PRACTICE EXAM 27

1. A technician measures 11.2 volts at an ADAS module's power feed with the ignition on and the engine off. Before condemning the module, the technician should recognize this reading is:

A. Far above normal and indicates an overcharging condition in the system

B. The exact value the module requires for normal calibration to proceed

C. A normal data bus signal voltage measured between the two CAN wires

D. Slightly low, warranting a check of the supply circuit and battery state

2. A scan tool data stream shows a forward radar reporting "target detected" while the road ahead is completely clear and dry. The technician should interpret this as a possible:

A. Normal reading that requires no further investigation by the technician

B. Aim or obstruction issue causing the radar to misread a false target

C. Correct response to a vehicle that is actually present far ahead on the road

D. Sign the data bus has completely failed between the radar and gateway

3. A technician checks voltage drop across an ADAS ground circuit under load and reads 0.05 volts. The correct interpretation of this reading is that the:

A. Ground path resistance is low and the connection is in good condition

B. Ground circuit is completely open and carrying no current at all now

C. Module is internally shorted and drawing far too much current to ground

D. Battery is overcharged and forcing excess voltage through the ground path

4. A scan tool shows a steering angle sensor reading of zero degrees while the steered wheels are visibly turned. This reading most directly indicates the:

A. Steering angle sensor has lost its reference and needs zero-point calibration

B. Forward radar sensor requires a complete static recalibration in the bay

C. Rear ultrasonic sensors are reporting an incorrect proximity distance value

D. Driver monitoring camera is reading the wrong driver head position angle

5. A technician observes a CAN bus waveform where both lines sit at the same voltage with no separation. This pattern most likely indicates:

A. Normal idle traffic during a moment when no module is transmitting

B. A bus fault such as a short between the lines or a loss of differential signal

C. Correct high-speed operation with both conductors swinging together

D. A healthy low-speed comfort network operating during engine cranking

6. A technician must determine why an ADAS fault recurs after a connector repair. The most thorough next step is to:

A. Install a complete new wiring harness throughout the entire vehicle

B. Advise the customer the intermittent fault cannot be diagnosed at all

C. Clear the code and release the vehicle until the symptom returns again

D. Inspect the repaired connection and trace the circuit for the root cause

7. A scan tool freeze frame captured at the moment an ADAS DTC set shows vehicle speed, steering angle, and ambient temperature. The primary value of this data is that it:

A. Lists every control module currently installed on the vehicle network

B. Reprograms the affected module to its newest calibration automatically

C. Records the operating conditions present when the fault first occurred

D. Permanently disables the affected ADAS system until manually reset

8. A technician uses bi-directional controls to command an ADAS warning lamp on, but it does not illuminate. This result helps confirm a fault in the:

A. Module's internal calibration file rather than any external wiring fault

B. Vehicle's overall charging system output measured at the battery posts

C. Lamp, its wiring, or the driver circuit between the module and the lamp

D. Manufacturer's published labor time for diagnosing the warning lamp

9. A technician reads an electrical schematic and sees a component symbol with an arrow pointing into a triangle against a bar. This symbol represents a:

A. Variable resistor adjustable across a defined range of resistance values

B. Diode that allows current to flow in only one direction through the circuit

C. Relay coil that closes a set of contacts when it becomes energized

D. Fuse that opens the circuit when current exceeds its rated value

10. An ADAS module shows a wheel-speed input that reads zero on one wheel while the vehicle is clearly moving on a road test. The technician should suspect:

A. A discharged vehicle battery unable to power all of the ADAS modules

B. A complete failure of the high-speed CAN bus serving every module

C. A misaligned forward camera reporting the wrong lane-position value

D. A fault in that wheel's speed sensor or its circuit specifically

11. A technician must select tooling for an ADAS calibration that requires positioning targets to a precise measured distance. The most appropriate tools are a:

A. Refractometer and a cooling-system pressure tester for the procedure

B. Scan tool and a low-amp current clamp on the sensor's supply wire

C. Calibrated tape measure or laser referenced to the specified datum point

D. Voltmeter and an oscilloscope monitoring the sensor's signal circuit

12. A technician finds an ADAS connector with a terminal that is corroded and loose. The correct repair, per industry standards, is to:

A. Repair or replace the affected terminal to restore proper contact tension

B. Apply body filler around the connector to hold the loose terminal in place

C. Raise the system supply voltage to overcome the corroded connection

D. Clear the stored codes and release the vehicle since the wires still touch

13. A technician researches how a vehicle's ADAS interacts with the restraint system. The significance of this intersystem relationship is that:

A. The restraint system controls the radar sensor's calibration procedure

B. ADAS features depend entirely on the seatbelt buckle switch to operate

C. A deployment or related fault can affect or disable certain ADAS functions

D. The restraint system has no connection to any ADAS function whatsoever

14. A scan tool shows an ADAS module current draw far above its specification while commanded off. The most likely interpretation of this reading is:

A. The module is operating correctly within its normal current specification

B. The supply circuit is open and no current is reaching the module at all

C. The ground circuit has excessive resistance restricting the current flow

D. An internal short or fault is causing the module to draw excessive current

15. A technician must convert a calibration height specification of 1.2 meters to standard units. The correct converted value is approximately:

A. 12 inches, equal to exactly one foot above the reference datum point

B. 3.9 feet, just under four feet measured above the reference datum point

C. 1.2 feet, slightly more than one foot above the reference datum point

D. 7.9 feet, just under eight feet measured above the reference datum point

16. A technician performs a post-repair scan and finds one new DTC that was not present in the pre-scan. The correct action is to:

A. Diagnose the new code, since the repair may have introduced a new fault

B. Ignore the code because post-repair codes always clear themselves over time

C. Replace the module that set the new code without any further diagnosis

D. Release the vehicle and tell the customer to watch for related symptoms

17. A vehicle's ADAS shares a yaw rate signal with the stability control system. If this signal becomes erratic, the technician should expect symptoms in:

A. Only the tire pressure monitoring system during normal highway driving

B. Both the stability control and the ADAS functions that use yaw rate data

C. Only the rear ultrasonic park-assist sensors during low-speed maneuvers

D. Only the cabin climate control blower motor speed during operation

18. A technician researching an unfamiliar vehicle finds adaptive cruise listed on the build sheet but cannot locate the radar sensor in its usual position. The best action is to:

A. Assume the build sheet is wrong and skip the adaptive cruise system entirely

B. Replace the front bumper assembly to install a radar sensor in the usual spot

C. Disable the adaptive cruise feature so it cannot interfere with other systems

D. Research the service information to find the actual sensor location and design

19. A technician views a forward camera's data stream and sees the reported lane-width value fluctuating wildly on a straight, well-marked highway. This reading most likely indicates the camera is:

A. Operating perfectly and reporting normal variation in the lane markings

B. Drawing excessive current that opens its supply circuit protective fuse

C. Struggling to interpret the lane markings due to an aim or vision issue

D. Losing communication entirely with the gateway control module on the bus

20. A camera calibration specification requires a minimum floor space length in front of the vehicle. If the available space is shorter than specified, the result is:

A. The target cannot be placed at the correct distance, so calibration fails

B. The camera draws too much current and trips its protective supply fuse

C. The rear ultrasonic sensors increase their maximum detection distance

D. The data bus speed automatically drops to accommodate the short space

21. A camera data stream shows the camera reports "calibration valid" but lane-keeping still steers incorrectly. The technician should next consider:

A. That the calibration status guarantees the aim is physically correct now

B. A mechanical aim issue the calibration completed around but did not correct

C. That the rear ultrasonic sensors must be recalibrated before retesting

D. That the head-up display wedge layer is the source of the steering error

22. A camera reports an "image sensor temperature high" code on a hot day. Researching the enable criteria, the technician confirms this code sets when:

A. The vehicle battery voltage drops below the camera's minimum threshold

B. The internal image sensor temperature exceeds a defined operating limit

C. The forward radar loses its static calibration reference angle entirely

D. The ultrasonic sensors detect an object closer than their minimum range

23. A technician must determine whether a camera concern is part of normal operation, a malfunction, or a prior-service result. The correct first step is to:

A. Replace the camera module to eliminate it as a possible cause quickly

B. Clear all stored codes and see whether the concern returns on its own

C. Verify the concern and research the system's normal operating behavior

D. Recalibrate the camera before doing any other diagnostic verification

24. A camera lens is found with a film of wax after a detailing service. The technician should recognize this film will:

A. Increase the camera's effective forward detection range beyond its limit

B. Improve image clarity by reducing glare from oncoming vehicle headlights

C. Automatically clear itself the next time the windshield wipers operate

D. Distort or obscure the image, degrading detection and calibration accuracy

25. A camera fails dynamic calibration only on roads with faded lane markings, but succeeds on clearly marked roads. The technician should conclude:

A. The poorly marked roads lack the lane references the camera needs to learn

B. The camera module has an internal defect requiring immediate replacement

C. The rear ultrasonic sensors must be unplugged for calibration to succeed

D. The procedure can only ever be completed inside a sealed dark room indoors

26. A camera's mounting bracket is integral to the windshield glass. When the glass must be replaced, the technician must ensure the new windshield:

A. Is tinted darker than the original to reduce glare reaching the camera lens

B. Omits the camera bracket so the camera can be mounted lower for clarity

C. Uses a thicker laminate layer to dampen vibration reaching the camera

D. Includes the correct camera bracket and any required optical features

27. A camera's optical axis is suspected misaligned after a body repair near the windshield. The most reliable way to confirm misalignment is to:

A. Visually estimate the lens angle by eye from the driver's seat position

B. Measure the camera's supply voltage at its connector under an applied load

C. Compare actual aim against specification using the calibration procedure

D. Check the resistance of the windshield heater grid near the camera mount

28. A camera passes calibration in the bay but the technician must still confirm performance in real conditions. The required step is to:

A. Clear all stored codes and release the vehicle without any road testing

B. Replace the windshield a second time to rule out optical distortion present

C. Road test the vehicle per manufacturer procedure to verify the operation

D. Reduce the camera bracket torque to relieve stress on the windshield glass

29. A technician must identify a camera system's components and their locations on an unfamiliar model. The authoritative first resource is the:

A. Manufacturer's service information describing the system layout and parts

B. Owner's manual section explaining how the lane systems behave while driving

C. Anonymous online forum post written by an owner of a similar vehicle model

D. Casting numbers stamped on the discarded camera's metal mounting plate

30. After all camera repairs and calibration are complete, the final step before customer release is to:

A. Perform a post-repair scan confirming no related DTCs remain stored

B. Reset the engine oil life monitor to one hundred percent remaining life

C. Record the customer's preferred cabin climate settings for the next visit

D. Top off the windshield washer reservoir with the approved winter solution

31. (Refer to ADAS Composite Vehicle Type 1.) A scan tool cannot communicate with only the forward radar module, while every other module responds normally. The fault most likely lies in the:

A. Shared battery feed common to every ADAS module on the vehicle at once

B. Gateway module, which would disable all bus communication simultaneously

C. Driver monitoring camera, which uses a completely separate private data line

D. Circuit or connector serving the forward radar module specifically here

32. A technician measures a forward radar's mounting angle and finds it off by two degrees from specification. The technician should recognize that this small error will:

A. Change the data bus baud rate the radar uses to transmit its messages

B. Increase the supply voltage the radar draws from the vehicle's battery

C. Lower the resistance of the radar sensor's internal heating element circuit

D. Cause a large lateral position error at the radar's far detection range

33. A static radar calibration uses a corner reflector placed at a precise location. If the reflector is positioned too far laterally from the specified point, the result is:

A. An incorrect calibration that biases the radar's perceived target angle

B. A short circuit between the radar's supply and ground inside the module case

C. An automatic increase in the ultrasonic sensors' rated detection range value

D. A complete loss of communication across the entire vehicle data bus network

34. (Refer to ADAS Composite Vehicle Type 1.) A DMM placed across the ADAS-CAN pair at an unplugged module reads infinite resistance, where about 120 Ω is expected. This open reading most likely indicates:

A. A short between the two CAN conductors somewhere in the wiring harness

B. Both termination resistors functioning correctly together in healthy parallel

C. A discharged vehicle battery unable to supply the small measurement current

D. An open in the CAN circuit interrupting the bus continuity along the harness

35. A radar sensor behind a freshly repainted bumper now detects targets late. The mechanism responsible is that the excessive paint thickness:

A. Raises the sensor's supply voltage above its rated operating maximum value

B. Changes the vehicle's CAN bus baud rate during message transmission timing

C. Forces the ultrasonic sensors to share the radar's data bus bandwidth fully

D. Attenuates and delays the radar signal passing through the cover material

36. A technician measures a radar's CAN circuit and finds 0 volts on both bus lines with the system powered. The most likely cause of this reading is:

A. A loss of power or a fault collapsing the bus signal on that segment

B. Normal differential operation with both lines swinging around a bias point

C. A correctly functioning bus during a momentary idle transmission period

D. A healthy low-speed comfort network operating during engine cranking

37. Technician A says a radar calibration requires the target at the specified distance. Technician B says the vehicle must be at correct ride height. Who is correct?

A. A only

B. B only

C. Both A and B

D. Neither A nor B

38. (Refer to ADAS Composite Vehicle Type 1.) A technician needs the forward radar's detection range to evaluate a customer concern about late warnings. The correct source for this value is the:

A. Estimating software's labor guide entry for the front bumper assembly job

B. Aftermarket catalog listing for the radar sensor's replacement part number

C. Shop foreman's experience with similar radar systems on other vehicle brands

D. Composite vehicle reference, which lists the radar's range specification value

39. A radar sensor's connector has one terminal backed out and not fully seated. The most appropriate corrective action is to:

A. Apply sealant over the connector to hold the loose terminal in its position

B. Reseat or repair the terminal so it locks fully into the connector body

C. Raise the system supply voltage to overcome the poor terminal contact

D. Clear the stored codes and release the vehicle since the terminal still touches

40. A radar function drops out only when the vehicle drives over rough, broken pavement. This vibration-linked pattern points the technician toward:

A. A loose connector or mount that breaks electrical contact under vibration

B. An outdated calibration file that needs a reflash at the next service visit

C. A permanently failed radar sensor requiring immediate full replacement now

D. Normal operation, since radar is designed to mute over any rough pavement

41. A radar calibration aborts indoors despite a correct target setup. The technician suspects environmental interference. Which finding best supports that conclusion?

A. A metal tool cabinet and a parked lift positioned within the radar's field

B. A 1.5 volt drop measured across the radar sensor's main ground connection

C. A target printed in a gray shade slightly off the manufacturer's specification

D. A camera software version one revision behind the radar module's software

42. A radar-based adaptive cruise system follows too closely even on its longest gap setting. After confirming no DTCs, the technician should investigate whether the radar's:

A. Supply fuse is rated higher than the ultrasonic controller's protective fuse

B. Aim or mounting is biasing its perceived distance to the vehicle ahead

C. Cabin air filter restriction has reached its scheduled replacement interval

D. Heater element resistance increased after exposure to cold morning weather

43. A radar sensor's aim is verified relative to the vehicle's thrust line during calibration. The thrust line is established by the vehicle's:

A. Front bumper distance measured to the calibration target stand base point

B. Rear axle geometry, which defines the direction the vehicle actually tracks

C. Steering wheel held perfectly straight throughout the calibration procedure

D. Forward camera optical axis projected down onto the calibration bay floor

44. A radar is replaced and calibration completes, but a road test shows the ACC reacting to vehicles in adjacent lanes. The technician should suspect:

A. The new radar was shipped from the wrong regional distribution center first

B. The battery voltage was marginal during the static calibration phase earlier

C. A residual aim or mounting error skewing the radar's lateral detection field

D. The ultrasonic sensors were left disconnected during the road test drive run

45. After a radar repair, a manufacturer-specified road test confirms the ACC holds proper following distance. This road test primarily verifies that the:

A. Battery fully recharged after the static calibration procedure was completed

B. Tire pressure monitor relearned all four sensors during the test drive period

C. System performs correctly under actual real-world driving conditions on road

D. Engine reached full operating temperature before the stored codes were cleared

46. A technician finds the rear ultrasonic sensors stop detecting objects well short of their specified range. The first and most likely cause to check is whether the sensor faces are:

A. Drawing excessive current from the park-assist controller power supply circuit

B. Partially obstructed by dirt, ice, or residue reducing their effective range

C. Reading the wrong vehicle speed signal from the brake control module input

D. Set to a lower sensitivity by an option the customer recently selected himself

47. Ultrasonic sensors detect objects by emitting sound waves and timing the returning echo. A sensor face covered by thick paint will:

A. Dampen the emitted and returning waves, reducing detection reliability badly

B. Increase the measured echo time, making objects appear much farther away

C. Improve detection by focusing the emitted sound into a tighter narrow beam

D. Have no measurable effect because ultrasonic waves pass through paint freely

48. (Refer to ADAS Composite Vehicle Type 1.) A technician needs the detection range and pattern of the rear ultrasonic sensors. The authoritative source is the:

A. Resistance measured directly across each sensor's two connector terminals

B. Composite vehicle reference document describing the ultrasonic system specs

C. Forward radar's published range specification scaled down for the rear sensors

D. Vehicle wheelbase printed on the certification label inside the door jamb area

49. A single ultrasonic sensor reads erratically while the others function normally. The most efficient first inspection step is to check that sensor's:

A. Software revision against the park-assist controller's current version number

B. Contribution to the data bus termination resistance measured at the gateway

C. Supply voltage compared against the forward radar sensor's supply voltage

D. Face and connector for obstruction, physical damage, or a loose connection

50. After replacing a damaged ultrasonic sensor and clearing codes, the technician confirms proper operation by:

A. Reprogramming the forward radar module to recognize the new sensor hardware

B. Raising the park-assist chime volume to its maximum available output setting

C. Performing a functional test and post-repair scan of the park-assist system

D. Replacing the remaining original sensors so the complete set matches exactly

Answer Key & Full Answer Explanations

1. D — An 11.2 V reading at the module feed is slightly low, warranting a check of the supply circuit and battery state. A healthy ignition-on reading should be near system voltage of roughly 12.6 V or higher. This is not overcharging, a calibration target, or a CAN signal voltage.

2. B — A radar reporting a target on a clear, dry road points to a possible aim or obstruction issue causing a false reading. A misaimed or blocked sensor perceives phantom returns. It is not a normal reading, a real distant vehicle by default, or a total bus failure.

3. A — A 0.05 V drop across a ground circuit under load means the ground path resistance is low and the connection is in good condition. Minimal drop confirms a solid return path. It does not indicate an open, an internal short, or an overcharged battery.

4. A — A zero-degree steering angle reading with the wheels visibly turned indicates the sensor has lost its reference and needs zero-point calibration. The sensor's center reference no longer matches the actual wheel position. This is not a radar, ultrasonic, or driver-camera issue.

5. B — Both CAN lines sitting at the same voltage with no separation indicates a bus fault such as a short between the lines or loss of differential signal. Healthy operation shows the lines swinging oppositely. This is not normal idle, correct operation, or a healthy comfort network.

6. D — A fault recurring after a connector repair calls for inspecting the repaired connection and tracing the circuit for the root cause. The repair may not have addressed the true source. Replacing the whole harness, declaring it undiagnosable, or releasing the vehicle avoids the actual problem.

7. C — Freeze-frame data's primary value is that it records the operating conditions present when the fault first occurred. Those parameters let the technician reproduce and narrow the cause. It does not list modules, reprogram, or disable the system.

8. C — A commanded warning lamp that fails to illuminate helps confirm a fault in the lamp, its wiring, or the driver circuit between the module and the lamp. The module issued the command, so the problem lies downstream. It does not point to the calibration file, the charging system, or labor time.

9. B — A symbol of an arrow pointing into a triangle against a bar represents a diode that allows current to flow in only one direction. That is the standard diode schematic symbol. A variable resistor, relay coil, and fuse each have distinct symbols.

10. D — A single wheel reading zero speed while the vehicle moves points to a fault in that wheel's speed sensor or its circuit specifically. The discrepancy is isolated to one wheel. A dead battery, total bus failure, or misaligned camera would not produce a single-wheel zero.

11. C — A calibrated tape measure or laser referenced to the specified datum point is appropriate for positioning targets to a precise measured distance. Calibration geometry must be exact. A refractometer, pressure tester, scan tool, current clamp, voltmeter, or oscilloscope measure unrelated quantities.

12. A — Per industry standards, a corroded and loose terminal should be repaired or replaced to restore proper contact tension. Restoring a clean, tight connection fixes the fault. Body filler, raised voltage, and releasing the vehicle do not correct the terminal.

