

PRACTICE EXAM 17: 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 truck battery shows 12.4 volts at rest after sitting overnight. A load test is planned. What load should be used for a standard 12-volt battery test?
 - A. About half the rated CCA for 15 seconds, watching for roughly 9.6 volts minimum
 - B. Double the rated cold cranking amps for 60 seconds, watching for a drop to zero
 - C. A load equal to the starter motor rating for five minutes with the engine running
 - D. No load, because resting voltage alone proves the battery can crank the engine

2. A truck shows a high soot load warning and the technician must start a parked regeneration. Which condition must be confirmed first?
 - A. The fuel tank is nearly empty, so the regeneration cycle uses less fuel overall
 - B. Exhaust area clear of flammables, vehicle outdoors, and no faults inhibiting regeneration
 - C. The engine oil has just been changed, because new oil is needed for high exhaust heat
 - D. The DEF tank is drained, so the dosing system cannot interfere with regeneration

3. A truck pulls to the right and the tire wear shows feathering on the right front. Alignment is suspected. Which angle is most associated with feathering?
 - A. Wheel bearing endplay set exactly to specification on both sides
 - B. Tire pressure set exactly to the manufacturer's recommended value

- C. Toe out of specification, scrubbing the tire sideways across the road
- D. A correctly adjusted steering gear with no free play in the pitman arm

4. A shop foreman asks for the best record to keep after an air brake inspection finds a leaking brake chamber diaphragm. What should the report include?

- A. Only a note saying brakes serviced, because details are kept in the technician's memory
- B. Axle and wheel position, defect found, correction, and post-repair leakage test result
- C. The chamber part number and cost, without mentioning which wheel position was repaired
- D. A statement that the vehicle is safe, signed before the leakage test is completed

5. A driver complains that a clutch slips under load and the pedal feels firm. Free play at the pedal is measured at zero. What should the technician do first?

- A. Add more transmission oil to the bell housing to cool the clutch disc surface
- B. Replace the flywheel immediately since zero free play always damages the flywheel face
- C. Adjust the clutch to specified free play, then inspect components if slipping continues
- D. Install a heavier release bearing grease and recheck the free play after a road test

6. A customer says a tractor loses power on hills. After road-testing and finding a plugged fuel filter, how should the repair order be written?

- A. Complaint as the customer stated it, the cause you proved, and the correction you performed
- B. Only the parts installed and the total labour hours, since the customer already knows the symptom
- C. A general note saying engine tuned and road tested, to avoid confusing the customer with detail
- D. The complaint and the correction, leaving the cause out unless the work falls under warranty

7. A trailer landing gear crank is hard to turn and the legs do not raise evenly. What should be checked first?

- A. The tractor DEF tank level because it affects landing gear gearing

- B. The trailer tire rotation since landing gear speed depends on it
- C. The brake light bulbs because they power the landing gear
- D. Gear lubrication, bent legs, damaged internal gears, and the cross shaft

8. A hydraulic pump on a work truck is noisy, and the fluid in the reservoir is foamy. What is the most likely cause?

- A. A fully filled reservoir with clean fluid at the right temperature
- B. A relief valve that is set correctly with normal pressure
- C. Air drawn in through a loose suction fitting or low fluid level
- D. A new filter element that is installed with the correct gasket

9. A parasitic draw test on a parked tractor shows a steady 1.2 amps after the modules have gone to sleep. What is the correct action?

- A. Replace the batteries immediately because a draw always means a bad battery
- B. Isolate circuits by pulling fuses one at a time and watching the meter
- C. Disconnect the alternator and drive the truck to check if the draw stops
- D. Ignore it because anything under 5 amps is considered normal on a heavy truck

10. A DPF differential pressure reading is high after several failed regeneration attempts. A scan tool shows ash load at the limit. What is the correct repair?

- A. Remove the filter for professional cleaning or replacement, because regeneration cannot burn off ash
- B. Run more forced regenerations until the ash turns to soot and burns away completely
- C. Add extra fuel additive to the tank so the ash dissolves during normal driving
- D. Reset the soot counter on the scan tool and release the truck without further work

11. An A/C system on a coach blows warm air, and the low-side gauge reads very low and the high side reads low. The compressor clutch is engaged. What is the most likely cause?

- A. An overcharged system, because it raises both pressures above normal
- B. A blocked heater core, because it causes low pressure on the suction side
- C. A cabin air filter that is clean and passing excess airflow
- D. Low refrigerant charge, since both pressures drop when refrigerant is lost

12. A steer tire shows cupped wear in a series of spots around the tread. What is the most likely mechanical cause?

- A. Perfectly balanced wheels with new shocks and correct bearing adjustment
- B. A correctly aligned axle with perfect toe and a freshly adjusted steering box
- C. A brand-new tire at the correct pressure with an unloaded vehicle
- D. Worn shocks, loose wheel bearings, or imbalance that makes the tire bounce

13. A tractor builds air from 585 kPa to 690 kPa in well over the expected time at governed idle. The governor and tank drains are normal. What is the first compressor-related check?

- A. Replace the brake chambers on every axle before testing the compressor discharge line
- B. Increase the governor cut-out setting so the compressor runs longer at idle
- C. Air leaks, a worn compressor, or a restricted inlet or discharge line
- D. Remove the air dryer cartridge permanently and run without drying the air

14. A clutch chatters when the truck is starting from a stop, and the pedal action is smooth. Which cause is the most likely?

- A. A fully charged battery that is raising system voltage during clutch engagement
- B. Oil contamination, a warped disc, or loose engine or transmission mounts disturbing clutch engagement
- C. A new air filter that is adding too much air to the clutch linkage
- D. A DEF level that is high enough to reduce clutch friction at takeoff

15. A technician finds a cab tilt lock pin that does not fully seat after lowering the cab. What is the correct action?

- A. Do not drive; inspect the latch, pin, and alignment, repair, and confirm full locking
- B. Drive carefully since the cab weight will hold it down at highway speed
- C. Tie the cab down with a rope and continue the trip without a repair
- D. Lubricate the pin with engine oil and leave the latch partially engaged

16. A starter cranks slowly. Voltage at the battery post is 12.6 volts, but the voltage at the starter terminal during cranking is 9.8 volts. What does this indicate?

- A. A failed starter solenoid that is too weak to engage the flywheel
- B. An overcharged battery that is resisting current flow in the cables
- C. A normal reading because the starter always lowers voltage by about three volts
- D. Excessive voltage drop in the cable or connection between the battery and starter

17. After an aftertreatment repair, a technician sees oil that is rising in level and smells of fuel. Which condition most likely caused this?

- A. Excess engine oil added during the last service, which smells like fuel when hot
- B. A leaking DEF line that allows urea to mix with the oil through the crankcase vent
- C. Repeated post-injection fuel from failed regenerations running past the piston rings into the sump
- D. A failed coolant thermostat that has allowed antifreeze to dilute the oil with a fuel odour

18. A technician is about to service a high-voltage component on a hybrid truck. What is the first requirement before touching orange cables?

- A. Turn off the ignition and touch the cable quickly with a bare hand
- B. Follow the de-energizing procedure, remove the service disconnect, wait, and verify zero voltage
- C. Wear leather work gloves and begin work since orange cables are insulated
- D. Disconnect the 12-volt battery only and assume the high-voltage system is safe

19. Before checking steering free play on a heavy truck with hydraulic power steering, what is the correct procedure?

- A. With the engine off and the front wheels lifted, push the wheels sideways by hand
- B. Measure rim movement with engine running and wheels straight until the tires begin to move
- C. With the vehicle moving at highway speed, release the wheel and observe the free play
- D. With the steering column removed, measure the movement at the pitman arm with a ruler

20. Oil is found in the service reservoirs of a truck, and the air dryer cartridge is saturated. Which is the most probable source?

- A. A worn compressor passing oil, or a failed unloader or restricted inlet
- B. A leaking spring brake chamber that pulls engine oil from the crankcase
- C. A trailer ABS modulator that pumps hydraulic fluid back into the tractor
- D. A tire valve stem leak that lets rubber compound into the supply line

21. A manual transmission on a highway tractor is hard to shift into gear when stopped but shifts normally on the move. What should be checked first?

- A. The engine oil level because the transmission uses engine oil for synchronizers
- B. The steering gear fluid because shift forks use power steering assist
- C. The clutch release and clutch brake operation and the free play adjustment
- D. The rear axle breather because blocked breathers lock the main shaft

22. An alternator output is low and the battery is discharged. The belt is tight. Which test is the best next step?

- A. Replace the starter because it shares the same mounting bolts as the alternator
- B. Remove the battery cables and test the alternator without any electrical load
- C. Install a larger fuel filter to increase alternator output at idle speed
- D. Measure output voltage and current and check cable and ground voltage drop

23. Which sensor reading best confirms that the SCR catalyst is converting nitrogen oxides correctly while dosing is active?

- A. Downstream NOx is clearly lower than upstream NOx under steady load
- B. The upstream and downstream NOx readings are exactly equal during steady highway load
- C. The DEF tank temperature is above freezing for the whole duration of the test
- D. The DPF differential pressure is zero while the engine is running at idle speed

24. Before starting a long diagnostic on a late-model engine with an intermittent derate, what should a technician check first for the quickest useful lead?

- A. Whether the customer has used the same brand of fuel at every fill-up this season
- B. The torque on every cylinder head bolt, since derates usually start from head leaks
- C. Technical service bulletins and software updates listed for that engine and symptom
- D. A full teardown of the turbocharger to rule out hidden shaft play before testing

25. A trailer ABS lamp stays on and the tractor lamp is off. Which area should be inspected first?

- A. The tractor cooling fan clutch, which supplies voltage to trailer ABS
- B. The trailer door seals, which can shorten the ABS signal wires
- C. The tractor exhaust brake, which resets the trailer ABS lamp
- D. Trailer ABS power at the seven-way, wheel speed sensors, and wiring

26. A hydraulic cylinder on a lift slowly drifts down when the control valve is in neutral. The hoses are tight. Which component is the most likely cause?

- A. A tight reservoir breather that increases the cylinder holding force
- B. Internal leakage past the piston seal, control spool, or load-holding valve
- C. A clean filter that is restricting oil flow to the control valve
- D. A new hose that is too long and adds weight to the cylinder

27. A technician finds fluid leaking from the steering gear input shaft seal on a heavy truck. What is the correct first action?

- A. Check fluid level and vent, inspect for damage, then replace the seal or gear
- B. Add thicker oil to stop the leak and drive until the next scheduled service
- C. Remove the steering gear and bypass the power assist permanently
- D. Increase the pump pressure to push the seal tighter against the shaft

28. An oscilloscope shows a ripple pattern on the charging system output with a regular repeating dip. What is the most likely fault?

- A. A failed rectifier diode or stator winding fault in the alternator
- B. A worn starter drive that fails to engage the flywheel ring gear teeth
- C. A shorted wheel speed sensor with a defective tone ring on one axle
- D. A weak fuel lift pump that produces pressure pulses in the main line

29. The low air warning activates and the buzzer sounds during a drive-away check. Under CMVSS 121, at what air pressure must the warning be active?

- A. Below 69 kPa (10 psi) in the service reservoir
- B. Below 414 kPa (60 psi) in the service reservoir
- C. Below 207 kPa (30 psi) in the service reservoir
- D. Below 621 kPa (90 psi) in the service reservoir

30. An air-shifted range transmission fails to shift into high range. The air pressure is normal. Which component is the most appropriate to test first?

