

PRACTICE EXAM 20

1. A vehicle returns from a front-end collision repair with the forward camera, forward radar, and several lane and cruise features all behaving erratically. A pre-repair scan shows calibration-not-complete codes on both the camera and radar plus a lost-communication code. Which approach best fits the situation?

- A. Replace the forward camera and forward radar together
- B. Systematically address the shared collision event: verify geometry, restore communication, then recalibrate both sensors and verify
- C. Clear the codes and road test immediately
- D. Recalibrate only the camera and release the vehicle

2. During the same collision-repair diagnosis, the technician finds the front bumper was repainted with a thick metallic finish and the forward radar reports intermittent blockage. What is the most appropriate corrective direction for the radar specifically?

- A. Reprogram the gateway module
- B. Replace the forward-facing camera
- C. Perform a rear-axle alignment
- D. Address the fascia finish so it no longer attenuates the radar signal

3. The same vehicle also shows the forward camera failing lane keeping. The windshield was replaced during the repair with aftermarket glass. Which two factors should the technician verify first for the camera?

- A. Whether the glass is correct optical specification and whether the camera was recalibrated
- B. The tire pressures and the fuel level
- C. The key fob battery and the navigation maps
- D. The muffler condition and the brake fluid

4. Continuing the case, a lost-communication code names the ADAS control module, and that module is unresponsive to the scan tool. Before condemning it, what should the technician confirm?

- A. That the module has power, ground, and an intact bus connection
- B. That the windshield is OEM glass
- C. That the tire pressures are correct
- D. That the radio presets are set

5. The technician restores communication by repairing a damaged connector, then must complete the camera and radar calibrations. The vehicle still has an uncorrected ride-height change from the collision. What must happen before calibrating?

- A. Initiate the calibrations immediately
- B. Replace both sensors
- C. Restore correct ride height and geometry first
- D. Reprogram the gateway

6. A different vehicle presents with blind spot warning false-triggering and rear parking sensors false-alerting, both beginning after a rear collision repair. Which combination of causes is most consistent?

- A. A forward camera miscalibration and a thrust-angle error
- B. A windshield distortion and a gateway fault
- C. A misaimed rear corner radar and excessive paint or improper reseating of ultrasonic sensors
- D. A discharged battery and an outdated scan tool

7. In that rear-repair case, the technician must decide the order of operations. Which sequence is most appropriate?

- A. Calibrate first, then inspect for physical causes

B. Inspect and correct the radar mounting and ultrasonic sensor faces, then recalibrate/aim and verify

C. Replace both the radar and the sensors, then inspect

D. Release the vehicle and monitor for further complaints

8. A vehicle exhibits multiple forward features failing together. The technician confirms the forward camera communicates, the glass is clear and correct, the bracket is correct, and ride height is correct. What is the most logical remaining cause?

A. The rear ultrasonic sensors are painted over

B. The tire pressure sensors have failed

C. The key fob battery is dead

D. The shared camera requires recalibration or a software update

9. A complex case shows several ADAS modules on one network segment offline while body-network modules respond normally, with the gateway reporting lost communication with the offline modules. Where is the fault most logically isolated?

A. In each offline sensor independently

B. In the forward-facing camera alone

C. In the shared ADAS network segment or its gateway connection

D. In the tire pressure monitoring sensors

10. During that network diagnosis, the technician measures CAN-H to CAN-L resistance on the affected segment at rest and reads near infinity. What does this indicate?

A. An open in the bus wiring on that segment

B. Both terminators intact and healthy

C. A dead short across the bus

D. A normal 60-ohm reading

11. A vehicle's forward collision and adaptive cruise both misjudge distances, and the only recent service was a suspension lift with oversized tires. No collision occurred. Which is the most likely root cause?

- A. The ride-height change misaiming the forward radar and camera
- B. A failed gateway module
- C. Painted-over ultrasonic sensors
- D. A discharged key fob

12. In that lifted-vehicle case, after restoring correct ride height, what must the technician do for the forward sensors?

- A. Nothing further is required
- B. Recalibrate the forward radar and camera and verify function
- C. Replace both sensors
- D. Reprogram the gateway

13. A vehicle shows lane departure warning, lane keeping, traffic sign recognition, and automatic high beams all malfunctioning simultaneously. Which single explanation most efficiently accounts for all four?

