1 V drop during cranking. What belongs on the repair order as the cause?

- A. Intermittent no-start on cold mornings, which restates the customer's original complaint exactly
- B. Starter problem suspected, battery tested okay, recommend further diagnosis at a later date
- C. A corroded battery ground causing excessive voltage drop, supported by the measured 1.1 V
- D. Replaced several parts and the vehicle now starts, so the problem is resolved

111. A trailer's brakes will not release after the tractor supply is connected and the yellow control valve is pushed in. The trailer reservoir shows low pressure. What is the logical check?

- A. Check the supply line and trailer air system for leaks or a closed valve
- B. Replace the kingpin, which controls the trailer brake release valve
- C. Check the engine oil level, because oil pressure releases the trailer brakes
- D. Tighten the wheel nuts, because loose nuts keep the spring brakes on

112. A hydraulic system on a work truck overheats during long use. The cooler is clean and the fluid level is correct. What is a logical next check?

- A. The cab air filter, since it helps cool the hydraulic fluid
- B. The relief valve and bypass for excessive operation, plus the pump for wear
- C. The wheel bearings, because they add heat to the hydraulic oil tank
- D. The wiper motor, since it adds heat to the hydraulic reservoir

113. A mechanic installs an aftermarket telematics device on a constant-power wire. A week later the truck will not crank after sitting on a weekend. What step best finds the cause?

- A. Measure the parked current draw with an amp clamp after the modules sleep, then isolate the added device
- B. Replace the starter first, because weekend cranking problems originate in the starter
- C. Charge the batteries and return the truck, since it was probably an isolated event
- D. Remove the alternator belt to see whether the alternator causes the discharge

114. All clearance lamps on a trailer are out, but the tractor lamps and the trailer brake lamps work. Which fault is the most likely?

- A. Every lamp has burned out at the same moment from the same age
- B. A failed brake chamber that stops the lamp circuit from receiving power
- C. A low tire pressure that interrupts the trailer's ground path to the lamps
- D. An open in the shared clearance circuit, such as a pin, fuse, or ground

115. A trailer's brakes apply noticeably late, although the tractor brakes respond promptly. Which fault is the most plausible?

- A. A fully charged battery, because it slows the trailer brake application
- B. An overfilled engine oil sump, because oil pressure delays the trailer
- C. A sluggish trailer relay emergency valve or a restricted service line
- D. A tractor air dryer that is too clean, because it removes moisture

116. Drive axle oil temperature readings regularly exceed what mineral gear oil can safely tolerate. What should the technician consider?

- A. A thinner mineral oil, which always runs cooler under heavy loads
- B. Less oil in the housing, because oil is what causes heat
- C. A larger tire size, because tires heat the gear oil directly
- D. A synthetic gear oil approved for high temperature, plus a search for the cause

117. A truck pulls to the right while braking lightly. The right front tire pressure is well below the left. What is the correct first action?

- A. Correct the tire pressures to specification and recheck the pull first
- B. Replace the left front brake chamber straight away without testing it
- C. Increase the tire pressure on the left to match the low right
- D. Align the rear axle first, since the front tires are never involved

118. Before a technician connects a charger to a truck, what inspection of the charge inlet is correct?

- A. Spray the pins with water to cool them down before charging
- B. Check the inlet and connector for damaged pins, burn marks, and moisture
- C. Connect the charger anyway and then watch closely for any sparks
- D. Wrap the pins with electrical tape to stop any possible arcing

119. A technician sees a plugged crankcase breather with heavy oil carryover. Which engine condition does this most closely suggest?

- A. A failed thermostat that is passing too much coolant through the engine
- B. A low battery voltage that causes the breather element to clog
- C. Excessive blow-by from worn rings or liners, overloading the breather
- D. Over-torqued oil pan bolts that pump oil up into the breather

120. A technician is choosing wire for a long, high-current circuit on a trailer. Which choice reduces voltage drop most?

- A. A higher gauge number, which is a thinner wire, to save weight
- B. A wire with much thicker insulation but the same copper size
- C. Any wire, since the length does not affect the voltage at the load
- D. A lower gauge number, which means a thicker wire for the load

121. The windshield wipers on a truck stop in the middle of the windshield instead of parking at the base when switched off. What is the likely fault?

- A. A worn windshield wiper blade rubber that cannot reach the base
- B. A fault in the motor park circuit or park switch, or its wiring
- C. A low washer fluid level, since the pump sets the park position
- D. A weak battery, since parking uses only the battery voltage level

122. A tractor's stop lamps never light when the brake pedal is pressed, although the lamp bulbs test good. The truck uses an air pressure operated stop lamp switch. What is the best first test?

- A. Replace the brake chamber, since the chamber controls the stop lamp circuit
- B. Raise the governor cut-in pressure so that the stop lamps will come on
- C. Check that the switch closes with air applied and has power and ground

D. Drain the air dryer, because moisture inside it shorts out the lamps

123. A driveline retarder will not apply even though the dash switch is on and the brake pedal is not pressed. Which cause is the most plausible?

- A. A control restriction, such as an ABS event or low fluid, disabling it
- B. A fully charged battery, since retarders operate only on low voltage
- C. A cold cabin, because retarders work only above a set cab temperature
- D. A rolled tire sidewall, because it controls the retarder control valve

124. After a long grade, an infrared thermometer shows one drive axle hub much hotter than the rest. What should the technician investigate?

- A. Wheel bearing adjustment, lubricant level, and brake drag at that wheel end
- B. The cab air filter, because the airflow there heats only a single hub
- C. The alternator output, because it feeds current into that hub bearing
- D. The windshield washer pump, because it sprays fluid over that wheel

125. On an engine with injector wiring harness chafing, the fault codes show an intermittent open circuit on one injector. What is the best repair approach?