- A. The DPF differential pressure sensor, because it controls the range piston
- B. The brake pedal switch, because it supplies air to the range shift unit
- C. The tire pressure monitoring sensor, because it signals the transmission range
- D. The range selector valve, air lines, and range cylinder for leaks or sticking

31. A truck with a derate fault has DEF that looks cloudy with crystals around the tank cap. Which test is the most direct for DEF quality?

- A. Dip a hydrometer made for engine coolant and compare it to the freeze reading
- B. Smell the fluid for ammonia and judge quality by the strength of the odour alone
- C. Measure the DEF concentration with a refractometer and compare it to 32.5 percent
- D. Boil a sample on the shop stove and weigh any residue left in the container

32. A technician must open an A/C refrigerant circuit to replace a hose. What is the required first step?

- A. Vent the refrigerant to the air because it is harmless
- B. Open the fitting slowly and let the charge bleed into a bucket
- C. Recover the refrigerant with approved equipment, operated by a certified person
- D. Cut the hose with a knife and let the system drain naturally

33. Which relay terminal pair is energized by the control circuit to operate the electromagnet in a standard five-terminal automotive relay?

- A. Terminals 30 and 87
- B. Terminals 85 and 86
- C. Terminals 87 and 87a
- D. Terminals 30 and 87a

34. During a front-end inspection, a technician finds a tie rod end with torn boot and side-to-side play. What is the required action?

- A. Pack the boot with grease and continue to drive since the play is small
- B. Weld the stud to stop the movement and avoid replacing the joint
- C. Add a shim under the tie rod end to remove the play
- D. Replace the tie rod end and then check and set toe

35. DEF dosing will not begin in cold weather even though the tank has plenty of fluid. What is the most likely reason?

- A. Exhaust temperature is below the dosing threshold, or DEF is still thawing
- B. The SCR catalyst has completely filled with DEF because the dosing valve is stuck open
- C. The engine oil pressure is too high and blocks the signal from the NOx sensor
- D. The fuel filter is plugged, which always disables the DEF pump on a diesel engine

36. During a leakage test, pressure drops rapidly when the brake pedal is applied but not with the brakes released. What does this indicate?

- A. A leak in the compressor governor, which would show with the pedal released
- B. A leak past the application valve, such as a chamber, hose, or fitting
- C. A leak in the parking brake valve, which would show only while parked
- D. A normal condition, since pressure always drops about 20 kPa each minute

37. A technician is checking the oil level in a manual transmission. Which method is correct?

- A. Run the engine at high idle and read the level on a dipstick in the shifter housing
- B. Fill the transmission until oil flows from the breather vent on the case
- C. Remove the fill plug with the truck level and check oil sits at the hole's lower edge
- D. Drain the transmission completely and measure the oil with a graduated cup only

38. A technician measures 0.9 volts of voltage drop across a connector feeding a 24-volt headlamp circuit that carries 10 amps. What does this suggest?

- A. Normal operation because up to 3 volts of drop is acceptable in headlight circuits
- B. A short to ground in the circuit that has no effect on voltage across the connector
- C. A bad bulb filament that reduces connector voltage drop
- D. High resistance in the connector, about 0.09 ohms, which should be cleaned or replaced

39. A driver reports that the cab door is hard to close and has wind noise at speed. The hinges look normal. Which check is most appropriate?

- A. Inspect and adjust the door striker and weather seal for compression and alignment
- B. Replace the engine mounts because door fit depends on engine position
- C. Add oil to the door glass channels to reduce wind noise at speed
- D. Remove the weather seal completely to make the door close easily

40. A steer axle kingpin shows excessive vertical play when the axle is raised. What does this indicate?

- A. Worn kingpin bushings or thrust bearings that need repair
- B. Correct wheel bearing adjustment that is within normal limits
- C. A properly inflated tire that is supporting the load correctly
- D. An overfilled drive axle that is raising the front axle

41. A technician finds an EGR valve stuck open at idle on a medium-duty truck. Which symptom would the driver most likely notice?

- A. Higher power and cooler operation because more air is entering the cylinders at idle
- B. A loud clicking from the turbocharger whenever the driver releases the accelerator pedal
- C. Rough idle, low power, and possible black smoke from exhaust gas diluting intake air
- D. Immediate DEF consumption increase because the SCR system must remove oxygen from the exhaust

42. A warranty claim is being prepared for a failed EGR cooler on a two-year-old truck. Which item is most important to keep available for the manufacturer?

- A. A photograph of the new cooler after installation, with the old cooler recycled the same day
- B. The failed cooler, labelled and stored until the warranty administrator authorizes its disposal
- C. The shop's invoice only, since failed parts are always discarded by the supplier at pickup
- D. A verbal summary from the service advisor, given when the manufacturer calls with questions

43. A technician finds a sliding trailer tandem that will not lock because the pins are sticking in their holes. What is the best correction?

- A. Drive with only two pins locked since the others are for show
- B. Weld the slider to the frame in the current position
- C. Tie the pins in place with wire and move the trailer slowly
- D. Clean and lubricate pins and rails, then confirm every pin fully engages

44. A relief valve is suspected of opening below its setting. What is the correct test method?

- A. Turn the relief valve adjusting screw all the way in and observe the pump
- B. Replace the relief valve with a larger one to remove the opening point
- C. Disconnect the pump and test the valve by blowing through it with air
- D. Install a gauge, dead-head the system briefly, and compare pressure to specification

45. A driver notices a tractor pulling right under hard braking. A roadside check shows the right front brake chamber has a very short pushrod stroke and the left is long. What is the best action?

- A. Add air pressure to the left chamber only by installing a larger air line
- B. Replace the brake pedal to equalize pressure between the two front wheels
- C. Correct brake adjustment and slack adjuster operation on both sides, then recheck stroke
- D. Remove the right chamber's pushrod and drive without it to equalize braking

46. A truck equipped with an Allison automatic transmission shows overheating at highway speed. The fluid level was checked cold. What is the best correction?

- A. Add engine oil to the transmission to improve cooling at highway speed
- B. Check the level by procedure and inspect the cooler and lines
- C. Disconnect the cooler lines to let fluid flow directly to the pan
- D. Remove the thermostat from the transmission and run without fluid cooling

47. A fuse for a 12-volt accessory circuit repeatedly blows. A technician proposes installing a larger fuse. What is the correct response?

- A. Do not upsize the fuse; find the overload or short and repair it
- B. Install a fuse with twice the rating so it lasts longer between failures
- C. Replace the fuse with a piece of wire until the customer returns for service
- D. Remove the fuse and bypass the circuit directly to the battery terminal

48. An EGR cooler is suspected of leaking internally. Which finding best supports that diagnosis?

- A. Oil pressure that rises above specification as the engine reaches normal operating temperature
- B. A DEF level that drops faster than normal after a long day of steady highway driving
- C. Tire wear on the drive axle that becomes uneven after a long day of highway driving
- D. Coolant loss with no external leak, white exhaust smoke, and coolant traces in the EGR passages

49. A heater blows cold air at idle, but the engine temperature is normal and the heater hoses are both hot. Which cause is most likely?

- A. A failed alternator regulator that is cooling the heater hoses
- B. A stuck blend door or actuator, or a plugged heater core
- C. A DEF pump that is circulating cold fluid through the cab
- D. A defective starter motor that is leaking heat from the engine

50. A technician is adjusting a tapered roller wheel bearing on a drive axle. Which statement describes the correct method?

- A. Tighten the nut as tight as possible to prevent any play at highway speed
- B. Leave the nut loose by several turns so the bearing can float freely
- C. Seat at initial torque while rotating, back off as specified, then set endplay
- D. Use a hammer to seat the bearing until the cotter pin hole aligns

51. A battery electric truck shows an isolation fault warning and refuses to enter drive mode. What does this fault describe?

- A. Loss of insulation resistance between the high-voltage circuit and chassis
- B. A low 12-volt battery that cannot power the dash lights
- C. A faulty tire pressure sensor that is blocking the drive mode
- D. A loose air filter housing that is reducing the cooling flow

52. A heavy truck has a drum with deep heat checks and blue discoloration after a long downhill run. What condition most likely caused it?

- A. Brake overheating from prolonged service braking without retarder or engine brake help
- B. Overfilled wheel bearings leaking lubricant onto the drum surface at highway speed
- C. A weak battery that fails to provide enough voltage to the brake lights on the grade
- D. Under-inflated trailer tires that cannot transfer heat to the brake drum

53. An automatic transmission shifts late and the scan tool shows transmission fluid temperature near the limit. Which action reduces the risk of further damage?

- A. Continue the trip while monitoring the gauge since shifts will improve at higher speed
- B. Add a friction additive to the fluid without checking the level or the cooler
- C. Let it cool, find the heat source, and correct it before driving
- D. Switch off the transmission control module so the shifts become manual

54. A J1939 network on a truck loses communication intermittently. With power off, the technician measures 120 ohms across CAN high and low at the diagnostic connector. What does this suggest?

- A. The network is perfect because 120 ohms is the expected reading for a healthy bus
- B. One terminating resistor is open or missing, since healthy buses read about 60 ohms
- C. The battery voltage is too low, which doubles the resistance of the data link
- D. The scan tool is faulty because resistance cannot be measured on a data network

55. During a cooling system check, the coolant test strip shows very low nitrite on an engine with wet cylinder liners. What is the correct action?

- A. Ignore the result because nitrite only matters for gasoline engines with iron blocks
- B. Add distilled water to dilute the coolant until the nitrite reading becomes normal
- C. Replace the radiator cap because pressure loss alone causes low nitrite in the coolant
- D. Correct the additive level or replace the coolant to protect liners from cavitation corrosion

56. A tire on a drive axle shows wear on both outer edges. Which condition is the most likely cause?

- A. Chronic overinflation, which always wears only the outer edges of the tire
- B. Correct inflation with a perfectly aligned axle and balanced wheels
- C. Chronic underinflation, which loads the tire shoulders more than the centre
- D. A new tire with perfect rotation and proper dual matching

57. A sensor with a 5-volt reference reads 0 volts on the signal wire and the reference wire also reads 0 volts at the sensor connector. What is the most logical next step?

- A. Trace the reference circuit for an open or short to ground
- B. Replace the sensor immediately because it must have failed internally
- C. Add a resistor between the signal and reference wires at the connector
- D. Disconnect the battery and ignore the fault because it will clear itself

58. An apprentice is about to drain hot engine oil without a drain pan rated for the volume of a large-bore engine. What is the best response?

- A. Let the apprentice continue and wipe up any spill later, because learning from mistakes works best
- B. Stop the job calmly, explain the spill and burn risk, and provide a properly sized container
- C. Take over the job without comment so the apprentice is not embarrassed in front of others
- D. Tell the apprentice to drain only half the oil now and finish the rest after lunch

59. A refrigerated trailer unit will not start and shows a low fuel alarm even though the tank is half full. What should the technician check first?

- A. The tractor air dryer because refrigeration units run on brake air
- B. The trailer axle seals because they supply fuel pressure to the unit
- C. The tractor steering gear because it circulates diesel to the reefer
- D. Fuel gauge sender, supply line, and fuel filter for restrictions or air

60. A technician finds black, burnt-smelling hydraulic fluid and metal particles in the filter. What is the correct action?