- A. A shared forward-facing camera fault, including its view, aim, or calibration
- B. Four independent feature-module failures
- C. A rear corner radar fault
- D. Ultrasonic sensor obstruction

14. A technician investigating intermittent multi-system ADAS faults discovers a corroded shared ground serving several modules. Why does this single point explain widespread symptoms?

- A. Many modules share ground points, so one bad ground causes erratic, intermittent, multi-system behavior
- B. A poor ground changes the camera's optical specification
- C. A poor ground raises only the bus terminating resistance
- D. A poor ground affects only tire pressure sensors

15. A vehicle's adaptive cruise stopped maintaining gap, and a corner radar blind spot complaint also exists. The forward and corner radars are different units. How should the technician approach this?

- A. Assume one radar serves both and diagnose only the forward radar
- B. Recognize the forward radar serves cruise and the corner radar serves blind spot, and investigate each accordingly
- C. Replace both radars without diagnosis
- D. Reprogram the gateway and release

16. During an integrated diagnosis, the technician must distinguish a healthy sensor whose data isn't reaching its module from a truly failed sensor. Which underlying principle applies?

- A. A failed sensor and a communication fault always produce different feature symptoms
- B. Sensors never depend on the data bus
- C. Communication faults cannot mimic sensor faults
- D. A communication fault can prevent a healthy sensor's data from reaching its module, mimicking a sensor failure

17. A vehicle with several simultaneous faults has lost-communication codes naming one specific module that every other module reports losing. What is the most efficient hypothesis?

- A. Every reporting module has failed
- B. The terminating resistors are shorted
- C. The single named module or its power, ground, or bus connection is the likely cause

D. The windshield is distorted

18. A forward camera complaint and a forward radar complaint coexist after a windshield replacement and a bumper repair on the same vehicle. Which statement best guides the diagnosis?

A. Only the camera could be affected by these repairs

B. Only the radar could be affected by these repairs

C. The windshield work points to the camera and the bumper work points to the radar; both likely need recalibration

D. Neither repair could affect either sensor

19. A technician completes all repairs and recalibrations on a multi-system case, then runs a post-repair scan that is clean. For these safety-critical systems, what remains?

A. Functional verification, including road testing where needed, to confirm each system works

B. Nothing; a clean scan fully confirms the repair

C. Only repeating the pre-repair scan

D. Reprogramming the gateway as a precaution

20. A vehicle's parking system is reported as malfunctioning. The system fuses ultrasonic data with surround-view cameras. Why is it a mistake to assume the cause is purely ultrasonic?

A. Ultrasonic sensors always fail before cameras

B. The cause could lie in the surround-view cameras or their integration, not the ultrasonic sensors alone

C. Surround-view cameras use radar returns

D. The gateway cannot route ultrasonic data

21. A composite-vehicle scenario defines a forward feature as active in a forward gear above a set speed, with the controls on the steering wheel and an off-switch on the ADAS control panel. A customer complaint matches the defined behavior. What should the technician conclude?

- A. The control switch is faulty
- B. The module needs reprogramming
- C. The gateway is overriding the system
- D. The behavior is normal per the defined parameters

22. A vehicle returns repeatedly for the same forward camera calibration failure. Each attempt is re-run without investigating why. What is the underlying error in this approach?

- A. The camera should have been replaced first
- B. The glass should always be replaced before calibration
- C. Calibration should never be retried
- D. The unmet requirement causing the failure was never identified and corrected

23. A technician finds that a vehicle's forward radar has good power and ground, intact bus wiring, and a clear fascia, yet still cannot communicate. What is the most likely remaining cause?

- A. A windshield optical distortion
- B. A thrust-angle error
- C. The radar module itself or its internal bus interface
- D. A painted ultrasonic sensor

24. During a road test of an active emergency braking system after repair, what approach best satisfies safe functional verification?

- A. Test in dense traffic to simulate real conditions

- B. Choose suitable conditions, remain in control, and follow safe-testing practices
- C. Disable the brakes so the system cannot intervene
- D. Skip the test because the scan was clean

25. A vehicle's forward features fail only in heavy rain and snow that obscure the lane lines, returning to normal afterward. How should the technician classify this within a multi-system review?