- A. Wrap the damaged area with electrical tape and leave the routing alone
- B. Bypass the injector circuit with a jumper wire connected to battery positive
- C. Replace the injector and ignore the harness, because injectors fail quite often
- D. Repair the chafed wires with approved splices and secure the harness against rubbing

126. After an A/C component has been replaced and the system was open to the air for an extended time, which part should also be changed?

- A. The cab heater core, because it holds the refrigerant in the loop
- B. The receiver-drier or accumulator, because it absorbs moisture and is saturated

- C. The steering gear, because it connects to the A/C lines under pressure
- D. The brake air dryer, because it is part of the A/C system

127. A truck's modules keep waking up and draining the batteries overnight. How can the technician find which module or circuit is responsible?

- A. Disconnect only the alternator and wait to see whether the draw stops
- B. Replace all the batteries and then retest after a week of driving
- C. Measure the parked current, then pull fuses one at a time
- D. Wrap the harness in foil so that the modules cannot receive wake-up signals

128. A shop charges a set of batteries on a bench in a closed room. Which practice best controls the hydrogen hazard?

- A. Switch the charger on first so that the clamps do not draw an arc
- B. Close the room to keep the heat in, which speeds charging and gas release
- C. Smoke only near the exhaust fan so that vapour is pulled away from batteries
- D. Ventilate the area and connect the clamps before switching the charger on

129. A trailer refrigeration unit has a battery low-voltage alarm even though the batteries were new last month. Which step should come first?

- A. Replace the trailer tires, since the turning tires charge the unit battery
- B. Test the output, belt, and wiring of the unit's alternator or charger
- C. Drain the fuel tank, since the diesel fuel lowers battery voltage
- D. Raise the thermostat setting until the alarm no longer sounds at all

130. A technician wants an accurate hydraulic reservoir level reading on a machine with several cylinders. What practice gives the right result?

- A. Check it with the cylinders positioned and the oil at the temperature the maker states

- B. Check it with all cylinders fully extended because the level then reads highest
- C. Check it only after the machine has run all day at high load
- D. Fill the tank until the oil reaches the breather cap on top

131. A new ABS electronic control unit has been installed on a tractor, and the warning lamp stays on with a configuration fault. What is the correct next step?

- A. Replace the wheel speed sensors, because they hold the configuration data
- B. Disconnect the batteries overnight, since the unit always configures itself afterward
- C. Configure the unit for the vehicle with diagnostic software, then retest
- D. Reduce the air pressure to zero, which forces the unit to learn the vehicle

132. An automatic transmission shudders at highway speed, and the shudder disappears when the driver lightly brakes. What is the usual reason?

- A. A flat spot on a tire that goes away with braking pressure
- B. A lockup clutch or control fault, since braking releases the lockup
- C. A broken air line that restores some pressure with the pedal
- D. A dirty cab filter that clears when the brakes are applied

133. A wheel has a suspected bend. How is lateral runout best measured?

- A. With a tape measure from the wheel rim to the floor
- B. With a feeler gauge slid between the wheel and the brake drum
- C. With a dial indicator on a stand touching the rim flange
- D. With a thermometer held on the rim while the wheel is rotated

134. A NO_x sensor downstream of the SCR catalyst reports implausible values soon after the truck sat in freezing weather. What is the most reasonable first test?

- A. Drain the DEF tank and refill it with plain tap water instead

- B. Increase the engine oil viscosity grade to suit the winter weather
- C. Reduce the tire pressure to improve the exhaust flow rate
- D. Check the sensor heater, connector, and wiring, and sensor readiness

135. An intermittent fault appears only on rough roads. Which technique helps capture it with a meter?

- A. Use the min and max recording function while driving, then review
- B. Take a single reading in the shop and assume the fault will show
- C. Set the meter to resistance and connect it to a charged circuit
- D. Disconnect the meter and rely on the driver's memory of the events

Practice Exam 18: Answer Key and Explanations

- 1. A** — The click shows the coil is pulling in, so with supply present at 30 and nothing at 87 the contacts are probably worn or burned. A new relay is the normal repair. A shorted coil would not click properly, and neither overcharge nor fuse size would stop output. Always verify by substituting a known good relay.
- 2. C** — Engine speed on the tachometer normally comes from the crankshaft position sensor, so a zero reading while cranking points to that sensor or its wiring even if the camshaft signal exists. Coolant, boost, and exhaust temperature sensors do not provide the engine speed signal needed to allow injection. The crankshaft signal also sets the timing reference.
- 3. B** — High current in a pump motor can be caused by a binding pump or a restriction, and low fluid affects assist, so inspecting fluid and comparing current with specification is a logical step. Removing the pump is unsafe, engine oil is the wrong fluid, and a larger fuse removes protection.
- 4. D** — A sensor winding that reads infinite resistance is open, so it cannot produce a signal and the lamp stays on. The sensor must be replaced. Air gap or a dirty tone ring affects signal strength, not winding continuity, and the modulator valve only controls air to the chamber. Testing resistance first avoids needless parts.
- 5. B** — A selector that cannot send its signal leaves the control module without a requested range, so it defaults to neutral. Repairing the wiring or selector corrects it. The torque converter does not select the gear, overfilling harms the unit, and the driveshaft carries torque, not signals. Selector wiring faults are common where harnesses flex.
- 6. C** — Decanting a hazardous product into a secondary container requires a workplace label with the product identifier and safe-handling information, unless it is used immediately and by the person who

filled it. The drum label does not travel with the bottle, and a dated bottle without hazard information leaves the next worker unprotected.

7. A — Landing gear is worked by hand through a gearbox and screws, which need lubrication, and a heavy feel can also come from bent legs or worn gears. Impact tools damage the gears, water causes rust, and a shorter handle only makes the effort greater. Bent legs show as uneven extension or binding that no lubricant can remove.