13. C — The significance of the ADAS-restraint relationship is that a deployment or related fault can affect or disable certain ADAS functions. The systems are interconnected for safety coordination. The restraint system does not control radar calibration, depend on a buckle switch for ADAS, or lack any connection.

14. D — Current draw far above specification while commanded off most likely indicates an internal short or fault causing the module to draw excessive current. Excess current points to a short. It is not normal operation, an open circuit, or high ground resistance, which would reduce rather than raise current.

15. B — Converting 1.2 meters yields approximately 3.9 feet (1.2 × 3.281 = 3.94). This is just under four feet above the datum. The 12-inch, 1.2-foot, and 7.9-foot values are incorrect conversions.

16. A — A new DTC appearing in the post-scan should be diagnosed, since the repair may have introduced a new fault. Post-repair codes are not automatically harmless. Ignoring it, replacing a module blindly, or releasing the vehicle leaves a real fault unaddressed.

17. B — An erratic yaw rate signal shared between ADAS and stability control produces symptoms in both the stability control and the ADAS functions that use yaw rate data. Both systems rely on the same input. TPMS, ultrasonic park-assist, and climate control do not use yaw rate.

18. D — When a build-sheet feature's sensor is not in the usual position, the best action is to research the service information to find the actual sensor location and design. Manufacturers vary sensor placement. Assuming the sheet is wrong, replacing the bumper, or disabling the feature ignores the real layout.

19. C — A wildly fluctuating lane-width value on a well-marked highway indicates the camera is struggling to interpret the lane markings due to an aim or vision issue. Unstable lane data reflects a perception problem. It is not normal variation, excessive current, or total communication loss.

20. A — When floor space is shorter than the specified minimum, the target cannot be placed at the correct distance, so calibration fails. The procedure requires the full specified distance. It does not trip a fuse, change ultrasonic range, or drop the bus speed.

21. B — A "calibration valid" status with incorrect steering points to a mechanical aim issue the calibration completed around but did not correct. A completion message does not guarantee correct physical aim. The status does not guarantee aim, and ultrasonic sensors and the HUD wedge are unrelated to lane-keeping steering.

22. B — An "image sensor temperature high" code sets when the internal image sensor temperature exceeds a defined operating limit. The enable criterion is thermal. Battery voltage, radar calibration, and ultrasonic detection are unrelated to this specific code.

23. C — The correct first step in classifying a camera concern is to verify the concern and research the system's normal operating behavior. This distinguishes normal function from a malfunction or prior-service result. Replacing the camera, clearing codes, or recalibrating first skips the verification.

24. D — A wax film on the lens will distort or obscure the image, degrading detection and calibration accuracy. Any coating interferes with the optical path. It does not extend range, improve clarity, or self-clear with the wipers.

25. A — A camera that fails dynamic calibration only on faded roads but succeeds on clearly marked ones shows the poorly marked roads lack the lane references the camera needs to learn. The route, not the camera, is deficient. There is no internal defect, no need to unplug sensors, and no dark-room requirement.

26. D — Replacement glass for an integral-bracket camera must include the correct camera bracket and any required optical features. The camera's aim and image depend on proper bracket position and glass optics. Darker tint, omitting the bracket, or a thicker laminate would impair operation.

27. C — The reliable way to confirm optical-axis misalignment is to compare actual aim against specification using the calibration procedure. The procedure measures aim objectively. Visual estimates, supply voltage, and heater-grid resistance cannot quantify lens alignment.

28. C — After bay calibration, the required step is to road test the vehicle per manufacturer procedure to verify operation. Real-world performance is the proof of repair. Clearing codes without testing, re-replacing glass, or reducing bracket torque does not verify function.

29. A — The manufacturer's service information describing system layout and parts is the authoritative first resource for an unfamiliar camera system. It is reliable and model-specific. The owner's manual, forums, and casting numbers do not map system architecture.

30. A — The final step before release is a post-repair scan confirming no related DTCs remain. It proves the camera system is functioning. Resetting oil life, recording climate settings, and topping off washer fluid do not verify the repair.

31. D — When only the forward radar is unreachable while all others respond, the fault lies in the circuit or connector serving that module specifically. A shared battery or gateway fault would disable many modules. Isolating the loss to one node points to its individual wiring.