- A. An intermittent camera module fault requiring replacement
- B. A normal visibility limitation rather than a component failure
- C. A gateway dropout triggered by precipitation
- D. A radar blockage disabling the camera

26. A technician documents the complete code set and notes which modules respond and which do not before any repair on a complex vehicle. Why is this the correct first analytical step?

- A. It recalibrates the sensors
- B. It updates the navigation system
- C. It sets the climate preferences
- D. The response pattern and code relationships help localize a shared cause

27. A vehicle with a lift, oversized tires, and an aftermarket front bumper presents with forward ADAS complaints. Which combination of corrections is required before calibration?

- A. Only a software update
- B. Only a wheel alignment
- C. Replacing the forward radar
- D. Restoring correct ride height and addressing the non-factory bumper affecting sensor mounting/aim

28. A technician must verify the vehicle's true direction of travel before calibrating a forward sensor, because the rear alignment is suspect. Which measurement is most relevant?

- A. The windshield rake angle
- B. The thrust angle relative to the geometric centerline
- C. The camera's field-of-view width
- D. The radar's frequency band

29. A vehicle shows a forward camera fault after a glass shop without ADAS capability replaced the windshield. The camera communicates and the bracket is correct. What are the two most important checks?

- A. Whether the glass is correct optical specification and whether recalibration was performed
- B. The tire pressures and fuel level
- C. The key fob and the navigation maps
- D. The muffler and brake fluid

30. A vehicle presents with simultaneous failures across camera, radar, and ultrasonic features, with lost-communication codes. Which diagnostic principle should lead the approach?

- A. Find the single shared cause that explains all the symptoms
- B. Replace the most expensive sensor first
- C. Diagnose each system in complete isolation
- D. Clear the codes and release

31. During the shared-cause investigation, the technician confirms a gateway-related communication problem affecting multiple modules. After repairing it, what must follow?

- A. Release the vehicle immediately
- B. Recalibrate nothing

- C. Re-scan and verify all previously affected systems now communicate and function
- D. Replace the forward camera as a precaution

32. A forward radar feature works in clear weather but disables with heavy snow packed on the fascia, resuming once cleared. Within a multi-system review, how is this best classified?

- A. An internal radar hardware failure
- B. A gateway communication fault
- C. A camera optical distortion
- D. A blockage-related condition that may be normal and self-resolving

33. A vehicle's lane keeping has not worked since a windshield replacement, and adaptive cruise has not worked since a bumper repair. Which single guiding insight ties the diagnosis together?

- A. Both complaints must share one electrical fault
- B. Neither repair could affect ADAS
- C. Prior unrelated repairs commonly disturb sensor aim, so each repair likely requires its sensor's recalibration
- D. Only the gateway could explain both

34. A technician finds an ADAS module's ground reads 1.5 volts of drop under load during a multi-system diagnosis. What does this indicate, and what is the consequence?

- A. A healthy ground with no consequence
- B. A high-resistance ground that can starve the module and cause erratic behavior
- C. A short to power that overcharges the module
- D. A normal reading requiring no action

35. A vehicle's forward collision system completed calibration per the scan tool, but a road test shows it brakes for phantom obstacles. The bumper was recently repaired. Which is the most likely explanation?

- A. The calibration was performed correctly and the system is normal
- B. A misaimed forward radar from the disturbed mounting, producing false detections
- C. A dead key fob battery
- D. An outdated navigation map

36. During an integrated repair, the technician replaces a forward camera, mounts and configures it, and calibrates it, but skips verifying the glass specification. Lane features remain unreliable. What was likely overlooked?

- A. The tire pressures
- B. The brake fluid level
- C. The replacement glass may be incorrect optical specification, distorting the camera's view
- D. The key fob battery

37. A vehicle has multiple forward features down, and the forward camera reads a lost-communication code with its supply pin showing zero volts at the key-on position. What is the correct next focus?

- A. Recalibrate the camera
- B. Trace the upstream power feed and fuse to restore supply
- C. Replace the camera module
- D. Perform a dynamic calibration

38. A technician approaches a multi-system fault by first asking what the failing systems share — a sensor, a network segment, a power or ground point, or a common event. Why is this the right starting strategy?