- A. Add new fluid to dilute the old fluid and continue to operate
- B. Find the heat and wear cause, change the filter, and flush the system
- C. Remove the filter so the metal particles can flow freely through the system
- D. Increase the system pressure to clear the particles from the lines

61. A technician finds an ABS warning lamp that stays on after startup. The scan tool shows a wheel speed sensor circuit fault. What should be checked first?

- A. Sensor air gap, sensor and tone ring condition, wiring, and connector contamination
- B. The coolant temperature sensor, since ABS speed signals are derived from engine heat
- C. The fuel pump relay, since ABS needs fuel pressure to read wheel speed
- D. The transmission fluid colour, since ABS compares fluid colour with wheel speed

62. A technician is asked what an automated manual transmission needs after a clutch replacement. Which step is generally required?

- A. A change to a thicker engine oil to help the clutch learn its engagement point
- B. A replacement of the air dryer cartridge to reset the transmission controller
- C. A longer engine warm-up, because the clutch learns only when the engine is cold
- D. A clutch calibration or touch-point learn procedure using the diagnostic software

63. A hard-start complaint appears each morning after the truck sits overnight. Fuel pressure bleeds off quickly. Which component is the first suspect?

- A. The alternator, since low charging voltage always bleeds fuel pressure overnight
- B. The air cleaner element, since restricted intake air lets fuel leak back to the tank
- C. The fuel system check valve or lift pump valve that fails to hold prime
- D. The DPF, since soot buildup in the filter drains the fuel lines at shutdown

64. Dual tires on a drive axle have a diameter mismatch of about 12 mm. What is the effect, and what is the correction?

- A. There is no effect since duals always share load equally regardless of diameter
- B. The smaller tire carries more load and runs hotter, so leave it unchanged
- C. The larger tire carries more load and wears faster; match diameters within limits
- D. The mismatch only affects ride height and does not need correction

65. A technician wants to check a ground circuit for an ECM. Which test is the most reliable under actual operating conditions?

- A. Continuity test with the circuit disconnected and the meter on low ohms
- B. Voltage drop test between module ground and battery negative under load
- C. Visual inspection of the ground wire colour and insulation condition only
- D. Measuring battery voltage at the starter with the key off and the engine stopped

66. A technician drains the water separator and finds a milky, brownish fluid with cloudy fuel above it in cold weather. What does this most likely indicate?

- A. Water contamination and early fuel wax or gel formation that needs treatment and fuel system service
- B. A normal condition because diesel always looks cloudy in cold weather and requires no action
- C. A failed DEF pump leaking urea into the fuel return line through the lift pump seal
- D. Oil from a worn turbocharger seal, which always drains to the water separator bowl

67. A trailer's brakes do not release after it is coupled, and the tractor air supply is normal. Which check is most appropriate first?

- A. Whether the tires on the trailer are rated for highway speed
- B. Whether the tractor's DEF tank has more than a quarter of its capacity
- C. Whether the trailer lights are using LED bulbs rather than incandescent bulbs
- D. Trailer supply valve position and supply air at the gladhand

68. A driveline vibration occurs only at highway speed. The U-joint cups look good and the slip yoke slides freely. What should be checked next?

- A. The brake chamber stroke on the drive axle, since stroke controls driveshaft balance
- B. The windshield wiper motor, which can induce vibration in the driveshaft
- C. Driveshaft phasing, working angles, and balance, including weights or a bent tube
- D. The coolant level in the surge tank, which affects driveshaft balance at speed

69. A cab suspension air spring leaks overnight, and the cab sits low on one corner. What is the correct repair approach?

- A. Soap-test for the leak, repair the spring or line, and check the height valve
- B. Add weight to the high side of the cab until it matches the low side
- C. Disconnect the cab air spring and leave the cab resting on its stops
- D. Fill the cab air spring with water to keep the cab level

70. A receiver-dryer was left open for several days during a repair. What should the technician do before charging the system?

- A. Charge the system immediately and add extra oil to absorb the moisture
- B. Replace the receiver-dryer, then evacuate the system and recharge to the specified weight
- C. Reuse the dryer since moisture can be removed by driving the vehicle
- D. Flush the dryer with water and reinstall it after drying with compressed air

71. A technician is replacing a damaged wiring harness section on a heavy truck. Which practice produces the most reliable repair?

- A. Twist the wires together and wrap them with electrical tape for a quick repair
- B. Use a smaller gauge wire to save space in the harness and reduce cost
- C. Solder the wire without strain relief and leave it unprotected from vibration
- D. Use correct gauge wire, proper crimps, and adhesive heat-shrink to seal the joint

72. A technician is installing a wheel with hub-piloted nuts on a heavy truck. Which step is part of the correct torque procedure?

- A. Tighten the nuts in a circle to the final torque in one pass and never recheck
- B. Apply oil to the nut face and then torque them to the dry value
- C. Use an impact gun at full power until the wheel will not turn on the studs
- D. Tighten in the specified star sequence in stages and recheck after 80 to 160 kilometres

73. An engine shows a stored fault for rail pressure below target, and a mechanical lift pump test shows low supply pressure. What should be done first?

- A. Replace the injectors first since low rail pressure always starts inside the injector bodies
- B. Replace the high-pressure pump immediately because the fault code names it directly
- C. Check fuel filters, suction-side air leaks, and the lift pump before the high-pressure pump
- D. Increase the rail pressure setting using the scan tool to cover the supply shortage

74. Which statement best describes the purpose of the tractor protection valve in a combination vehicle?

- A. It increases the trailer braking force whenever the driver hits a pothole
- B. It closes the trailer supply if tractor pressure falls sharply, protecting the tractor air
- C. It provides compressed air for the tractor's windshield washer system
- D. It prevents air from being drawn from the tractor when the engine is turned off

75. A technician finds both U-joints on a driveshaft are worn on one side only after short life. Which angle condition is most likely?

- A. Working angles too large or unequal, wearing needle bearings unevenly
- B. A perfectly aligned shaft with equal angles that cancel the speed variation
- C. A new slip yoke that has lubricant on all spline teeth
- D. A shaft with exactly zero angle, which always wears one side only

76. A technician must choose engine oil for a 2019 heavy-duty diesel whose manual lists API CK-4 15W-40. Which choice meets the specification?

- A. A 0W-20 passenger-car oil, since thinner oil always improves cold starts and fuel economy
- B. A 15W-40 oil carrying the API CK-4 licence mark, from any approved brand
- C. A 15W-40 oil marked only for gasoline engines, because the viscosity grade is identical
- D. A 5W-40 oil without an API diesel category, since the viscosity range overlaps

77. A trailer marker light circuit blows a fuse each time the trailer lights are turned on. What is the best diagnostic approach?

- A. Inspect the harness for a short to ground or pinched wire
- B. Install a larger fuse so the circuit stops blowing the fuse
- C. Disconnect the fuse holder and run the lights without protection
- D. Replace all the bulbs with a different brand and drive on

78. A technician is replacing a high-pressure hydraulic hose. Which practice is correct?

- A. Use any hose that fits and tie it tightly to the nearest bracket
- B. Cut the hose a few centimetres short so it is tight and neat
- C. Use a hose with the correct rating, length, and fittings, routed without twists
- D. Twist the hose as needed so the fittings line up easily

79. An engine will not start and the instrument panel flickers during cranking. Battery voltage during cranking drops below 8 volts. What is the first suspect?

- A. A clogged fuel filter that is electrically draining the battery
- B. A faulty DEF pump that is pulling battery current through the ignition
- C. A worn transmission mount that is vibrating the gauge cluster
- D. A weak battery or poor connections that cannot hold voltage during cranking

80. An air suspension truck leans to one side after sitting overnight. The air gauge shows normal system pressure. What should be inspected first?

- A. The windshield wiper arms because they are connected to the air springs
- B. The engine air filter because it supplies air to the suspension springs
- C. The DEF heater because it controls the ride height of the truck
- D. The low-side air spring, its fittings, and the height valve linkage

81. A turbocharger shaft shows blue-black discoloration and oil scoring after repeated hot shutdowns. What is the most likely cause?

- A. Excess coolant flow through the bearing housing during every normal highway trip
- B. A stuck-open EGR valve that sends cool exhaust gas to the turbine at all times
- C. Oil starvation or coking from shutting off the engine without a cool-down
- D. Over-filling the DEF tank, which forces fluid into the compressor housing

82. A technician is jump-starting a truck with dead batteries. Which connection sequence is the safest?

- A. Positive to positive, then the last clamp to a clean engine ground
- B. Connect negative to negative first, then positive to positive on the dead battery
- C. Connect both clamps to the dead battery posts and start the engine immediately
- D. Connect the last clamp to the dead battery negative terminal and stand close to it

83. A truck's air dryer purge cycle exhausts a large cloud of oil mist. What is the best interpretation?

- A. Normal operation, since dryers are designed to expel engine oil each cycle
- B. Compressor oil carryover reaching the dryer, requiring compressor inspection and system cleaning
- C. A sign that the engine coolant is overfilled and entering the compressor
- D. A fault with the DEF pump, which shares an exhaust port with the dryer

84. A drive axle shows lubricant leaking at the wheel end, and the outer bearing looks dry. What is the most likely cause of the leak?

- A. A DEF tank leak that has dripped onto the hub cap in cold weather
- B. A cracked brake drum that is leaking brake fluid into the hub area
- C. A loose cab mount bolt that is dripping oil down the drive shaft
- D. A failed wheel seal or an overfilled or plugged axle breather causing seal leakage

85. A hybrid truck's regenerative braking feels weak, and the service brakes seem to be doing most of the work. What is the most likely reason?

- A. A full or temperature-limited high-voltage battery limits regeneration
- B. The DEF tank is full, which blocks the regenerative braking controller
- C. The engine air filter is too clean, which reduces braking current
- D. The wiper motor is overloaded, which cuts regenerative braking

86. A leaf spring pack on a drive axle shows a cracked main leaf near the center bolt. What is the correct repair?

- A. Wrap the crack with tape and monitor it at the next scheduled service
- B. Weld the crack and continue to use the spring at full load
- C. Replace the spring or pack, then check the center bolt, U-bolts, and bushings
- D. Remove the leaf and drive without it to reduce weight on the axle

87. A truck's boost reading is low under load, but there is no smoke and the turbo spins freely. Which check is the most efficient next step?

- A. Replace the engine oil with a heavier grade to raise boost pressure
- B. Pressure-test the charge air cooler and piping, and inspect clamps and boots
- C. Remove the exhaust system and test the engine without any restriction
- D. Add a larger DEF tank to increase exhaust energy for the turbine

88. An A/C compressor clutch cycles rapidly on and off every few seconds. Which fault is the most likely cause?

- A. A full charge with a new compressor and perfect pressure values
- B. A perfectly adjusted blend door with a clean cabin filter
- C. A new battery with no corrosion at the alternator terminals
- D. Low charge or a faulty pressure switch

89. A truck with two parallel 12-volt batteries has one with a dead cell. What is the correct repair practice?

- A. Leave the weak battery in place because parallel batteries always balance each other out
- B. Connect the weak battery in series to raise the overall voltage of the pair
- C. Replace the batteries as a matched set, or at least match type and capacity
- D. Replace only the good battery to even out the age difference in the bank

90. A spring brake chamber will not release even with the parking valve pushed in and full air pressure. The technician suspects a mechanical problem. What is the safest approach?