8. C — A coil that stays at full current regardless of command suggests the driver is shorted on, the harness is shorted to power, or the controller is faulty, so measuring coil resistance, tracing wiring, and checking the output with a scan tool isolates it. A breather, tire pressure, or heater valve does not set proportional valve current.

9. A — A cycling thermal breaker repeats because current is too high, it heats, opens, cools, and closes again. The overload or short must be located. Continuous cycling is not normal, and battery charge or fifth wheel looseness are not related to the breaker. Fitting a larger breaker would only hide the overload and risk wire overheating.

10. B — A pressure sensor outputs a low voltage at zero pressure, so 4.9 V with a reading of zero suggests a circuit fault such as a short to the reference or a bad sensor. The ECM value cannot be trusted. A filter or tank level would not drive the signal voltage to the top of its range.

11. D — With full voltage at the connector, the control side is working, so the coil, ground, and air gap are the remaining suspects. The pressure switch and relay are upstream of the point already confirmed, and adding refrigerant risks overcharging. A meter on the coil terminals and the clutch ground shows whether the coil is open or grounded.

12. B — Excess free play usually comes from worn joints, loose linkage, or gear lash, so finding where the movement occurs is the first step. A wheel nut, tire inflation, and fluid level do not remove mechanical looseness. Checking tie rod ends, drag link joints, steering gear lash, and column joints one by one finds the loose point.

13. A — A damaged tooth produces a missing or distorted pulse, which becomes obvious to the ABS controller when pulse rate is high and does not show on a static resistance check. The tone ring should be replaced. A ring does not magnetize the hub or increase braking force, and slow rotation is not the trigger here.

14. C — An automated transmission controller learns where the clutch begins to transmit torque, so a new clutch needs that value relearned with the scan tool procedure. Heavier oil, shims, and new batteries do not teach the controller the new engagement point. Without the new touch point, the controller engages the clutch too early or late, causing jerky starts.

15. D — Normal voltage at the switch with low voltage at the motor places the fault between them, and the door jamb harness flexes with every opening, so broken strands or corrosion there are common. Windshield urethane, a tilt cylinder, and a turbocharger are not part of that circuit. Check the harness at the door boot first.

16. D — Total power is four times 55 W, or 220 W. Dividing by 12 V gives about 18.3 A. This is why a fuse and wire must be sized for that current, not for a single lamp. The other values come from dividing by the wrong number of lamps or by 6 V.

17. A — Unplugging a thermistor creates an open circuit, which the ECM reads as an extreme cold value. If that happens, the wiring and ECM input are responding correctly, and a sensor that read normally when connected can be suspected. A short to ground would show an extreme hot value instead. This test separates wiring faults from sensor faults.

18. B — An isolation fault signals leakage from high-voltage conductors to the chassis, which can shock people, so the truck is made safe by the maker's procedure and the leak found with an insulation tester. Clearing the code, adding water, and bypassing the monitor are dangerous. Only trained technicians with proper protection should perform this isolation testing.

19. C — A castle nut is aligned by tightening to the next slot within the permitted range, and a new cotter pin locks it. Loosening below the torque or leaving the pin out risks a steering joint failure, and a bolt is not an approved locking device. The pin must pass freely through the stud hole.

20. D — A low-voltage code with good batteries suggests a drop between the battery and the module, such as a poor connection, a fuse holder, or a ground. Checking voltage at the module pins under load shows where the loss occurs. Wheel speed sensors and air pressure do not power the controller.

21. C — A range shift is made by an air cylinder, controlled by a valve or solenoid that gets power from a switch, so checking solenoid power, valve operation, and the cylinder follows the system path. The clutch disc, differential oil, and wheel bearings do not select range. A multimeter on the solenoid connector verifies this quickly.

22. A — Duty cycle is the on time divided by the total cycle time, so 6 ms over 10 ms is 0.6, or 60 percent. A 40 percent figure is the off time, and the other values come from using the numbers incorrectly. Duty cycle describes the average power delivered, not the frequency.

23. B — Several sensors setting low-voltage codes together points to the common supply, since a short on the shared reference pulls every sensor down. Measuring the reference voltage and checking for a shorted sensor or harness is the efficient step. Replacing parts or software without that test is guesswork and may not clear the fault.

24. D — Compressed air aimed at the body can force dust or air through skin and into the bloodstream, and flying particles injure eyes and ears. The right correction is to ban the practice and offer a vacuum or brush. Glasses, distance, or a lower setting do not remove the underlying hazard of air entering tissue.

25. C — Many trailer ABS units report faults by blinking a code that is read from the lamp, and the manufacturer's table identifies the circuit to test. The flashes are information, not a general warning, and replacing the controller or cutting the wire does not diagnose the fault. Follow the table to the circuit before parts are replaced.

26. A — A relief valve is checked with a calibrated gauge while the system is loaded to the point where the valve opens and the reading is compared with the specification. Striking the valve, running without

relief, and judging by noise are unsafe and inaccurate. Stopping at the specified pressure protects the pump from overload.

27. A — Feathering shows the tire is scrubbing sideways, which is the effect of an incorrect toe setting. Caster influences steering feel and return, not feather wear. A battery cable or a steering wheel size does not change how the tire contacts the road. Correcting toe with proper measuring tools stops the scrubbing and extends tire life.

28. B — Ohm's law gives resistance as voltage divided by current, so 24 V divided by 8 A equals 3 ohms. The 192 ohm value multiplies instead of dividing, and 0.33 ohm inverts the ratio. A reading far above 3 ohms would suggest a damaged element. The resistance can be checked with a meter after disconnecting the heater from power.

29. B — The lamp check at key-on proves the lamp circuit and the module are alive, so a lamp that never lights suggests an open circuit, bulb, or power feed problem. A brake chamber leak, reservoir air, or kingpin wear do not control that dash lamp. Checking the lamp bulb and ABS fuse first is fast and inexpensive.