- A. The simplest shared cause that explains all symptoms is usually correct
- B. Each system always fails independently
- C. The most expensive part is usually the cause
- D. Shared causes are rare and should be ignored

39. A vehicle's forward radar and camera both require calibration after a collision repair. The manufacturer specifies static for the radar and a static-plus-dynamic sequence for the camera. What must the technician do?

- A. Perform only the radar static calibration
- B. Perform only the camera dynamic calibration
- C. Follow each sensor's specified procedure completely, including both portions for the camera
- D. Skip calibration since codes may clear on their own

40. A technician completes a calibration that the scan tool reports successful but performs no functional check. For a multi-system safety-critical repair, why is releasing now premature?

- A. The post-repair scan recalibrates the sensors again
- B. Completion messages are only valid on hybrids
- C. Calibration must be performed three times
- D. A misaimed sensor can complete and pass, so functional verification is still required

41. A vehicle's several ADAS systems fail intermittently and together, with no single sensor code but recurring lost-communication entries. Which root-cause category is most consistent?

- A. Four independent sensor failures
- B. A windshield optical distortion
- C. A painted ultrasonic sensor
- D. A shared power, ground, or bus/network problem

42. During a complex diagnosis, the technician uses the schematic to identify the exact pin carrying a module's supply, then back-probes it under operating conditions. Why is this method sound?

- A. It changes the module's configuration
- B. It compares the expected value from the schematic with the actual measured value to localize the fault
- C. It increases the bus speed
- D. It eliminates the need for any further testing

43. A vehicle returns after ADAS service with one feature still inoperative. The prior technician documented a clean post-repair scan but no road test. What does this case illustrate?

- A. A clean scan alone always confirms a repair
- B. Road testing is optional for all systems
- C. Functional verification is unnecessary
- D. A clean scan is necessary but not sufficient; functional verification is required

44. A vehicle with a forward camera complaint had its windshield replaced and its bracket replaced with a wrong part number. The camera communicates and the glass is correct spec. What is the most complete corrective action?

- A. Replace the camera module
- B. Reprogram the gateway
- C. Install the correct bracket to restore aim, then recalibrate and verify
- D. Replace the windshield again

45. A technician encounters a parking complaint with false alerts after a bumper repaint, plus a separate blind spot complaint after the same repair. Which paired diagnosis is most appropriate?

- A. Both are forward radar faults

- B. Both are camera calibration faults
- C. The ultrasonic false alerts point to the sensor faces/reseating, and the blind spot fault points to corner-radar aim
- D. Both are gateway faults

46. A vehicle's ADAS CAN bus reads about 40 ohms at rest instead of the expected 60. Within a multi-system fault, what does this suggest?

- A. An additional unintended parallel path lowering the resistance
- B. A normal, healthy bus
- C. A completely open bus
- D. A missing terminator raising resistance

47. A technician finds that correcting a single shared ground resolves several simultaneous ADAS symptoms. What does this outcome confirm about the original diagnosis?

- A. The shared-cause approach correctly identified one root explaining all the symptoms
- B. Each system had an independent fault
- C. The most expensive sensor should have been replaced
- D. The codes were meaningless

48. A vehicle requires both a static bay calibration and a dynamic road calibration for its forward camera. The technician completes the static portion and the bay is no longer available, but the road conditions are suitable. What is the best course?

- A. Release the vehicle as calibrated
- B. Replace the camera
- C. Reprogram the gateway
- D. Complete the required dynamic portion to finish the calibration

49. A vehicle's forward features all fail together; the technician verifies clear correct glass, normal communication, correct bracket, and correct ride height. What is the best next step?

- A. Replace the rear ultrasonic sensors
- B. Determine whether the shared camera needs recalibration or a software update
- C. Replace the key fob battery
- D. Check the tire pressure sensors

50. A multi-system ADAS repair concludes with all root causes corrected, all required calibrations and configurations performed, a clean post-repair scan, and a road test confirming every feature functions. Which principle does this complete sequence demonstrate?