- A. Replace the complete chamber, and never attempt to disassemble the spring section
- B. Remove the clamp ring and release the spring slowly with a pry bar
- C. Heat the chamber with a torch to soften the power spring
- D. Cut the chamber body with a grinder to relieve the spring

91. An interaxle differential lockout lever is left in the lock position on dry pavement, and the tractor makes a binding noise in tight turns. What is the correct response?

- A. Leave it locked because it always improves fuel economy on dry roads
- B. Unlock it on dry roads and explain lockout is for low traction
- C. Remove the driveshaft from the rear axle to avoid binding noise permanently
- D. Increase tire pressure on the rear axle to reduce the binding noise

92. A parts clerk offers a cheaper, unmarked coolant jug for a truck that was filled with extended life coolant. What should the technician do?

- A. Accept the unmarked jug if it is green, because all green coolants are the same
- B. Mix the two coolants half and half to average out any incompatibility between them
- C. Use plain water this time and add the proper coolant at the next scheduled service
- D. Use only the coolant listed for the engine, and confirm it suits the existing fill

93. A trailer has an air leak that appears only when the service brakes are applied, and the trailer relay valve exhaust is constantly hissing. What does this indicate?

- A. A normal condition since relay valves always hiss when applied
- B. A tire pressure issue that is causing the relay valve to leak
- C. A faulty relay valve or leaking service line, which should be tested and replaced
- D. A DEF line leak that is blowing air out of the relay exhaust

94. A truck-mounted crane lowers slowly even when the lever is fully pushed, and the fluid is warm. Which cause is most likely?

- A. A hydraulic fluid level that is full and the pump that is delivering full flow
- B. A restricted flow control valve, or a weak pump that cannot supply enough flow
- C. A cold reservoir with fresh fluid at the correct viscosity grade
- D. A hose that is the correct size and without any restriction

95. A technician measures a J1939 fault SPN 110 FMI 0 on a heavy truck. What does this indicate?

- A. Engine coolant temperature data is valid but above the normal operating range
- B. Engine oil pressure is below normal and the sensor circuit is open
- C. The turbocharger boost sensor is shorted to battery voltage in the harness
- D. The DEF level sensor is reading below normal with an intermittent fault

96. A shock absorber on a steer axle is wet with oil and shows no resistance when compressed by hand. What does this indicate?

- A. The shock is normal since all shocks leak a little and give no resistance
- B. The shock is overfilled and should be topped up with engine oil
- C. The shock has lost its damping and should be replaced as a pair
- D. The shock only needs tightening of its mounting bolts to regain damping

97. A wiper motor runs but the wipers do not sweep across the glass. Which part is the most likely fault?

- A. A failed air dryer cartridge in the air brake system
- B. A worn or loose wiper linkage, pivot, or arm connection
- C. A low coolant level in the engine cooling system
- D. A failed DEF heater in the exhaust aftertreatment system

98. A gasoline-powered medium-duty truck has a misfire on one cylinder, and the coil on that cylinder tests normal. Which part is the next logical item to test?

- A. The spark plug and wire or boot, checking for fouling, cracks, or gap
- B. The DEF tank heater, which supplies voltage to the coil pack at idle
- C. The transmission cooler line, which can reduce spark strength to one cylinder
- D. The air brake governor, which regulates the spark signal at the coil

99. An air-brake truck stops with a spongy feel and long pedal travel, and the pushrod strokes are within limits. Which condition could still cause this?

- A. A brand-new DPF installed in the exhaust system after the last service
- B. A freshly charged battery connected through correct cables to the starter
- C. A recently changed engine air filter with higher flow capacity than before
- D. Drum expansion from heat, worn drums, or contaminated linings reducing friction

100. A drive axle carrier whine occurs under power and disappears on coast. Which condition is most likely?

- A. Incorrect gear pattern or preload, or worn pinion bearings
- B. A DPF that has too much ash, which reflects whine through the driveshaft
- C. A low coolant level in the radiator that adds noise to the drive axle
- D. A cracked windshield that is creating whine in the drive axle at power

101. A technician is asked why an engine fan runs constantly even though the coolant temperature is normal. Which is the most logical first check?

- A. The brake pedal switch, because the fan always follows brake application
- B. Fan control circuit, A/C pressure request, and retarder or charge air demand
- C. The fuel tank cap, because a loose cap holds the fan relay on
- D. The tire pressure monitoring module, because it triggers fan operation at highway speed

102. A trailer's marker lights flicker and the ABS lamp comes on when the trailer is connected. The tractor lights are normal. Which check is the most productive?

- A. The tractor fuel filter, which supplies power to the trailer connector
- B. The tire pressure on the trailer, which controls the ground signal
- C. The windshield washer fluid level, which is used by the trailer lamps
- D. The seven-way plug and socket for corrosion, pin contact, and ground connection

103. A fifth wheel jaw does not fully close around the kingpin when the trailer is coupled. What is the correct action?

- A. Tow carefully at low speed because the trailer will lock itself on the highway
- B. Add chains between the tractor and trailer and drive normally
- C. Do not tow; inspect the jaws, release handle, lubrication, and kingpin wear
- D. Tap the release handle with a hammer while driving to seat the jaw

104. A thermostat is replaced and the engine still overheats on long hills. The coolant level is full and the belt is tight. What is a sensible next test?

- A. Replace the DEF tank, because it shares a heater circuit with the radiator
- B. Check radiator airflow, fan clutch engagement, and external or internal restriction
- C. Drain the oil and add heavier oil to reduce heat from the crankshaft bearings
- D. Remove the oil filter, since a restricted filter always raises coolant temperature

105. An A/C evaporator is icing up and airflow from the vents is reduced. What is the most probable cause?

- A. An excessively clean cabin filter that increases airflow
- B. An oversized heater core that adds warmth to the evaporator
- C. A strong battery that increases the compressor clutch force
- D. Restricted airflow, a faulty control, or low charge

106. A technician is checking governor operation. The compressor cuts out at 690 kPa but does not cut back in until pressure falls below 410 kPa. What is the likely issue?

- A. Governor cut-in is set too low or the governor is faulty
- B. The compressor is making too much air because the pressure switch is stuck
- C. The air dryer is filled with fresh desiccant and is leaking supply pressure
- D. The parking brake valve is overheating and raising system pressure

107. A technician is asked to check axle ratio on a truck with a known tire size. Which method is most reliable?

- A. Read the tire pressure sensor values and average them for the ratio
- B. Divide the engine oil pressure by the transmission fluid temperature
- C. Count driveshaft turns for one wheel turn, or read the carrier tag
- D. Measure the length of the driveshaft and divide by the wheel diameter

108. A multimeter on a 12-volt circuit shows 12.5 volts at the battery and 11.2 volts at the load while the load is on. Which statement is correct?

- A. There is 1.3 volts of drop on the supply side, which warrants further testing
- B. The circuit is perfect because the load always runs at a lower voltage than the battery
- C. The load has failed and is producing excess current in the circuit
- D. The meter is faulty because voltage cannot drop between two points in a circuit

109. During a fifth wheel inspection, the technician finds the top plate cracked near a mounting bracket. What is the correct response?

- A. Weld a small patch over the crack and continue to use it at full load
- B. Remove the unit from service and repair or replace the fifth wheel and mounting parts
- C. Drill a hole at the end of the crack and continue using it as it is
- D. Add grease to the crack to prevent it from spreading during use

110. A driver reports a smoking, burning smell after a transmission service. The technician finds spilled gear oil on a hot exhaust pipe. What is the best correction?

- A. Leave the spill because it will burn off, and tell the driver the odour is harmless
- B. Spray water on the hot exhaust to cool it, then release the truck to the customer
- C. Clean the spill thoroughly, find the overfill or leak source, and verify the fluid level
- D. Add more fluid to compensate for the loss, then check again at the next oil change

111. During a trailer inspection, a technician finds a swing door latch that does not hold the door securely. What is the correct response?

- A. Tie the door shut with a loose rope and release the trailer
- B. Weld the door permanently closed so it cannot open
- C. Leave it open and mark the load as exempt from securing
- D. Repair or replace the latch and hinges so the door locks securely

112. A technician is asked why a hydraulic accumulator must be depressurized before a circuit is opened. What is the best reason?

- A. It stores pressure that can injure when suddenly released
- B. It prevents the accumulator from warming the pump
- C. It keeps the filter from clogging during removal
- D. It stops the control lever from moving while the system is open

113. Used oil analysis reports high sodium, potassium, and glycol traces. What should the technician suspect?

- A. Excess air filter dirt entering through the intake system and mixing with the oil
- B. Fuel dilution from a leaking injector that has reached the crankcase
- C. Normal wear metal from the first few thousand kilometres of engine life
- D. Coolant leaking into the oil, such as a head gasket or oil cooler failure

114. An LED stop lamp on a trailer is dim, while the same bulb works well when moved to another socket. What is the most probable cause?

- A. The bulb has lost its filament and needs a heavier gauge wire
- B. The trailer brakes are too tight and are drawing power from the lamp circuit
- C. A poor ground or high resistance in the original socket or connector
- D. The tractor engine oil is too thick and reduces the voltage to the socket

115. When inspecting automatic slack adjusters, which finding means the adjuster has failed and must be repaired rather than manually backed off?

- A. The brake lining shows normal wear marks and the stroke is below the limit
- B. Pushrod stroke over the limit after a verified fully released brake
- C. The adjuster shows a light coating of grease at the fitting after service
- D. The adjuster moves slightly when the technician applies the parking brake

116. A driveline retarder is applied at highway speed but produces little retarding force. The fluid is full. What is the most likely cause?

- A. The retarder is overheating from a clogged DEF line connected to the cooling jacket
- B. The retarder is receiving too much tire pressure from the monitoring system
- C. The retarder switch is turned off because the windshield wipers are on
- D. Missing control signals, or an accumulator or valve not filling the chamber

117. A frame rail has a crack starting from a bolt hole in the web near the rear suspension bracket. Which repair practice is generally accepted?

- A. Weld across the flange to stop the crack even if the manufacturer prohibits it
- B. Add a few extra holes near the crack to relieve the stress
- C. Follow the frame maker's repair procedure, such as stop-drilling and approved reinforcement
- D. Paint the crack to prevent corrosion and recheck at the next inspection

118. Which personal protective equipment is appropriate for work on exposed high-voltage components of an electric truck?

- A. Rated insulating gloves with leather protectors, face protection, and insulated tools
- B. Standard cotton gloves and metal tools used in normal brake work
- C. Nitrile gloves only, because they resist oil and fuel
- D. Leather work gloves only, because leather is thick and durable

119. An engine starts and runs rough, and the scan tool shows low manifold pressure and an intake air restriction fault. Which area should be inspected first?