30. D — If the lock is working but the lamp is not, the indicator or its circuit is the likely fault, since the lamp reads a separate pressure or position switch. The engine, clutch, and spare tire have nothing to do with that lamp. Inspect the indicator switch and its connector, since replacing the lock itself would not cure the lamp.

31. C — Dual-track sensors let the ECM compare two signals that should follow a set relationship. A correlation fault means they disagree, commonly because one circuit has an open, short, or resistance problem. A spring that affects both tracks equally would not produce a difference between them, and the second track is not decorative.

32. B — A low charge lets low-side pressure drop until the low-pressure switch opens and drops out the clutch, and pressure then rises and the cycle repeats. The system should be leak tested and repaired before it is recharged. Cab heat, battery charge, and wheel nuts are unrelated. Check the gauge readings after recovering a leak.

33. D — Several loads sharing a poor ground cause the voltage to drop when another circuit draws current, which dims lamps. Cleaning and protecting the shared ground fixes it. Larger bulbs draw more current and worsen it, and the switch or belt is not responsible. A voltage drop test across the ground path will confirm the loss.

34. A — Cupping comes from a wheel that bounces or is out of balance, so worn shocks, loose components, and balance are the main suspects. Fuel injectors, a heater core, and a radio antenna cannot produce that wear. Inspect shocks for leaks, bushings for play, and check balance, because a bouncing wheel leaves repeating patches of wear.

35. C — A thermostat stuck open lets coolant flow to the radiator all the time, so the engine runs cold. The result is weak heater output, long warm-up, and higher fuel use because the ECM enriches and

delays regeneration. Boil-over, hot intake air, and hot oil are symptoms of overheating, not of a cold-running engine.

36. B — Alignment changes the straight-ahead position, so the steering angle sensor must be calibrated with a scan tool at the correct wheel position. Chambers, tire deflation, and a short battery disconnect do not set that reference, and the fault would remain. Skipping calibration leaves the stability system comparing steering input against a wrong zero, which can trigger false interventions.

37. D — The output shaft speed signal feeds the speedometer, cruise, and the transmission controller, so a failed sensor affects those systems. Coolant temperature, power steering, and battery state do not rely on this sensor. Automated units also rely on this speed to time clutch and gear changes, so shift quality suffers as well.

38. C — An adhesive-lined heat-shrink connector, crimped with the correct tool, seals out moisture and holds the wire, which suits a wet environment. Twisting with tape allows corrosion, acid flux corrodes copper, and a hose clamp neither joins nor seals the wires. The ratchet crimper gives even pressure, and the adhesive flows as the tubing shrinks to fill gaps.

39. A — A lamp showing the cab is not latched must be treated as a real warning until proven otherwise, because an unlatched cab can lift in motion. The latch should be checked physically and the latch and switch inspected. Ignoring or covering the lamp is unsafe. Check the latch condition before any road use.

40. C — A new height sensor needs its zero or reference set at the correct ride height, which is done through the calibration routine. Adding air only changes the height, replacing the springs is unnecessary, and disconnecting the sensor sets a fault. Without that reference the controller cannot judge height correctly and may raise or lower the vehicle.

41. A — A grid heater draws very high current, so a relay stuck in the closed position can drain the batteries overnight and may overheat the intake. Checking relay operation and the heater control circuit is the fix. Fuel pooling, DEF freezing, and turbo oil starvation are not caused by a stuck heater relay.

42. B — High-voltage traction systems can deliver large fault energy, so the meter must carry a category rating suited to the voltage, with fused leads and insulated probes. Range alone does not make a meter safe. A basic automotive meter or test light is not built to survive a transient or short at traction-battery energy levels.

43. D — A trailer circuit tester energizes the lighting and ABS circuits and shows whether each pin works, and visual checks of pins and sockets find corrosion. A tape measure, a tire gauge, and a feeler gauge give no information on electrical continuity. A tester also shows ABS power on its pin, which a simple lamp check cannot confirm.

44. B — Scored rods cut new seals quickly, so the rod must be replaced or reconditioned and the cause found, such as contamination or misalignment. A seal alone, putty, or an over-tightened gland will not give a lasting repair. Check the rod alignment, wiper seal, and fluid cleanliness so the new rod does not suffer the same damage.

45. D — A dryer heater and its thermostat keep the purge valve and drain from freezing, so a heater that draws no current or a faulty thermostat can allow moisture to pass or freeze the valve. The governor, belt, and cut-out pressure do not power the heater. Measuring heater current confirms it before replacing the dryer.

46. C — An automated transmission relies on position feedback from the shift mechanism, so a position fault usually points to the sensor, its wiring or connector, or calibration. Verifying those and calibrating or replacing the sensor follows the maker's procedure. Replacing the engine module, changing oil thickness, or letting air from tires does not restore the feedback signal.

47. A — Many flashers judge bulb failure by current, and LEDs draw far less, so the flasher speeds up. The remedy is an LED-compatible flasher or an added load. Battery size, a polarity swap, and a larger fuse do not address the low current. An LED-rated electronic flasher restores the correct flash rate of about ninety flashes per minute.

48. B — A mechanical gauge reading a normal value proves that oil is being delivered, so the zero on the dash points to the sender, the instrument, or the wiring between them. The test gauge is the direct measurement. A failed pump or blocked filter would lower the true pressure, which the test gauge would reveal.

49. C — Both heater hoses should be nearly the same temperature when coolant flows freely, so a hot inlet and a cool outlet indicate restricted flow in the core or a closed valve. The difference is not normal, and the radiator cap and the battery do not cause it. A temperature probe on both hoses confirms the flow difference.

50. A — A slow leak at an air spring, fitting, or line is found by coating the suspect areas with soap solution and watching for bubbles. A heavier shock, driving it, or over-inflating cannot repair a leak and may damage the spring. Repairing or replacing the leaking part restores height without stressing the other components.