32. D — A two-degree mounting-angle error causes a large lateral position error at the radar's far detection range. Small angular errors compound over distance. The angle does not change baud rate, supply voltage, or heater resistance.

33. A — A corner reflector placed too far laterally produces an incorrect calibration that biases the radar's perceived target angle. The radar references the reflector's exact position. Misplacement does not create a short, change ultrasonic range, or kill the bus.

34. D — An infinite reading where 120 Ω is expected indicates an open in the CAN circuit interrupting bus continuity. Loss of continuity reads open. A short reads low, healthy parallel termination reads its nominal value, and a dead battery would not produce an open reading.

35. D — Late radar detection behind fresh paint is caused by excessive paint thickness that attenuates and delays the radar signal passing through the cover. Radar must penetrate within strict limits. It does not raise supply voltage, change baud rate, or force bus sharing.

36. A — Zero volts on both bus lines with the system powered most likely indicates a loss of power or a fault collapsing the bus signal on that segment. A dead bus shows no signal activity. This is not normal differential operation, an idle period, or a healthy comfort network.

37. C — Both technicians are correct: a radar calibration requires the target at the specified distance and the vehicle at correct ride height. Both conditions are required for valid calibration. Omitting either misdirects the beam.

38. D — The composite vehicle reference, which lists the radar's range specification value, is the correct source for the forward radar's detection range. It is authoritative for composite-vehicle data. Labor guides, catalogs, and other-brand experience do not supply this spec.

39. B — A terminal backed out and not fully seated should be reseated or repaired so it locks fully into the connector body. Restoring full engagement fixes the intermittent contact. Sealant, raised voltage, and releasing the vehicle do not correct the seating fault.

40. A — A radar dropout only over rough, broken pavement points to a loose connector or mount that breaks electrical contact under vibration. Mechanical disturbance reveals the marginal connection. A calibration file, a fully failed sensor, or "designed muting" would not track vibration.

41. A — A metal tool cabinet and parked lift within the radar's field are genuine environmental interference aborting an indoor calibration. Reflective surfaces return false signals. A ground drop, target shade, or software revision are not environmental interference.

42. B — ACC following too closely on its longest gap setting with no DTCs calls for investigating whether the radar's aim or mounting is biasing its perceived distance to the vehicle ahead. A skewed beam misjudges range. Fuse rating, cabin filter, and heater resistance do not affect following distance.

43. B — The thrust line is established by the vehicle's rear axle geometry, which defines the direction the vehicle actually tracks. Radar aim references this true tracking direction. Bumper distance, steering position, and camera axis do not define the thrust line.

44. C — A new radar reacting to adjacent-lane vehicles after calibration suggests a residual aim or mounting error skewing lateral detection. The beam points slightly off, widening coverage. Shipping origin, marginal battery, and disconnected ultrasonic sensors do not explain lateral misdetection.

45. C — The manufacturer-specified road test verifies the system performs correctly under actual real-world driving conditions. On-road behavior is the final proof of repair. It does not confirm battery recharge, TPMS relearn, or engine temperature.

46. B — Rear sensors stopping short of their specified range call for first checking whether the sensor faces are partially obstructed by dirt, ice, or residue reducing effective range. A coated face shortens detection. Excess current, a wrong speed signal, and a sensitivity option are not the first, simplest cause.

47. A — A sensor face covered by thick paint will dampen the emitted and returning waves, reducing detection reliability. Ultrasonic operation depends on a clean emitting surface. Paint does not usefully lengthen echo time, focus the beam, or pass waves freely.

48. B — The composite vehicle reference document describing the ultrasonic system specs is the authoritative source for the rear sensors' range and pattern. It is the defined reference for composite-vehicle data. Terminal resistance, scaled radar specs, and wheelbase do not provide this.

49. D — One erratic sensor among healthy ones is most efficiently diagnosed by checking that sensor's face and connector for obstruction, physical damage, or a loose connection. The fault is localized to that unit. Software revision, bus termination, and radar supply voltage are system-wide factors.

50. C — The repair is confirmed by performing a functional test and post-repair scan of the park-assist system. This verifies both real detection and clean communication. Reprogramming the radar, raising chime volume, or replacing good sensors is unnecessary.