- A. The DEF tank cap, because it vents the intake manifold to atmosphere
- B. The air cleaner housing, restriction indicator, and intake piping
- C. The alternator belt, since a slipping belt reduces intake air pressure
- D. The transmission fluid, since low fluid causes engine intake restrictions

120. A technician must size a wire for a 15-amp accessory run of moderate length. What is the best approach?

- A. Use the gauge listed for that current and run length
- B. Use the thinnest wire that physically fits the harness, because current is small
- C. Use any wire colour since gauge has no influence on current capacity
- D. Choose wire according to the connector colour rather than the amperage

121. A seat belt retractor on a driver's seat does not lock during a sharp tug test. What should the technician do?

- A. Cut the belt shorter so it fits tightly across the driver
- B. Tape the belt to the seat frame so it stays in place
- C. Leave it in service since seat belts rarely lock in real crashes
- D. Replace the seat belt assembly following the manufacturer and safety regulation requirements

122. A driver says the parking brake will not hold on a slope, and the dash valve works normally. Which area should be inspected first?

- A. The DEF dosing valve, since urea affects parking brake spring strength
- B. Spring brake release, lining condition, and drive axle adjustment
- C. The cabin heater core, since heat expands the parking brake spring
- D. The transmission air filter, since it directly controls parking brake holding

123. A technician is asked how a transmission-mounted retarder is controlled. Which statement is correct?

- A. It engages automatically only after the DPF reaches its regeneration limit
- B. It operates only when the DEF tank is above half capacity and the engine is warm
- C. The driver selects retarder levels with a switch, and the control module can apply it
- D. It is controlled by the windshield washer switch which sends air to the retarder

124. A TPMS warning lamp lights for the right rear dual and the sensor reads 45 psi lower than the others. A tire pressure gauge confirms it. What should be done?

- A. Reset the TPMS lamp and drive on because the sensor is likely faulty
- B. Find the air loss, repair the tire or valve, and inflate to specification
- C. Add air to the other duals to match the reading on the low tire
- D. Remove the sensor and rely on visual inspection at each fuel stop

125. A technician needs to confirm that one injector is not contributing to power on a modern engine. Which test is usually the fastest?

- A. Remove every injector and measure the nozzle length with a micrometer
- B. Drain the fuel tank and run the engine on a clean container of water
- C. Run the scan tool cylinder cutout test and compare the speed drop per cylinder
- D. Shut off the DEF pump and compare tailpipe temperature at idle

126. A coach driver complains the windshield fogs and the defrost is weak. The heater core and blower work. What should the technician check?

- A. Cabin filter, blend and mode doors, and A/C compressor operation
- B. The engine oil level because defrost depends on oil circulation
- C. The trailer lighting circuit because it feeds the defrost system
- D. The DEF tank temperature because it controls the cab humidity

127. A NO_x sensor fault code is stored along with a heater circuit fault. Which action is most appropriate before replacing the sensor?

- A. Replace the DPF because the sensor heater circuit is part of the filter
- B. Clear the code and drive the truck because heater faults always fix themselves
- C. Drain the DEF tank and refill it with water to reset the sensor
- D. Check the connector, wiring, power, and ground, then follow the test procedure

128. A shop foreman asks how to dispose of a drum of used DEF-contaminated rags and absorbent. What is the correct approach?

- A. Follow the supplier's safety data sheet and local waste rules, using the designated disposal container
- B. Put them in the regular garbage because DEF is only urea and water
- C. Burn them behind the shop since the urea will break down in the heat
- D. Pour out any liquid into the floor drain and throw the rags in the parts washer

129. A technician is replacing a trailer axle seal and finds the hub is full of water-contaminated, milky oil. What should be done in addition to replacing the seal?

- A. Dry the hub with a rag and refill with the same milky oil to save time
- B. Find the water entry source, clean the hub, inspect bearings, and refill with specified lubricant
- C. Add grease to the oil to thicken it and block the water entry path
- D. Ignore the contamination since seals alone control water in the hub

130. A hydraulic reservoir breather is plugged and the reservoir walls look drawn in after warm-up. What problem can result?

- A. Excess pressure at the actuators from a sealed reservoir
- B. A thicker fluid film on the cylinder rods that reduces wear
- C. A cooler fluid temperature because the reservoir is sealed
- D. Pump starvation and cavitation from a vacuum in the reservoir

131. A truck is being prepared for out-of-province travel. Which pre-trip air brake test best shows spring brakes will apply if air is lost?

- A. Increase the engine speed until the governor cuts out and listen for the compressor
- B. Turn on the hazard lights and check that the trailer lights flash in sequence
- C. Pump the pedal down and confirm the spring brakes apply near the set pressure
- D. Add air to the tires until the trailer bounces at the hitch point

132. During a service check, a technician finds the driveshaft center support bearing has a split rubber cushion and shows play. What is the correct repair?

- A. Wrap the bearing in tape and add grease to the rubber cushion
- B. Tighten the center support bolts further to remove the visible play
- C. Remove the center bearing and run the two shafts joined without support
- D. Replace the center bearing assembly, then check alignment and phasing

133. A steer axle with correct toe and balanced tires still has a heavy steering wheel return problem after turns. Which alignment angle most directly provides steering return?

- A. Rear axle thrust, because it drives the steering wheel back through the pitman arm
- B. Caster, because positive caster helps the wheels return to straight ahead after a turn
- C. Tire load rating, because heavier tires always return the wheel more quickly
- D. Wheel offset, because a deeper offset forces the wheels back to centre

134. A low oil pressure warning appears only at hot idle. The oil level is correct and the gauge is confirmed accurate. Which cause is most likely?

- A. Excessive bearing clearance or a worn pump that cannot hold pressure with thin hot oil
- B. A fully charged battery that is raising the system voltage and reducing pump output
- C. A new air filter that is allowing too much air into the crankcase at idle
- D. A full DEF tank that is overloading the oil pressure sensor through the CAN network

135. A technician finds a heavy-duty starter that engages but the engine will not crank, and the solenoid clicks once. Battery voltage is 12.5 volts and cable drops are low. Which part is the most likely fault?

- A. The engine thermostat, which locks the crankshaft until coolant reaches a set temperature
- B. The alternator rectifier, which prevents the starter from receiving battery voltage at the terminal
- C. The starter or solenoid contacts, burned or worn and unable to pass cranking current
- D. The DEF pump relay, which holds the starter solenoid open during every cold start

Practice Exam 17: Answer Key and Explanations

1. **A** — A common load test draws half the battery's CCA rating for about 15 seconds and expects voltage to stay above approximately 9.6 volts at room temperature. Resting voltage does not prove capacity. Doubling the load for a minute can damage a good battery, and a five-minute starter-rated load is not a standard test.
2. **B** — A parked regeneration raises exhaust temperatures high enough to ignite nearby material, so the vehicle must be outdoors and the area clear. Many systems also refuse to start when active faults, low coolant temperature, or sensor errors are present. Low fuel can stall the cycle, and draining DEF has nothing to do with soot burn-off.
3. **C** — Feathering, a saw-tooth wear across the tread, is a typical result of incorrect toe, because the tire is dragged sideways. Aligning toe to specification stops it. Correct bearing endplay, correct pressure, and a properly adjusted steering gear would not produce this wear pattern. Correcting toe first prevents the replacement tire from wearing the same way.
4. **B** — Brake records must identify where the defect was and show that the repair was verified, because auditors and the next technician rely on them. A leakage test after repair proves the chamber seals. Memory-based notes, part numbers without position, and sign-offs before testing fail to document the work and may hide a repeat problem.
5. **C** — Zero free play keeps the release bearing against the pressure plate fingers, so the clutch cannot fully engage and slips. Correct adjustment restores clamp load. If slip persists, the disc, pressure plate, or flywheel may be worn. Adding oil or replacing the flywheel without testing ignores the simple adjustment first.
6. **A** — A complete repair order records the complaint, cause, and correction so that the next technician, the service advisor, and the customer can follow what happened. For this tractor, the plugged filter must be named as the proven cause. Leaving it out weakens warranty claims, hides repeat failures, and makes later diagnosis of the same hill-climbing power loss slower.
7. **D** — Hard cranking and uneven leg movement often result from poor lubrication, bent legs, stripped gears, or a damaged cross shaft. Inspection and lubrication or repair restore smooth operation. DEF level, tire rotation, and brake lights do not influence landing gear operation. Seized or dry gearing worsens quickly under load, so inspect and lubricate before the next trailer drop.

8. C — Foamy fluid and pump noise are classic signs of air entering the suction side, which causes aeration and cavitation damage. Tightening fittings, fixing leaks, and correcting the level solves it. A full, clean reservoir and correct relief and filters do not cause foaming. Tightening suction fittings and restoring the correct fluid level protects the pump from rapid wear.

9. B — A steady draw of over a small fraction of an amp after sleep time is excessive and will drain batteries. Pulling fuses one circuit at a time and watching the meter locates the source. Replacing batteries does not stop the draw, and disconnecting the alternator or accepting a high draw ignores the fault.

10. A — Soot is carbon that regeneration oxidizes, but ash comes from oil additives and fuel contaminants and stays in the filter. When ash load reaches its limit, the filter must be cleaned by approved thermal or pneumatic methods or replaced. Repeated regenerations waste fuel and dilute oil. Resetting a counter hides the problem and the restriction returns.

11. D — Low pressures on both sides with warm air point to insufficient refrigerant, so the technician should find the leak, repair it, evacuate, and recharge by weight. An overcharge would raise pressures, and a heater core or clean cabin filter does not cause this reading. Leak testing, evacuation, and a weighed charge then restore the system to its design pressures.

12. D — Cupping is a bounce pattern, so worn shocks, loose bearings, and imbalance are common sources. The cause must be found and repaired or the new tire will cup again. Balanced wheels, aligned axles, and new tires at correct pressure do not produce this type of wear. Replacing only the tire without correcting the bounce source repeats the damage within months.

13. C — Slow build-up may be caused by system leaks, a worn compressor, or restrictions in the inlet or discharge path such as carbon buildup. Testing leakage and compressor output isolates the cause. Replacing chambers blindly wastes time, and raising governor settings or removing the dryer creates safety and moisture problems. Verify the fix by repeating the build-up test afterward.

14. B — Clutch chatter results from uneven friction or movement between engine and transmission, such as oil on the disc, a warped plate, or worn mounts. Inspection finds the cause. Battery voltage, air filter condition, and DEF level do not affect clutch engagement and are not diagnostic targets for chatter. Contaminated or warped parts require disassembly, so inspect before replacing anything else.

15. A — A cab that is not fully locked can lift or shift during braking or on rough roads, which is a serious safety defect. The latch, pin, and mounting must be inspected and repaired. Ropes, partial engagement, and relying on weight are not acceptable, and lubrication alone does not fix misalignment.

16. D — A large difference between battery and starter terminal voltage during cranking shows resistance in the positive cable, connections, or switch. Measuring the drop across each part isolates the high-resistance section. A weak solenoid would not cause this drop, and a three-volt drop is not normal. Cleaning or replacing the affected terminals and cable restores cranking current to the starter.

17. C — Active regeneration often uses late post-injection, and unburned fuel can wash the cylinder walls and enter the oil, raising its level and lowering its viscosity. This is common when regenerations

are interrupted. The oil should be sampled and changed, and the regeneration problem corrected. DEF and coolant leaks would give different oil symptoms.

18. B — High-voltage systems hold dangerous energy even when the vehicle is off. The technician must de-energize, remove the service disconnect, wait for capacitors to discharge, and verify with a rated meter while wearing the right PPE. Leather gloves and bare hands are not adequate protection. Skipping the zero-voltage verification step is what turns a routine repair into an electrical injury.