51. D — Controllers and contactors in an electric truck run from the 12 V system, so a low auxiliary battery can prevent the high-voltage system from closing even if the traction battery is charged. Charging or replacing the 12 V battery and checking the converter is the next step. Excess charge, tire inflation, and the radio are not the cause.

52. D — Excess loaded time means the compressor cannot keep up, either because the system leaks or because the compressor is worn or restricted. Leak testing and a build-up test are the next steps. Oil pressure, battery charge, and a dim lamp are not connected to the pressure build rate. Timing a build-up test quantifies the problem.

53. A — A release bearing turns and carries load only when the pedal is depressed, so noise limited to that condition points to it. Countershaft bearings are noisy with the clutch engaged. A stud or fuel tank would not change with the clutch pedal. Pressing the pedal lightly and listening for change confirms it before the transmission is disassembled.

54. C — A CAN wire shorted to battery voltage stops communication because the signal cannot swing properly, so the short must be found in the harness or a connector and repaired. Replacing modules is wasteful, the network needs both wires, and a second battery does not remove the short. Check wiring continuity and voltage with the ignition on.

55. B — A controlled fan clutch follows the ECM duty cycle, so a fan that is always engaged suggests a commanded-on condition, a shorted solenoid circuit, or a mechanically stuck drive. Checking the command, wiring, and then the clutch is a logical order. Belt tension, fuel pressure, and a cab filter do not drive the engagement.

56. C — A broken main leaf weakens the spring and can let the axle shift, so the spring is replaced and fasteners and alignment are checked, ideally in pairs. Wiring or welding a leaf is unsafe, and ignoring the centre bolt and U-bolts leaves the axle position uncertain. Springs are normally replaced in pairs to keep ride height equal.

57. B — A magnetic pickup generates its own alternating voltage as teeth pass the coil, and the output grows with speed, so AC volts that rise during cranking show that it works. A steady 5 V suggests a different sensor type, and zero ohms or battery voltage would indicate a fault. An oscilloscope would show the waveform clearly.

58. D — Static discharge from a person can destroy sensitive solid-state parts, so the technician should equalize potential by touching a grounded surface and keep fingers off the pins. A dry rag can create charge, solvent does not drain static, and unplugging a live module risks voltage spikes rather than protection. Following this habit protects costly modules.

59. A — A standby motor runs from three-phase power, and swapped phases make it turn the wrong way, so a scroll or piston compressor pumps poorly or not at all. Reversing two phases corrects it. Diesel level, landing gear, and cab heater are not involved. Rotation direction is checked with a phase tester or by observing fan direction.

60. D — A twisted hose can loosen fittings and fail early, a tight bend damages the reinforcement, and heat or rubbing wears the cover, so a hose is routed without twist and clamped properly. Resting on the exhaust is a fire and wear hazard. Hose manufacturers publish minimum bend radius figures that should be followed carefully.

61. B — The brake switch tells lamps and the ECM when the pedal is applied, so a stuck switch keeps the stop lamps on and blocks cruise control, which cancels when it sees a brake application. The compressor, tone ring, and chamber spring do not operate that switch. Inspect its plunger and adjustment, since misadjustment keeps the contacts closed.

62. A — A thin film of fine metallic paste is the normal result of gears meshing, whereas chunks or large flakes indicate damage. The oil change and observation are appropriate. It is not sand or brake dust, and it does not justify scrapping the unit. Compare what the magnet holds against previous service intervals before deciding.

63. C — Lash is set when the valve train is unloaded, which means the follower is on the base circle of the cam so the valve is fully closed and spring forces are not acting on the gap. Adjusting on an open valve gives a false gap, and running or removing the rockers is not a lash method.

64. C — Worn torque rod bushings let an axle shift out of square, which changes the thrust angle and makes the truck dog-track. Replacing them and realigning the axle restores tracking. Tire pressure changes and tire swaps do not fix the worn parts. A thrust angle measurement after repair confirms the rear axle points straight along the vehicle centreline.

65. D — A bulb-type test light loads the circuit and can overload low-current electronic inputs, so a high-impedance digital meter or an approved LED probe is used instead. The light does not erase software or add voltage, and it does work on vehicle circuits. LED probes limit current to a safe value for electronic circuits.

66. B — A high reading right after service suggests a measurement fault, such as kinked, swapped, or blocked sensor hoses or the sensor itself, because the cleaned filter should show low differential pressure. Checking these inexpensive items first avoids replacing a good filter. Wastegate, oil level, and DEF do not directly change that sensor reading.

67. A — Oil-soaked lining cannot be restored, so the shoes must be replaced, normally in axle sets to keep braking balanced, and the seal and its cause fixed. Cleaning or sanding leaves oil in the lining, and heavier oil does not stop a seal failure. Mixing worn and new linings on opposite sides would cause pulling when braking.

68. B — A dry or rusted slip yoke cannot slide freely as the suspension moves, so the shaft binds, loads the joints, and vibrates under torque. Cleaning and lubricating or replacing it fixes the problem. Smooth splines, too much grease, and rubber construction are not realistic explanations. Rust and dry splines also trap the shaft in one length.

69. C — Water in the cab usually enters through failed seals or plugged drains, so tracing the path and then checking the module and connectors for corrosion is correct. Brake lining, tire pressure, and fuel filters do not let rainwater into the cab. Dry the area and fix the leak path to prevent repeated module corrosion.

70. A — Lower blower speeds depend on resistors or an electronic speed controller, while the high speed often bypasses them, so a unit that works only on high points to that part. A bearing fault would affect all speeds, and coolant level and tires are unrelated. Measure voltage at the resistor output on each speed position.

71. D — Backprobing or using a breakout lead reaches the terminal without damaging seals or insulation, so moisture does not enter. Piercing wires and taping, cutting and splicing, or spreading terminals create future faults and loose contacts. A backprobe slides alongside the wire to touch the terminal while the seal stays intact, so no moisture path opens.