- A. A repair is confirmed only when a post-repair scan plus functional verification both pass
- B. A completion message alone is sufficient
- C. Pre-repair scanning can always be skipped
- D. Functional verification is unnecessary for non-hybrids

Answer Key & Full Answer Explanations

1. B — A collision that disturbed both sensors plus a communication code calls for systematically addressing the shared event: verify geometry, restore communication, then recalibrate both sensors and verify. Replacing both, clearing codes, or doing only the camera ignores the shared root and leaves systems unconfirmed. The unified strategy targets the common cause, not isolated parts.

2. D — A thick metallic refinish can attenuate the radar signal, so the fascia finish must be addressed for the radar. Reprogramming the gateway, replacing the camera, or aligning the rear axle would not restore radar transmission. Refinish work is a correctable, often-overlooked radar cause.

3. A — After an aftermarket windshield, the two key camera checks are whether the glass is correct optical specification and whether the camera was recalibrated. Tire pressures, fuel, key fob, maps, muffler, and brake fluid are unrelated to a forward-camera complaint. Glass spec and recalibration are the critical post-replacement checks.

4. A — Before condemning an unresponsive ADAS control module, confirm it has power, ground, and an intact bus connection. Glass type, tire pressures, and radio presets are irrelevant to a communication loss. A powerless or disconnected module appears dead but may be fine.

5. C — With communication restored but ride height still wrong, restore correct ride height and geometry before calibrating. Initiating calibration, replacing sensors, or reprogramming first would lock the aiming error in. Geometry is a prerequisite to calibration.

6. C — Blind spot false-triggering plus rear parking false alerts after a rear repair point to a misaimed rear corner radar and excessive paint or improper reseating of ultrasonic sensors. Forward camera, windshield, gateway, battery, and scan-tool issues do not fit these rear symptoms. Rear collision work commonly disturbs both corner radar and ultrasonic sensors.

7. B — The correct order is to inspect and correct the radar mounting and ultrasonic sensor faces, then recalibrate/aim and verify. Calibrating before inspecting, replacing before inspecting, or releasing and monitoring are all improper. Physical correction precedes calibration and verification.

8. D — With clear correct glass, normal communication, a correct bracket, and correct ride height, the remaining cause is that the shared camera requires recalibration or a software update. Painted ultrasonic sensors, tire pressure sensors, and the key fob are unrelated to grouped forward faults. The shared camera is the common denominator.

9. C — Several ADAS modules offline on one segment while body modules respond, with the gateway reporting the losses, isolates the fault to the shared ADAS network segment or its gateway connection. Independent sensor failures, the camera alone, or tire pressure sensors do not fit a segment-wide pattern. The affected-versus-unaffected pattern localizes the fault.

10. A — A near-infinite CAN-H to CAN-L reading indicates an open in the bus wiring on that segment. Intact terminators read about 60 ohms and a short reads near zero. An open isolates modules from the network.

11. A — Forward collision and adaptive cruise misjudging distances after only a lift with oversized tires point to the ride-height change misaiming the forward radar and camera. A gateway failure, painted ultrasonic sensors, or a key fob would not produce this. Ride-height modifications directly misaim body-mounted sensors.

12. B — After restoring correct ride height, recalibrate the forward radar and camera and verify function. Doing nothing, replacing both sensors, or reprogramming would not restore correct aim. Geometry correction is followed by recalibration and verification.

13. A — Lane departure, lane keeping, traffic sign recognition, and high beams failing together most efficiently trace to a shared forward-facing camera fault, including its view, aim, or calibration. Four independent failures, a corner radar fault, or ultrasonic obstruction do not explain all four. Shared sensors explain grouped failures.

14. A — Because many modules share ground points, one corroded ground causes erratic, intermittent, multi-system behavior. A poor ground does not change glass spec, selectively raise bus resistance, or affect only tire sensors. Shared grounds are a classic source of widespread intermittent faults.

15. B — Recognizing that the forward radar serves cruise and the corner radar serves blind spot, the technician investigates each accordingly. Assuming one unit serves both, replacing both blindly, or reprogramming and releasing are wrong. The affected feature identifies the correct radar.

16. D — A communication fault can prevent a healthy sensor's data from reaching its module, mimicking a sensor failure. Sensors do depend on the bus, and communication faults can and do mimic sensor faults. This is why the network must be considered, not just the endpoints.