19. B — Steering free play is measured with the engine running so the power steering assists, and the wheels are straight. The technician measures wheel rim movement before the tires move and compares it to the limit. Checking at speed, with the engine off, or removing the column is not the standard method.

20. A — Compressors lubricated with engine oil can pass oil past worn rings, or when inlet restriction raises vacuum on the intake. The dryer and reservoirs then collect it. Brake chambers, ABS modulators, and tire valves are not connected to the compressor oil supply. Repair involves compressor replacement and cleaning the system.

21. C — Hard gear engagement from rest often means the clutch is not fully disengaging, or the clutch brake is not stopping the input shaft. Checking free play, release travel, and the clutch brake restores normal shifting. Engine oil, steering fluid, and axle breathers do not control shifting from rest. Free play and clutch brake wear should be recorded after the adjustment.

22. D — Low charging output may come from the alternator itself, the regulator, or from high resistance in cables and grounds. Measuring output voltage and current under load, and checking voltage drops, separates those causes. Starter replacement, running without load, and fuel filter changes do not diagnose charging problems. Fixing a high-resistance cable restores charging without replacing the alternator unnecessarily.

23. A — NO_x sensors on both sides of the SCR catalyst allow the control module to calculate conversion efficiency. If the downstream value drops well below the upstream value when dosing, the catalyst is working. Equal readings indicate poor or no conversion. DEF temperature and filter pressure are separate system checks and do not measure how well NO_x is being reduced.

24. C — Manufacturers publish bulletins and calibration updates for known derate causes, so checking them first can shorten diagnosis from hours to minutes and may reveal a covered repair. Pulling a turbocharger or heads without evidence wastes labour. Fuel brand history rarely explains a stored derate. The bulletin search also documents due diligence if the unit is under warranty.

25. D — The trailer ABS depends on power from the connector, wheel speed sensors, and the module, and it controls its own lamp. A faulty connection, sensor, or wiring fault is the first suspect. Fan clutches, door seals, and exhaust brakes do not affect the trailer ABS. A damaged sensor wire on the trailer usually sets that lamp independently of the tractor.

26. B — Drift under load with the valve in neutral shows oil bypassing somewhere, usually the piston seal, the valve spool, or a load-holding valve. Testing with the cylinder isolated finds which. Breathers,

clean filters, and hose length do not cause drift. Blocking the cylinder lines shows whether the seal or the valve leaks, so only the failed part is replaced.

27. A — A leaking seal can lose fluid and cause loss of steering assist. The leak must be fixed by replacing the seal or gear, after checking contributing causes like overfilling or a blocked vent. Thicker oil, bypassing assist, and raising pump pressure create safety problems and do not repair the seal.

28. A — The alternator produces three-phase AC that is rectified. A failed diode or stator fault produces a repeating dip in the DC output. AC ripple readings help confirm this. Starter drive, wheel speed sensors, and fuel pumps do not create this electrical ripple on the charging circuit. Repairing the diode bridge restores clean direct current to the batteries.

29. B — The vehicle standard requires a continuous low-air warning when service reservoir pressure falls below 414 kPa (60 psi), giving the driver time to stop before the spring brakes begin applying at lower pressure. Values of 69 or 207 kPa are too low to give useful warning, and 621 kPa is a normal operating pressure.

30. D — Range shifts use an air valve and cylinder, so a stuck valve, leaking line, or sticking piston prevents movement even with normal supply pressure. Testing each part with air confirms where the fault is. The DPF sensor, brake switch, and tire sensor are not part of the range shift circuit.

31. C — DEF is a 32.5 percent urea solution, and its quality is verified by measuring that concentration, commonly with a refractometer designed for DEF. A coolant hydrometer does not read urea. Odour is subjective and unsafe to rely on, and boiling samples is dangerous. Diluted or contaminated DEF triggers quality faults and derates under emissions rules.

32. C — Refrigerants must be recovered using approved equipment, and handling requires certification, because releasing them harms the environment and may be illegal. Venting, bleeding into a container, or cutting hoses is unsafe and violates environmental rules. Recovered refrigerant is reclaimed or reused, and after repair the system is evacuated and recharged by weight.

33. B — In a standard relay, terminals 85 and 86 connect to the coil, so a small control current there moves the contacts. Terminal 30 is the common load feed, 87 is normally open, and 87a is normally closed. Pairs involving 30, 87, and 87a are contact terminals, not the coil. Always confirm terminal numbers against the relay diagram.

34. D — A torn boot and play mean the joint is worn or contaminated, and it is a safety item that must be replaced. Alignment, particularly toe, must be checked after replacement. Greasing, welding, or shimming does not restore a safe joint. After replacement, toe must be reset because the new joint changes steering geometry and could wear tires.

35. A — Dosing waits until exhaust temperature reaches a minimum, around 200 degrees Celsius on many systems, and until frozen DEF in the tank and lines is thawed by coolant or electric heaters. Starting dosing too early would cause deposits. A stuck-open valve would show over-dosing, and oil pressure or the fuel filter would not directly stop DEF dosing.

36. B — A drop only during application points to the service circuit past the treadle valve, including hoses, relay valves, chambers, and fittings. Governor and parking valve leaks would show with the pedal released. Normal allowable leakage is small, and a rapid drop when applied is not acceptable, so the leak must be located with soap solution.

37. C — Most manual transmissions have a fill plug set at the correct level, and oil should be even with the bottom of the hole when the vehicle is level. Overfilling to the breather causes leaks, and running at high idle or draining without comparison does not confirm the correct level. Overfilling above the hole also causes leaks.

38. D — Using Ohm's law, 0.9 volts across 10 amps gives 0.09 ohms of resistance in the connector, which is excessive for a low-voltage lighting circuit. The connector should be cleaned or replaced. Large drops waste power and dim lights, while a short or bulb fault would not be revealed by this reading.

39. A — A door that is hard to close and noisy usually has a misaligned striker or a worn or twisted seal. Adjusting the striker and checking seal compression restores fit. Engine mounts are unrelated, oil on channels does not seal wind, and removing seals invites leaks and noise. Poor sealing also lets dust and water into the cab.

40. A — Excess vertical play at the kingpin points to worn bushings or thrust bearing wear. The axle should be repaired and the kingpin set to specification. Wheel bearing adjustment, tire inflation, and drive axle fluid level are separate and do not cause vertical kingpin movement. Reaming or replacing the bushings and setting thrust clearance returns the steering axis to specification.

41. C — When the EGR valve is open at idle, hot inert exhaust gas displaces fresh air, which reduces oxygen for combustion. The result is rough running, lack of power, and often smoke. This reduces efficiency rather than improving it. Turbo noise and DEF use are not direct signs, though emissions faults may also be logged by the module.

42. B — Manufacturers often require the failed component for inspection before approving payment or recovering cost from the supplier. Recycling it early can cause the claim to be denied. A tag showing the unit number, repair order, and failure description keeps the evidence usable. Photographs and invoices support a claim but do not replace the part when it is requested.

43. D — Sliding tandems must be locked with all pins engaged, because a slipping tandem during braking can cause a loss of control. Cleaning, lubrication, and inspection correct sticking. Driving with some pins out, welding the slider, or wiring the pins is unsafe and not a legal repair. Stuck pins usually come from dirt, rust, or bent rails that should be repaired.

44. D — A relief valve is tested with a gauge and a brief dead-head to read where it opens, then compared to specification. Winding the screw in blindly or fitting a larger valve can overpressure components. Blowing through the valve does not measure the opening pressure. Opening too low suggests a weak spring or worn seat, so adjust or replace the valve.

45. C — Unequal chamber stroke means unequal brake force. Automatic slack adjusters should keep stroke within limits, and a stuck or damaged unit signals a problem. Technicians must find the cause,

such as a seized cam or worn adjuster, and restore even adjustment. Changing air lines or removing pushrods creates unsafe braking.

46. B — Automatic transmissions follow specific level check procedures, and a wrong level or a restricted cooler can cause overheating. Using the approved fluid and correct procedure, and checking the cooler, lines, and converter, is appropriate. Engine oil is the wrong fluid, and bypassing the cooler or thermostat makes overheating worse. Confirm the level again after the repair.

47. A — A fuse protects the wiring, so a larger fuse allows the wire to overheat and can start a fire. The correct repair is to find why current is excessive. Using wire or bypassing the circuit removes protection altogether and is unsafe, and the fault will remain. Overloaded wires get hot, melt insulation, and can start a fire.

48. D — An EGR cooler separates coolant from hot exhaust, so an internal leak sends coolant into the exhaust path, causing unexplained coolant loss, white smoke, and sometimes steam from the tailpipe. Oil pressure, DEF usage, and tire wear do not point to the cooler. A pressure test of the cooler confirms the diagnosis.

49. B — If both hoses are hot, coolant is reaching the heater core. The cold air likely comes from a blend door or actuator that is not directing air through the core, or a plugged core. Alternators, DEF pumps, and starters do not control cab heat delivery. Feeling both hoses hot confirms coolant flow, so air routing becomes the focus.

50. C — Tapered roller bearings need correct preload or endplay. The technician seats and rotates the hub, then backs off and tightens to the specified final value. Over-tightening overheats bearings, loose adjustment causes wear, and hammering the nut can damage the bearing and spindle. Checking the hub for smooth rotation and fitting a new cotter pin completes the job safely.

51. A — An isolation fault means the high-voltage system may be leaking current to the chassis due to damaged insulation, moisture, or a component fault. The vehicle blocks operation to protect people, and the technician must locate the fault using proper procedures. The other options are not isolation faults. Technicians locate the fault with an insulation resistance test.

52. A — Blue discoloration and heat cracks indicate extreme drum temperatures, typically from prolonged service brake application on a descent without using the engine brake or retarder. The drum may be unsafe and must be replaced with matched linings. Bearing grease, battery voltage, and tire pressure do not create this heat pattern.

53. C — High fluid temperature degrades fluid and burns clutch material. Continuing to drive can destroy the transmission, so cooling down and finding the heat source is needed. Additives do not fix a restricted cooler, and shutting off the control module disables protection and can cause damage. Skipping the cooldown allows scorched fluid to circulate and wear the clutch packs.

54. B — A CAN bus has a 120-ohm terminating resistor at each end, and the two in parallel read about 60 ohms. A reading of 120 ohms suggests one resistor is missing or an open exists in the circuit. Battery voltage does not change resistance, and a meter can measure it with power off.

55. D — Wet-liner diesel engines depend on supplemental coolant additives such as nitrite to prevent cavitation pitting on the liner exterior. Low levels allow vibration bubbles to erode the metal. Water dilution lowers inhibitor level further. The cap controls pressure, not additive chemistry. Restoring the correct inhibitor concentration is the repair. Retest the coolant after the correction to confirm.

56. C — Both shoulders wearing faster than the centre indicates the tire has been run underinflated, so the sidewalls flex and the edges take the load. Overinflation wears the centre. Correct inflation and alignment would produce even wear, so air pressure checks and TPMS review are warranted. Setting pressure to the load chart and checking TPMS data prevent the wear from returning.

57. A — If the reference voltage is absent at the sensor, the sensor cannot be at fault yet. The reference circuit may be open, shorted to ground, or the module may have a problem. Tracing the circuit and checking for shared reference faults finds the cause. Adding resistors or ignoring the code does not fix it.