72. B — Cracked mounting welds threaten the connection between tractor and trailer, so the fifth wheel must be removed from service and repaired or replaced, and proper lubrication applied. Grease over

cracks, weld strips, and dry plates are not acceptable. A failed fifth wheel can release the trailer at speed, so repair must be completed before the tractor couples again.

73. A — Long idle periods run the engine cool and lightly loaded, so unburned fuel can wash past rings and thin the oil, and leaking injectors add to it. The result calls for investigating idling habits and injectors. Coolant produces glycol and sodium markers, and overfilling does not create fuel in the sample.

74. D — Many ABS controllers energize each modulator solenoid briefly at power-up, which creates audible clicks as part of a normal self-test. The sound alone does not indicate a leak, a lining fault, or compressor failure. A fault would be shown by the warning lamp and a stored code. Listening at key-on is a quick functional check.

75. C — Caked dirt shifts the balance of a spinning shaft, so cleaning comes first, followed by checking for a lost balance weight and for worn joints. Replacing the transmission and changing tire pressure are unrelated, and welding weight without measurement may make the imbalance worse. Mud also changes balance because it sticks unevenly to the shaft tube.

76. A — A fuse that keeps blowing is reporting an overload or short, and bridging it can overheat wiring and start a fire. A good mentor explains why, removes the bypass, and has the apprentice trace the fault. A larger fuse or temporary wire only hides the problem and leaves the harness unprotected.

77. D — A defrost cycle melts ice from the coil, so a failed heater, sensor, or control leaves the coil blocked and airflow and cooling fall. The kingpin, tire pressure, and fifth wheel grease have no effect on coil frost. Check the defrost heater element resistance, the termination sensor, and the controller output before replacing the coil.

78. C — High particle counts wear pumps and valves, so the source is found and the oil and filters changed, with flushing if the maker requires. Topping up does not clean the system, removing filters worsens it, and raising relief pressure only adds stress. Verifying cleanliness afterward with a follow-up sample proves the repair worked.

79. B — A closed switch should have almost no voltage across it even under high current, so 0.9 V shows high resistance that wastes starting power. The switch needs service or replacement. A drop is not protective, and the reading says nothing about starter wear or charge. Cleaning the contacts or replacing the switch should bring the drop near zero.

80. D — Hub-piloted and stud-piloted systems use different nuts and centring methods, and they must not be mixed. Tightening in sequence to torque spreads the clamping load evenly. Mixing nuts, ignoring the sequence, or oiling the threads can cause wheel loss. Different nut seat shapes mean the wrong type can look tight while clamp load is poor.

81. A — Liner vibration creates tiny vapour bubbles in the coolant that implode on the surface and erode it, and an additive package that has been depleted no longer builds a protective film. Maintaining coolant treatment is the main prevention. Head bolt torque and oil pressure do not cause external liner pitting.

82. B — Programming can corrupt a module if the voltage drops or the power is interrupted, so a stable support supply is connected. Revving the engine creates electrical noise, and removing power or fuses during a flash can ruin the module. A support supply holds voltage steady, which makers require before any reflash begins.

83. C — A pad wear sensor monitors lining thickness electrically, and an open circuit commonly sets a fault or warning. The technician should measure actual pad thickness and check the sensor wiring. The sensor does not control brake pressure or the compressor, and it is not decorative. Reading the lining directly confirms whether the warning is genuine.

84. D — A damaged rubber cushion lets the center bearing shift and the shaft move, causing a clunk and vibration. The bearing and cushion should be replaced and alignment checked. Grease does not repair rubber, running unsupported is unsafe, and over-tightening the bracket risks damage. Support bearing failure also lets the shaft whip and damage the universal joints.

85. C — Traction batteries lose capacity and age faster when too hot or too cold, so a thermal management loop holds the cells in range. It does not generate electricity, replace brakes, or dry the cab air. Cold weather limits charging, while heat speeds ageing, so the loop warms or chills the pack as needed.

86. B — A pressure monitoring system associates each sensor with a wheel position, so after a rotation the locations may need to be relearned with the tool. Replacing tires, waiting, and over-inflating do not teach the system the new positions. Run the learn procedure after every rotation, since a wrong location can show a false low pressure warning.

87. A — Ether ignites at low temperature, so spraying it into an intake with an electrically heated grid can cause an explosion or fire in the intake. Engines with grid heaters should never be given ether. It does not dissolve the element, freeze the manifold, or thicken oil. Cold-start aids on such engines rely on the heater alone.

88. B — Refrigerants are regulated, so they must be recovered with approved equipment by a person with the required certification, and release to the air is prohibited. Venting, draining, or cutting a charged hose are unlawful and dangerous. The technician must also recycle the recovered refrigerant correctly, since regulations track how much is recovered and returned.

89. C — The brief lamp check at key-on proves the circuit works, so a lamp that never lights suggests an open bulb or wiring fault, which means the driver would receive no warning. No lamp is not proof of health, and overcharging or tire pressure does not remove the lamp. Test the bulb and wiring first.

90. A — A heated drain valve relies on its element to keep the valve working at low temperature, so a missing current draw or damaged connector explains a freeze. The tank does not hold a heater, tightening does not prevent freezing, and a longer hose does not warm the valve. Cold weather exposes weak heater circuits first.

91. D — An air-operated lock needs pressure in its shift cylinder, so a leaking diaphragm or seal prevents full engagement and hisses at the axle. Differential oil level, a slow tire leak, and a pedal pad

do not affect that pressure. Soap solution on the shift cylinder and lines will locate the hiss and confirm the leak path.

92. C — A shock load can move the internal mechanism, so the reading may no longer match the real torque. A wrench that has been dropped should be quarantined and checked on a calibration tester. Storing at the highest value damages the spring, and oil does nothing for accuracy, so critical fasteners could be wrongly tightened.