17. C — When every module reports losing one specific module, the efficient hypothesis is that the single named module or its power, ground, or bus connection is the cause. All modules failing or shorted terminators are far less likely, and glass is irrelevant. The relationship map points to the shared element.

18. C — The windshield work points to the camera and the bumper work points to the radar, so both likely need recalibration. It is wrong to assume only one sensor is affected or that neither repair matters. Each repair disturbs its associated sensor's reference.

19. A — After repairs and recalibrations with a clean post-repair scan on safety-critical systems, functional verification including road testing where needed confirms each system works. A clean scan alone, repeating only the pre-repair scan, or reprogramming are insufficient. A misaimed sensor can pass a scan, so function must be confirmed.

20. B — A fused parking system means the cause could lie in the surround-view cameras or their integration, not the ultrasonic sensors alone. Ultrasonic sensors do not always fail first, surround-view cameras do not use radar, and the gateway can route the data. Identify which sensors actually serve the complaint.

21. D — A complaint matching the defined forward-gear, above-speed behavior with reference-specified controls is normal per the defined parameters. The switch is not faulty, the module needs no reprogramming, and the gateway is not overriding. Defined behavior is not a fault.

22. D — Re-running a failing calibration without investigating means the unmet requirement causing the failure was never identified and corrected. Replacing the camera first, always replacing glass, or never retrying are not the issue. Diagnose the cause, correct it, then re-run.

23. C — With good power, ground, intact bus wiring, and a clear fascia, a radar that still cannot communicate points to the module or its internal bus interface. Glass distortion, a thrust-angle error, or a painted ultrasonic sensor would not cause a communication loss. Once the external circuit checks out, the module is the suspect.

24. B — Safe functional verification of an active braking system means choosing suitable conditions, remaining in control, and following safe-testing practices. Dense traffic, disabled brakes, or skipping the test are unsafe or inadequate. Verify function without creating a hazard.

25. B — Forward features failing only in heavy rain and snow that obscure the lines, then recovering, is a normal visibility limitation. An intermittent module fault, a gateway dropout, or a radar blockage are not supported. Condition-specific symptoms usually indicate designed limits.

26. D — Documenting the full code set and which modules respond first is correct because the response pattern and code relationships help localize a shared cause. It does not recalibrate, update navigation, or set climate. The pattern is a map to the root cause.

27. D — A lift, oversized tires, and an aftermarket bumper require restoring correct ride height and addressing the non-factory bumper affecting sensor mounting/aim before calibration. A software update or alignment alone, or replacing the radar, would not address all the non-factory conditions. Non-factory conditions must be corrected before calibrating.

28. B — To verify the vehicle's true direction of travel with a suspect rear alignment, the thrust angle relative to the geometric centerline is most relevant. Windshield rake, camera field of view, and radar frequency are unrelated to tracking direction. Forward sensors are referenced to the thrust line.

29. A — After a non-ADAS glass shop replaced the windshield, the two key checks are whether the glass is correct optical specification and whether recalibration was performed. Tire pressures, fuel, key fob, maps, muffler, and brake fluid are unrelated. Glass spec and recalibration are the critical checks.

30. A — Simultaneous camera, radar, and ultrasonic failures with lost-communication codes call for finding the single shared cause that explains all symptoms. Replacing expensive parts, isolating each system, or clearing codes ignores the pattern. The simplest shared cause is usually correct.

31. C — After repairing a gateway-related communication problem, re-scan and verify all previously affected systems now communicate and function. Releasing immediately, recalibrating nothing, or replacing the camera are inappropriate. Verification confirms the shared repair resolved every symptom.

32. D — A radar disabling with heavy snow packed on the fascia and resuming once cleared is a blockage-related condition that may be normal and self-resolving. An internal failure, gateway fault, or camera distortion are not supported. Blockage protection is designed behavior.

33. C — Lane keeping failing since a windshield replacement and cruise failing since a bumper repair tie together because prior unrelated repairs commonly disturb sensor aim, so each repair likely requires its sensor's recalibration. The complaints need not share one electrical fault, the repairs do affect ADAS, and the gateway is not the common explanation. Each repair disturbs its associated sensor.

34. B — A ground reading 1.5 volts of drop under load is a high-resistance ground that can starve the module and cause erratic behavior. It is not healthy, a short to power, or a normal reading. Excessive ground-side drop produces erratic, multi-symptom behavior.