58. B — Good mentoring corrects an unsafe setup before harm occurs and explains the reason so the habit sticks. Large-bore engines hold well over 30 litres, so an undersized pan overflows onto the floor and creates slip, fire, and environmental hazards. Staying silent or doing the task without comment teaches nothing, and partial draining only creates a mess.

59. D — A false or real low fuel alarm with a half tank suggests a sender fault, a restricted line, a plugged filter, or air in the system. Testing the fuel supply and sender narrows the cause. Air dryers, axle seals, and steering gear are not connected to the refrigeration engine fuel system.

60. B — Burnt fluid and metal particles indicate overheating and internal wear. The cause must be found, and the fluid, filter, and possibly components replaced. Diluting fluid, removing the filter, or raising pressure spreads debris and damages the system further. A fluid sample can confirm which component is wearing, so the failed pump or motor is replaced rather than guessed at.

61. A — Wheel speed sensors read a toothed tone ring, so air gap, ring damage, dirt, and wiring faults are common causes of speed signal codes. Measuring resistance and checking the signal while rotating the wheel confirms the diagnosis. Coolant, fuel pump, and transmission fluid are unrelated to ABS speed measurement. Measure sensor resistance to confirm.

62. D — An automated manual uses an actuator to operate the clutch, and it must learn the touch point after new components are installed. The manufacturer's software performs the calibration. Engine oil changes, dryer cartridges, and warm-up time do not teach the transmission controller the new clutch position. Skipping the learn procedure causes rough engagement and shift faults.

63. C — When a fuel system loses prime overnight, air enters and the engine cranks longer before firing. Check valves, lift pump valves, and leaking fittings are common causes. Charging voltage, intake restriction, and DPF soot do not drain fuel lines. Priming the system and observing how quickly pressure drops helps isolate the leaking component.

64. C — Mismatched duals force the larger tire to carry more of the load, causing heat, scrub, and rapid wear in both. Matching diameters within the specified tolerance, typically a few millimetres, restores

equal load sharing. Leaving the mismatch uncorrected shortens tire and axle life. Measuring both diameters with a tape and remounting tires as needed prevents uneven loading.

65. B — A ground may show continuity when unloaded but still carry too much resistance when current flows. A voltage drop test under load measures real resistance in the circuit. Resistance checks with no current, visual inspection, and static battery voltage may miss a poor connection that fails under load. Test while the module is actually drawing current.

66. A — Water in diesel settles to the bottom of a separator, and cold weather can cause wax crystals that cloud the fuel and plug filters. Both problems restrict fuel flow and cause stalling. Draining the water, replacing filters, and using a suitable winter fuel or treatment solves the issue. DEF and turbo seal oil do not enter the fuel separator.

67. D — Trailer spring brakes remain applied until supply air reaches the trailer. A closed or tripped tractor protection or trailer supply valve, a misconnected gladhand, or a damaged supply hose can prevent release. Tire rating, DEF quantity, and bulb type do not affect trailer brake release. Opening the supply valve and listening for air at the gladhand confirms supply.

68. C — Highway-speed vibration commonly comes from driveshaft imbalance, misphasing, or unequal working angles. Inspecting balance weights, tube straightness, and yoke alignment is the next step. Brake stroke, wiper motors, and coolant level do not influence driveline vibration. Checking shaft runout with a dial indicator and confirming the yokes are in phase finds most causes before parts are replaced.

69. A — A leaking cab air spring or line lets the cab sag. Soap testing finds the leak, and the technician then replaces the faulty part and checks the height valve for proper operation. Adding weight, disconnecting the spring, or filling with water does not repair the suspension. Replacing a leaking air spring restores correct cab height.

70. B — Receiver-dryers contain desiccant that absorbs moisture, and exposure to air saturates it. It should be replaced, and the system evacuated to remove moisture before charging by weight. Extra oil, reuse, or water flushing leaves moisture in the system and can damage components. Evacuating under vacuum removes moisture that would otherwise freeze at the expansion device and cause blockage.

71. D — Good harness repairs match wire gauge, use proper crimps or soldered joints with strain relief, and seal against moisture with adhesive-lined heat shrink. Twisted and taped splices loosen and corrode, smaller wire overheats, and unsupported solder joints crack with vibration. Strain relief and sealed splices keep vibration and moisture from loosening the connection and causing intermittent faults later.

72. D — Wheel nuts must be tightened in a star pattern, in stages, to the final torque, and rechecked after the vehicle has run a short distance because clamping load can relax. Circular tightening, lubricating beyond specification, and unmetered impact tightening can distort the wheel or break studs. Torque should be rechecked after the first drive.

73. C — The high-pressure pump can only deliver what the low-pressure side supplies. Plugged filters, air leaks, and a weak lift pump are common and cheap causes of low rail pressure, and they should be

eliminated before expensive replacement. Rail pressure is a controlled target, not a value a technician can raise to hide a supply problem.

74. B — The tractor protection valve is a safety device that shuts off trailer supply when tractor pressure drops, such as when the trailer breaks away or a hose ruptures, so tractor brakes are preserved. It does not add braking force. Its purpose is to isolate the tractor, not to supply washer air or prevent normal air use.

75. A — Unequal or excessive working angles cause speed fluctuations and uneven bearing loading, which wears one side of the cups. Correcting angles to be small and nearly equal improves life. Equal angles cancel fluctuation, and lubricated splines or zero angle do not cause one-sided wear in the way a bad angle does.

76. B — The engine builder specifies both the viscosity grade and the API performance category, and both must match. CK-4 oils are formulated for soot handling, aeration, and aftertreatment compatibility in modern diesels. Passenger-car oils lack those properties and risk bearing and filter problems. A matching viscosity number alone does not prove the oil meets the diesel category.

77. A — A fuse that blows immediately signals a short circuit or overload. The wiring should be inspected for chafed insulation or pinched wires and repaired. A larger fuse or no fuse risks wire fires, and bulb brand changes do not fix a short. A pinched wire, rubbed through insulation, or a damaged socket usually causes the short.

78. C — A replacement hose must meet or exceed the pressure rating and match fittings, and it needs enough length to flex without kinks or twists, which weaken it. Using any hose, cutting it short, or twisting it can cause failure or injury. Hose routing should also avoid heat sources and sharp edges to prevent early wear and leaks.

79. D — A drop below about 9.6 volts during cranking points to a weak battery or high resistance in cables and connections. Flickering gauges reflect that low voltage. Fuel filters, DEF pumps, and mounts do not drain the battery in this way, so a battery load test and connection inspection are the first steps.

80. D — A lean after sitting overnight usually shows a leaking air spring, fitting, or height valve. A soap test and linkage inspection locate the leak. Wiper arms, engine air filters, and DEF heaters are not part of the suspension air system. A soap solution on the springs, fittings, and height valve will show bubbles at the leaking point.

81. C — Turbo bearings rely on oil flow for lubrication and cooling. Shutting down a hot turbo stops oil flow while heat soaks into the center housing, which cooks oil and leaves scoring and discoloration. A short cool-down idle before shutdown prevents this. Coolant flow, EGR behaviour, and DEF quantity do not produce this pattern.

82. A — The final connection can cause a spark, so it should be made to a clean ground away from the battery where hydrogen gas may be present. Connecting both clamps to the dead battery or standing close adds risk. Following the positive-first, ground-last sequence reduces the chance of explosion. Hydrogen gas near the battery can ignite from a spark.

83. B — A dryer expels moisture and small traces of oil, but a heavy oil mist means the compressor is passing excessive oil. The compressor, discharge line, and inlet must be checked. Normal dryers do not expel large oil clouds, and coolant and DEF systems are separate from the air dryer. Repair the compressor, not the dryer.

84. D — Wheel seals keep axle lubricant inside the hub, and a failed seal or excess pressure from a blocked breather can push oil out. Checking the seal, bearings, and breather finds the cause. DEF tanks, brake drums, and cab mounts are not sources of axle lubricant. Replace the seal using a proper driver and check axle vent function.

85. A — Regenerative braking depends on the battery's ability to accept charge. A full battery or extreme temperatures can limit it, so the control system shifts braking to the friction brakes. DEF level, air filters, and wipers do not control regeneration. Reading battery state of charge and temperature on the scan tool confirms the cause and shows when regeneration will return.

86. C — A cracked main leaf is a safety defect that can fail and let the axle shift. The spring must be replaced, and associated hardware should be inspected and torqued. Taping, welding, or removing a leaf weakens the spring pack and is not an acceptable repair. Inspect the other springs on the axle for similar cracks.

87. B — Low boost without smoke and with a freely spinning turbo often points to a leak between the compressor and intake manifold, such as a split boot, loose clamp, or leaking charge air cooler. A pressure test finds it quickly. Heavy oil, removing the exhaust, or changing the DEF tank would not restore lost boost.

88. D — Rapid clutch cycling is often caused by a low refrigerant charge or a faulty pressure switch that opens when low-side pressure drops. A full charge and good components would not cause this. Checking pressures and the switch identifies the fault. Rapid cycling wastes compressor life, so measuring both pressures and testing the switch is the correct order.

89. C — Mismatched or weak batteries in parallel can cause the stronger battery to charge the weaker one and shorten both lifespans. Replacing the failed unit with a matched one, or replacing the pair, restores balance. Series connections raise voltage to 24 volts, which would damage a 12-volt system. Mismatched ages cause uneven charging between batteries.

90. A — The power spring is under extreme compression and can cause serious injury if released uncontrolled. The safe repair is complete chamber replacement, and caging is only for short-term release. Prying, heating, or cutting the chamber is dangerous and prohibited by safety procedures. Technicians use caging bolts only to release the brake for towing, never to take the chamber apart.

91. B — An interaxle lockout forces both drive axles to rotate together, so in tight turns on dry pavement it causes driveline windup and tire scrub. It should be used only in low traction and unlocked afterward. Removing driveshafts or changing tire pressure does not correct misuse of the lockout. Driver feedback prevents repeat tire scrub damage.

92. D — Coolant chemistry must match the system, since mixing incompatible inhibitor packages can form gels or deposits and reduce corrosion protection. Colour alone does not identify the technology. Plain water removes freeze protection and inhibitors, and engines with wet liners are especially vulnerable to cavitation. Checking the specification and using the correct, labelled product is the safe practice.

93. C — A relay valve that hisses continuously during application is leaking or sticking, and it can cause loss of braking force and air. Testing the valve and lines confirms the fault, and replacement restores the circuit. Tire pressure and DEF systems do not feed air to relay valves. Testing with the brakes applied shows the leaking valve.

94. B — Slow movement means low flow to the actuator, which can come from a restricted valve, a weak pump, or internal leakage. Flow and pressure tests help determine which. A correct fluid level, cold fresh fluid, and unrestricted hoses would not slow the movement. Flow and pressure testing at the pump separates the valve from the pump.

95. A — SPN 110 is engine coolant temperature, and FMI 0 means data valid but above the normal operating range, which signals actual overheating rather than an electrical fault. The technician should check coolant level, fan operation, thermostat, and radiator airflow. Oil pressure, boost, and DEF level use different parameter numbers. Fan, thermostat, and radiator airflow checks come next.