93. A — A level reading that disagrees with a nearly full tank suggests the sender, its wiring or connector, or the display input, so checking sender resistance and connections comes first. Dipping the tank confirms the actual level. The kingpin, landing gear, and brake chambers do not send fuel level signals to a refrigeration unit.

94. B — A coil that reads infinite resistance has a broken winding, so it cannot create the magnetic field needed to move the spool, even with voltage present. The coil is replaced. Normal coils have a measurable resistance, a short reads low, and a cylinder does not open a winding. Replace the coil and check the valve.

95. D — When a trusted mechanical gauge disagrees with the electronic signal, the sensor or its circuit is the suspect, and an ECM that acts on a false reading can reduce power or set a fault. A gauge with a fixed offset is not normal, and extra oil in the intake would not make a sensor accurate.

96. D — Milky oil usually means water has mixed with the lubricant, which damages bearings, so the source such as a seal or vent should be found and the components inspected. It is not a normal colour, and grease or a new bearing does not create it. Water often enters through a failed seal or plugged vent.

97. A — Urethane gains strength over a set time that depends on the product and temperature, and the glass supports airbags and the cab structure, so the stated drive-away time is respected. Urethane does not cure instantly, a speed limit does not replace curing, and clear glass does not prove strength. Follow the glass maker's published cure schedule.

98. B — A normally open contact is open when the device is not energized, so no current passes until the relay coil or switch operates it. Reading the symbol correctly is the basis for tracing a circuit. The other descriptions describe normally closed contacts or components that do not exist. A normally closed contact conducts at rest.

99. C — Bubbles at the clamp ring with the brakes applied mean air is escaping around the joint or through the diaphragm. The chamber should be inspected and repaired or replaced. Bubbles are never a sign of normal sealing, and the drum is not sealed by the chamber clamp ring. Repeat the test after reassembly to confirm the seal.

100. C — A correct pattern sits centred along the tooth, so a pattern at the toe indicates a setting error that is corrected by adjusting pinion depth and backlash. A toe pattern is not ideal, and oil thickness or axle shaft length does not explain it. Marking compound shows the pattern clearly before and after each adjustment.

101. D — An actuator that moves by hand but not on command suggests an electrical or control problem, so power, ground, signal wiring, and connectors should be verified, along with the feedback sensor and a commanded test. Replacing the turbo without that testing is premature, and fuel filters and oil level do not move the vanes.

102. B — Resistance is measured by the meter's own small current, so outside voltage in the circuit disturbs the result and can damage the meter. Power must be removed and the part isolated. A higher range, another battery, or reversed leads does not fix this. Always disconnect power and discharge capacitors before taking a resistance reading.

103. A — Regrooving can weaken the tire and is restricted, so only tires marked suitable may be regrooved and steer positions are normally excluded by rules and practice. Regrooving is not mandatory, and not limited to a trailer inner dual. Most steer positions are restricted because a failure there threatens steering control, so the casing's rating matters.

104. D — Exhaust temperature feedback guards the catalyst and filter, so a missing signal normally triggers a fault and a protective strategy such as restricting regeneration or reducing power. It does not raise boost, force a high idle, or turn off the cooling fan. The strategy trades performance for protection, so reduced power may be noticed.

105. C — Frost on the evaporator side indicates the coil is dropping too far in temperature, commonly from a restricted expansion device, poor airflow, or a similar fault, which then blocks the air. A clean filter, tire pressure, and fuel flow do not freeze the evaporator. Check the expansion device, cab filter, and blower for airflow.

106. B — If the adjuster reaches its limit while lining remains, the likely cause is wear in the plunger, wedge, or related parts that has used up adjustment travel, so those components need inspection. Chamber size and tire pressure do not change plunger travel in that way. Replacing worn parts restores adjustment range and normal brake balance.

107. A — A blocked breather lets heat build pressure inside the axle housing, which forces oil past seals. Restoring venting and then checking seals and oil level is correct. Running dry destroys the axle, sealing the vent worsens pressure, and heavier oil does not remove it. Cleaning the vent restores normal pressure, so the seals can then be judged fairly.

108. B — A sender should change resistance as the float moves, so a fixed 5 ohms means it is stuck or internally shorted. Replacing it is correct. A weak battery does not change a resistor's value, and a leak would not hold the reading steady. Move the float by hand while watching the meter to confirm the fault.

109. D — A speed-sensitive shimmy that is not cured by balancing points to runout or looseness in the wheel, tire, bearing, or steering gear mounting. The compressor, fuel filter, and washer fluid are unrelated. Measure runout on the rim and tire with a dial indicator, check wheel bearing adjustment, and inspect steering gear mounting bolts for looseness.

110. C — The cause line should state the verified finding and the evidence, here the corroded ground and its measured drop. Repeating the complaint adds no information, a vague suspicion is not a cause, and listing parts changed describes the correction rather than the cause. Clear causes support warranty review and help the next technician.

111. A — Trailer spring brakes release only after the reservoir is charged through the supply line, so a low reservoir suggests a leak, restriction, or valve issue in the charging path. The kingpin, engine oil, and wheel nuts do not release the brakes. A leak test along the supply line and the glad hands finds the loss path.

112. B — Fluid that goes over relief or leaks internally through a worn pump turns pressure into heat, so these are logical checks once the cooler and level are fine. The cab filter, wheel bearings, and wiper motor do not heat the hydraulic oil. Check relief pressure and pump flow output to find the heat source.

113. A — A parked-draw measurement taken once the electronic modules have gone to sleep shows how much current flows, and unplugging the added device narrows down the source. Charging and returning the truck does not remove the cause, and the starter and alternator belt are not the likely path in this situation.

114. D — When one group of lamps fails together and others work, the common feed is suspect, such as a connector pin, fuse, or a ground, rather than every bulb. A brake chamber and tire pressure are unrelated. Testing for power and ground at the first lamp narrows the fault. A test lamp at the pigtail finds the break.