35. B — A forward collision system that brakes for phantom obstacles after a bumper repair, despite a completion message, indicates a misaimed forward radar from the disturbed mounting

producing false detections. The system is not normal, and a key fob or navigation map would not cause false braking. A scan can pass while the radar is misaimed.

36. C — A replaced, mounted, configured, and calibrated camera that still fails, with the glass spec unverified, suggests the replacement glass may be incorrect optical specification, distorting the view. Tire pressures, brake fluid, and the key fob are unrelated. Glass spec matters even when the camera is electrically and geometrically correct.

37. B — A forward camera with a lost-communication code and zero volts at its supply pin requires tracing the upstream power feed and fuse to restore supply. Recalibrating, replacing, or calibrating ignores the missing power. Restore power before condemning the module.

38. A — Starting by asking what the failing systems share is right because the simplest shared cause that explains all symptoms is usually correct. Systems do not always fail independently, the most expensive part is not usually the cause, and shared causes are common. Diagnose the pattern, not each symptom.

39. C — When the manufacturer specifies static for the radar and static-plus-dynamic for the camera, follow each sensor's specified procedure completely, including both portions for the camera. Doing only one portion or skipping calibration leaves the work incomplete. The complete specified procedure must be performed for each sensor.

40. D — Releasing after only a completion message is premature because a misaimed sensor can complete and pass, so functional verification is still required. The post-repair scan does not recalibrate, completion is not hybrid-only, and a three-times rule does not exist. Confirmed function, not completion, is the release standard.

41. D — Intermittent simultaneous failures with no single sensor code but recurring lost-communication entries point to a shared power, ground, or bus/network problem. Four independent failures, glass distortion, or a painted ultrasonic sensor would not produce this pattern. Shared electrical and network faults cause widespread intermittent symptoms.

42. B — Using the schematic to identify the supply pin and back-probing under operating conditions is sound because it compares the expected value from the schematic with the actual measured value to localize the fault. It does not change configuration, increase bus speed, or eliminate further testing. Diagnosis is the comparison of expected to actual.

43. D — A returning vehicle with a clean prior scan but no road test illustrates that a clean scan is necessary but not sufficient; functional verification is required. A clean scan does not always confirm a repair, and road testing and functional verification are not optional for safety-critical systems. Verification closes the loop.

44. C — A wrong-part bracket shifting camera aim, with correct glass and communication, is corrected by installing the correct bracket to restore aim, then recalibrating and verifying. Replacing the camera, reprogramming the gateway, or replacing the windshield would not fix the mounting error. Correct mounting precedes calibration.

45. C — Parking false alerts plus a blind spot complaint after a repaint pair as the ultrasonic false alerts pointing to the sensor faces/reseating and the blind spot fault pointing to corner-radar aim. They are not both forward radar, both camera, or both gateway faults. Each symptom maps to its own sensor cause from the shared repair.

46. A — A CAN bus reading about 40 ohms instead of 60 suggests an additional unintended parallel path lowering the resistance. It is not normal, fully open, or a missing terminator raising resistance. Extra parallel paths pull the reading below 60.

47. A — Correcting a single shared ground that resolves several symptoms confirms the shared-cause approach correctly identified one root explaining all the symptoms. It does not indicate independent faults, justify replacing the expensive sensor, or render the codes meaningless. The outcome validates the unified strategy.

48. D — With the static portion done, suitable road conditions, and the bay unavailable, complete the required dynamic portion to finish the calibration. Releasing, replacing the camera, or reprogramming would leave it incomplete. The full specified procedure must be performed.

49. B — With clear correct glass, normal communication, a correct bracket, and correct ride height, the next step is to determine whether the shared camera needs recalibration or a software update. Ultrasonic sensors, the key fob, and tire pressure sensors are unrelated to grouped forward faults. The shared camera is the common denominator.

50. A — Correcting all root causes, performing all calibrations and configurations, a clean post-repair scan, and a confirming road test demonstrates that a repair is confirmed only when a post-repair scan plus functional verification both pass. A completion message alone, skipping the pre-

repair scan, or exempting non-hybrids are all incorrect. Verification closes the loop on every ADAS repair.