96. C — A shock that is wet and offers no resistance has failed internally and can no longer control axle movement. Replacing it, and usually the matching shock on the same axle, restores ride control and prevents tire cupping. Mounting bolts and engine oil do not repair an internal failure. Replacing shocks in pairs keeps damping equal and prevents renewed tire cupping.

97. B — If the motor turns but the wipers do not move, the problem is in the linkage, pivots, or arm attachments that transfer motion to the blades. Inspecting and tightening or replacing these parts restores sweep. Dryers, coolant level, and DEF heaters have no connection with wiper movement. Check the arm splines and pivot nuts for looseness.

98. A — If the coil is good, the spark plug, boot, or wire is the next link in the ignition path. Fouled, worn, or cracked parts can cause a single-cylinder misfire. DEF heaters, transmission lines, and air brake governors have nothing to do with the spark delivery to a cylinder. Test the plug with a spark tester.

99. D — Even with correct stroke, braking can feel weak if friction surfaces are glazed, contaminated, or the drums are worn and overheated, because the system still moves but force is lost. Inspecting linings, drums, and contamination is needed. DPF, battery, and air filter changes do not influence brake friction. Inspect drums for heat checking and linings for glazing.

100. A — A whine under power only usually points to ring and pinion tooth contact or preload problems and worn pinion bearings. A pattern check during setup is the repair step. DPF ash, coolant level, and glass cracks do not produce axle gear noise. A pattern check and a preload check show whether the gears or bearings are at fault.

101. B — Modern fans can run for reasons other than coolant temperature, including air conditioning pressure, charge air temperature, retarder demand, or a fan command fault. Checking the control inputs and live data identifies the request. Brake pedal, fuel cap, and tire pressure systems do not command the fan. Scan data shows which input is requesting fan operation.

102. D — Trailer lighting and ABS power travel through the seven-way connector, where corrosion and loose pins cause intermittent faults and low voltage. Cleaning and testing the plug, wiring, and ground is the first step. Fuel filters, tire pressure, and washer fluid are not part of the trailer electrical supply. Clean contacts and use dielectric grease.

103. C — A fifth wheel that does not lock is a serious safety defect that can allow the trailer to separate. The technician must inspect and correct jaw, handle, lubrication, and kingpin condition before towing. Driving, chaining, or hammering while moving is dangerous and not a repair. Never couple with a defective lock, and test it with a tug check.

104. B — Overheating under load with a good thermostat and full coolant points to heat rejection problems, such as a weak fan clutch, blocked fins, or a restricted radiator core. A temperature scan of the core and a fan engagement test narrow the cause. DEF tanks and oil filters do not control radiator capacity.

105. D — An evaporator ices when its surface falls below freezing, often due to low airflow, a faulty cycling control, or low refrigerant. Finding the cause and clearing the airflow restores performance. A clean filter, an oversized heater core, or a strong battery would not cause icing. Check the blower, filter, and evaporator drain for restrictions before adding refrigerant.

106. A — A governor normally cuts in about 100 kPa below cut-out. A cut-in far lower suggests a faulty or misadjusted governor, which allows pressure to fall too far before the compressor restarts and can leave brakes dangerously low. Desiccant, parking valve heat, and a stuck pressure switch do not explain this pattern.

107. C — Axle ratio is the number of pinion turns for one ring gear revolution, and the carrier tag or a driveshaft turn count gives it. With one wheel held, the driveshaft turns roughly equal the ratio times two for the other wheel. Sensors, oil pressure, and shaft length do not give the ratio.

108. A — A difference between source and load voltage while current flows shows resistance in the conductors and connections. A drop of 1.3 volts is above the common guideline of around 0.5 volts for the circuit, so each section should be tested. A load failure or a meter error is not the first conclusion.

109. B — Cracks in the top plate or brackets threaten coupling strength. The fifth wheel must be repaired or replaced according to the manufacturer, and mounting hardware checked. Patch welding, drilling stop holes, or greasing do not restore structural strength and are not acceptable repairs. A crack indicates metal fatigue that will grow under braking and turning loads.

110. C — Oil on a hot exhaust can smoke and, in worse cases, ignite, so the residue must be removed and the cause found. An overfill or a loose fill plug is common after service. Adding fluid worsens an

overflow. Spraying water on hot metal creates steam hazards and does not solve the problem. A level check confirms the repair.

111. D — Doors that cannot be secured can open while moving and endanger traffic, so the latch and hinges must be repaired or replaced. Rope ties, permanent welding, and leaving the door open are not valid fixes and may break rules or cause damage. A door that opens in transit can strike other vehicles or spill the load.

112. A — An accumulator holds fluid under pressure even when the engine is off, so opening the circuit without releasing it can cause a high-pressure spray or sudden movement. Following the manufacturer's procedure to depressurize protects the technician. The other reasons are not why it is done. Follow the manufacturer's accumulator discharge steps and confirm zero pressure on the gauge.

113. D — Sodium, potassium, and glycol are markers of coolant in oil, because many coolants contain those elements. They point to a gasket, cooler, or liner seal leak and require a pressure test to find the path. Air filter dirt shows as silicon, and fuel dilution shows as lower viscosity and flash point.

114. C — When a good lamp is dim in one socket but bright in another, the fault is in the socket circuit, usually a poor ground or corroded contacts. Cleaning and repairing the ground resolves it. A failed filament would not recover in another socket, and brakes and oil have no effect on lamp voltage.

115. B — Automatic adjusters should keep stroke in limits. If stroke is still excessive after confirming the brake is released and testing the adjuster, the unit or its mounting is faulty, and the repair must address the cause. Normal wear, light grease, and slight movement are not defects. Record the stroke measurement on the inspection report.

116. D — Hydraulic retarders produce force when fluid fills the chamber, and control signals and valves manage this. Faulty control signals, valve problems, or accumulator issues can reduce braking. DEF lines, tire pressure monitoring, and wipers are not part of the retarder control system. Checking the control wiring and valve with a scan tool or pressure gauge shows which part has failed.

117. C — Frame rails are heat-treated and sensitive to welding and added holes, so repairs must follow the manufacturer's rules, which commonly allow reinforcements and restrict flange welding. Adding holes or simply painting a crack does not fix the problem and can make it worse. Stop-drilling and reinforcement must follow the frame maker's guidance, because heat from welding can weaken the rail.

118. A — High-voltage work needs voltage-rated insulating gloves, with leather protectors for mechanical protection, plus face protection and insulated tools, all tested and rated for the system voltage. Cotton, nitrile, or leather gloves alone do not insulate against high voltage. Gloves must be tested at set intervals and inspected before each use, because even a small pinhole can allow current through.

119. B — A restricted air inlet starves the engine of air and can produce poor power, smoke, and codes for low manifold pressure. The filter, housing, indicator, and piping, including collapsed hoses, are the first inspection points. DEF caps, alternator belts, and transmission fluid are not part of the intake air path.

120. A — Wire gauge determines how much current the conductor can carry without heating, and length affects voltage drop. Charts give the correct size for amperage and run length. Thin wire overheats, and colour or connector colour does not determine capacity. Voltage drop charts relate wire gauge to current and run length, which keeps heating and voltage loss within acceptable limits.

121. D — A seat belt that fails to lock does not protect the driver and must be replaced as an assembly. Safety restraint repairs follow regulations and manufacturer procedures. Cutting, taping, or accepting a failed belt creates a major hazard and is not an acceptable repair. Retractors are safety-critical, so no field repair is allowed beyond replacement.

122. B — Parking brakes rely on spring force applied through the same drum and lining assembly as service brakes, so adjustment, lining condition, and chamber function determine holding ability. A failed spring or contaminated lining reduces holding. DEF valves, heater cores, and transmission filters have no role in spring brake force. Adjust the brakes before retesting.

123. C — Retarders are controlled by driver selection and control module logic, often with ABS and brake pedal inputs. Different levels give different retarding force. DPF state, DEF level, and washer switches are not inputs to retarder control. Typical retarder switches offer several stages, and the control module reduces or cancels retarding when ABS detects wheel slip on slippery roads.

124. B — A confirmed low pressure means there is a real air loss, so the technician must find the leak, repair it, and set the correct pressure. Resetting the lamp ignores a hazard, and matching other tires to a low tire or removing the sensor does not solve the problem. Check for punctures, bead leaks, and valve stems.

125. C — Cylinder cutout or relative contribution tests let the control module disable or compare each injector while the technician watches engine speed and fuel correction. A weak cylinder produces little change when cut out. Removing injectors, running water, or stopping the DEF pump is unnecessary, unsafe, or unrelated. The test is done safely with the scan tool.

126. A — Defrost modes often use the A/C to dehumidify air, so a restricted filter, a stuck door, or a nonworking compressor can reduce defrost. Oil level, trailer lighting, and DEF temperature are not part of the cab climate system. Checking the A/C clutch engagement while the defrost mode is selected shows whether the dehumidifying function is working at all.

127. D — NO_x sensors have heater circuits and use power and ground supplied by a module, so wiring and connector problems are common causes of heater codes. The manufacturer test procedure should be followed before replacement. The DPF, DEF water, and clearing codes do not address the circuit fault. Heater circuit codes often come from wiring.

128. A — Even benign products must be handled according to the safety data sheet and local waste regulations, because absorbent materials and contaminants may change disposal requirements. DEF itself is low in hazard, but burning urea-soaked material produces fumes, and floor drains lead to systems that may be regulated. Using the designated container and documenting the pickup is the compliant method.

129. B — Water in hub oil damages bearings quickly, so the technician should inspect and replace affected parts, find the water entry point, and refill with clean specified lubricant. Reusing milky oil, thickening it with grease, or ignoring it leads to bearing failure and seal leaks. Contaminated hub oil darkens, so bearing wear should be examined thoroughly.

130. D — A plugged breather lets vacuum develop in the reservoir as fluid leaves, which starves the pump inlet and causes cavitation and noise. The breather should be cleaned or replaced. A sealed reservoir does not raise actuator pressure or cool the fluid. Cleaning or replacing the breather restores air flow and prevents fluid from being starved at the pump inlet.

131. C — The standard air-loss test reduces pressure by applying the brakes until the warning activates and the spring brakes apply near the specified pressure. This confirms the safety system works. Engine speed, hazard lights, and tire pressure do not show whether spring brakes will apply during pressure loss. Compare the readings to the specification.

132. D — A split cushion allows the center bearing to move, causing vibration and wear. Replacement restores support, and alignment and phasing must be rechecked. Tape and grease do not repair rubber, over-tightening does not fix play, and removing support allows the shaft to whip and fail. Check the driveshaft angle and phasing after installation.

133. B — Positive caster places the steering axis ahead of the tire contact point, which creates a self-centring action that returns the wheels to straight ahead. Too little caster gives poor return and wandering. Axle thrust, tire load rating, and wheel offset do not provide the main steering return force. Caster is set during alignment.

134. A — At hot idle, oil is thinnest and the pump turns slowly, so worn bearings or a weak pump show up first as low pressure. If the gauge is verified, the cause is mechanical. Battery voltage, air filter condition, and DEF level do not reduce oil pressure. Pressure should be measured at the sender with a mechanical gauge before engine work.

135. C — A single click with good battery voltage and low cable drop points to the starter itself, usually worn brushes or burned solenoid contacts that cannot carry high current. Bench testing or replacement follows. Thermostats do not lock crankshafts, and rectifiers and DEF relays are not part of the starter circuit.