115. C — Late trailer application points to the trailer's control components, such as a slow relay emergency valve or a restricted service line, since the tractor responds normally. Battery charge, engine oil level, and a clean air dryer do not delay trailer brake response. Comparing tractor and trailer application times with gauges confirms the delay.

116. D — Excess heat breaks down mineral oils, so a synthetic lubricant suited to the temperature is a good option, along with finding the cause, such as overload or a lube problem. Thinner oil, a low level, and a bigger tire do not solve the problem. Heavy loads and low oil levels are common reasons for repeated overheating.

117. A — A low tire has more rolling resistance and a different footprint, so it can cause pulling. Setting pressures to specification and rechecking is the simple first step. Replacing parts without testing, matching a low pressure, or ignoring the front tires is poor practice. Rechecking the pull after correcting pressures shows whether other faults exist.

118. B — A damaged or wet inlet can arc under charging current, so the connector and inlet are inspected and repaired before use. Spraying water, charging anyway, or taping the pins is hazardous. Burned pins raise resistance and create heat during high-current charging, and moisture can cause leakage faults, so inspection comes first.

119. C — Combustion gases escaping past worn rings or liners increase crankcase pressure and push oil mist through the breather, which can clog it. A thermostat, battery voltage, and oil pan torque do not

create blow-by. The technician should measure blow-by flow to judge wear. Plugged breathers can also push oil past seals and into the air intake.

120. D — Thicker conductors have lower resistance, and a longer run needs a larger conductor to keep voltage drop low. Lower gauge numbers are thicker. Insulation thickness does not change resistance, and length does affect the voltage delivered to the load. For example, a long trailer run in thin wire could lose enough voltage to leave lamps dim.

121. B — Wiper motors use an internal park switch or circuit to keep running until the arms reach the base, so a failure there leaves them stopped mid-sweep. Worn rubber, fluid level, and a mildly weak battery do not control the park position. Check park switch contacts and wiring at the wiper motor connector for continuity.

122. C — A pressure-operated switch closes when brake application air reaches it, so confirming it closes with air and checking for power and ground at its terminals is the logical test. Chambers do not switch lamps, governor settings do not control them, and an air dryer drain does not affect the lamp circuit.

123. A — Retarders are disabled when the controller sees conditions such as ABS activity, low fluid, or a fault, so checking codes and fluid is logical. Battery charge, cabin temperature, and tire sidewalls are not retarder inputs. The scan tool shows which condition is blocking it, and correcting that restores operation without replacing parts.

124. A — A hub that runs much hotter than its neighbours suggests friction at that wheel end, usually from over-tight or worn bearings, low or poor lubricant, or a brake that is dragging. Measuring and comparing temperatures after a run is a quick check. The cab filter, alternator, and washer pump do not heat one hub.

125. D — A chafed harness should be repaired properly with sealed splices or an approved harness repair and then secured with clips so that it does not move against the engine. Tape alone will fail again, a jumper to battery positive can burn the driver, and replacing a good injector does not fix a harness fault.

126. B — The receiver-drier or accumulator contains desiccant that absorbs moisture, and an open system lets it take on moisture that would form acids, so it is replaced and the system evacuated. The heater core, steering gear, and brake air dryer are not part of the A/C circuit. Evacuate the system fully before recharging to remove moisture.

127. C — Pulling fuses one at a time while watching a current clamp or meter shows which circuit holds the draw, after which that branch is examined. Removing the alternator does not stop a parked draw, new batteries only hide it, and foil does not stop wired wake-up signals. Record each fuse pulled and the current change observed.

128. D — Charging releases hydrogen, which ignites easily in an enclosed space. Ventilation dilutes it, and connecting the clamps with the charger off prevents a spark at the terminals. Closing the room traps

gas, and any open flame or smoking near batteries is unsafe regardless of fan placement. A charger switched on during connection can arc and ignite the gas.

129. B — New batteries that run low point to an inadequate charge, so the alternator or charger, its belt, and the wiring should be tested. Tires and fuel do not charge the battery, and raising the thermostat setting ignores the alarm and does not correct the charging problem. Measure charging voltage at the battery with the unit running.

130. A — Cylinders hold different oil volumes when extended and retracted, so the reservoir level changes with their position, and oil expands with temperature. Following the maker's stated position and temperature gives a true reading. Extending everything arbitrarily, checking after a long hot run, or filling to the breather overfills the tank.

131. C — Many controllers arrive unconfigured and need the number of sensors, valves, and options programmed with a scan tool, so a configuration code after replacement is expected until that is done. Sensors do not store the setup, a battery disconnect does not program it, and draining air does nothing. The scan tool writes the setup parameters.

132. B — A lockup clutch that grips unevenly causes shudder, and a light brake application commands the lockup to release, which stops the symptom. Tire flat spots, air lines, and cab filters would not be cleared by light braking in that way. Because lockup control is electrohydraulic, a worn clutch or weak solenoid pressure can make it grip unevenly.

133. C — A dial indicator touching the rim flange shows movement as the wheel turns, revealing lateral runout. A tape measure to the floor, a feeler gauge, or a thermometer cannot show runout accurately. Mount the indicator on a stand with its tip on the flange, turn the wheel slowly, and read the total movement on the dial.

134. D — A NO_x sensor needs its internal heater to work properly, and moisture or cold can disturb it, so confirming heater operation, connector condition, and sensor readiness is a sound first test. Diluting DEF with water damages the system, and oil grade or tire pressure have no bearing on the sensor.

135. A — A meter with min and max or a recording mode captures short-lived voltage drops that a single reading would miss, so the fault can be seen after the road test. A single static reading, a resistance setting on a live circuit, and memory alone do not capture the event. Review the stored extremes after the drive.