PRACTICE EXAM 13: ASE L4 SIMULATION (50 QUESTIONS)

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1. A technician begins diagnosing an ADAS-related customer complaint. The first required step in the workflow before any other action is:

A. Performing a pre-repair scan to document the vehicle's starting diagnostic condition

B. Clearing all existing codes to establish a fresh diagnostic state for the repair

C. Replacing the ADAS Central Module as a starting point for any ADAS complaint

D. Performing a full static calibration of every ADAS sensor before diagnosis begins

2. A pre-repair scan has been completed and DTCs documented. The next required step in the professional ADAS diagnostic workflow is:

A. Clearing all the documented codes immediately before any further investigation begins

B. Performing a static calibration of every sensor as a precaution for every complaint

C. Replacing the modules that reported any codes in the pre-repair scan documentation

D. Researching OEM service information and position statements applicable to the complaint

3. A replacement ADAS module has just been physically installed in a vehicle. The first step in the OEM-specified post-installation workflow is typically:

A. Dynamic calibration of the module during the next customer-driven road test following installation

B. Clearing all codes and delivering the vehicle to the customer for normal use immediately

C. Programming — loading the module's firmware software via the scan tool or equivalent tool

D. Static calibration before any programming or configuration of the new module has occurred

4. Following successful programming of a replacement ADAS module, the next required step per OEM procedure typically is:

A. Delivering the vehicle to the customer since programming has been completed successfully now

B. Performing a dynamic calibration drive regardless of any static calibration requirements specified

C. Static calibration before any coding or configuration has been completed on the module yet

D. Coding — configuring the module with vehicle-specific parameters and feature options

5. After programming and coding of a replacement ADAS module have been completed successfully, the next required step per OEM specification typically is:

A. Module initialization — OEM-specified setup routines preparing the module for calibration

B. Delivering the vehicle without any further calibration steps regardless of OEM requirements

C. Dynamic calibration only, skipping any static calibration requirement per OEM procedure

D. Clearing every code and considering the replacement workflow complete at this stage now

6. Programming, coding, and initialization of a replacement ADAS module have been completed. The final required step before the module is functionally usable typically is:

A. Clearing codes without performing any further procedures on the module at all

B. Calibration per OEM procedure — establishing the geometric reference for the module

C. Delivering the vehicle directly to the customer regardless of any remaining steps

D. Programming the module a second time with the current firmware release as backup

7. After all calibration steps have been completed successfully, the verification sequence before vehicle delivery typically is:

A. Post-repair scan followed by an operational road test of the affected ADAS features

B. Clearing all remaining codes and delivering the vehicle without any testing at all

C. Only a scan tool check without road testing since the tool confirms everything needed

D. Only a road test without a scan since driving verifies the system more reliably generally

8. A technician has disconnected the battery during service. Before reconnecting and returning the vehicle, the correct sequence includes:

A. Reconnecting the battery, driving normally, and hoping any relearn procedures complete automatically

B. Reconnecting the battery, then checking OEM procedures for required relearn procedures for affected modules

C. Replacing all affected ADAS modules since battery disconnection damages each one permanently always

D. Performing a complete four-wheel alignment to reset steering references for every disconnection event

9. A technician is about to begin an ADAS calibration. The correct sequence before starting the calibration procedure is:

A. Starting the procedure and addressing any preconditions that the scan tool might flag later

B. Clearing all existing codes first, then verifying preconditions only after the procedure starts

C. Running the procedure once to see what happens, then correcting issues on the second attempt

D. Verifying all preconditions — voltage, tire pressure, loading, floor slope, target placement — first

10. A technician is performing a voltage drop test on an ADAS module's supply wire. The correct sequence of actions includes:

A. Setting the multimeter to DC volts, placing leads at each end of the wire, operating circuit under load

B. Setting the multimeter to ohms and checking resistance with the circuit completely powered down

C. Measuring continuity only with the circuit disconnected from any power source or load applied

D. Starting with the circuit disconnected, then slowly applying voltage while watching for any sparks

11. A technician suspects a CAN bus communication issue. The correct sequence of diagnostic actions begins with:

A. Replacing each module on the bus in turn until the issue disappears from the vehicle

B. Reprogramming the Gateway Module with the current firmware release as the first step

C. Measuring bus resistance with ignition off, then using a scope to observe waveform quality

D. Clearing all codes and driving the vehicle normally to see if the issue resolves itself

12. After replacing a blown fuse in an ADAS circuit, the fuse blows again within seconds. The correct next diagnostic sequence is:

A. Disconnecting modules on the circuit one at a time while testing with a fresh fuse to isolate the short

B. Installing a higher-rated fuse to prevent further fuse failure and returning to diagnosis later

C. Clearing all codes and delivering the vehicle since the fuse protection is working correctly

D. Replacing every module on the affected circuit simultaneously without any further testing

13. A vehicle exhibits an intermittent ADAS fault that only occurs under specific conditions. The correct diagnostic sequence includes:

A. Clearing codes without investigating further and hoping the issue resolves during future drives

B. Identifying enable criteria, driving under matching conditions, and monitoring scan tool data

C. Replacing every ADAS module that shows any history code as a starting point for diagnosis

D. Reprogramming every ADAS module on the vehicle with current firmware release immediately

14. A replacement ADAS module has been programmed, coded, initialized, calibrated, and scan-tool verified. The final sequence before customer delivery is:

A. Clearing any remaining codes and delivering the vehicle without operational verification testing

B. Performing a second complete calibration cycle to confirm the first calibration was correct

C. Operational road test to exercise the feature under real conditions, then customer handoff with expectations

D. Keeping the vehicle overnight without any customer communication before delivery to customer

15. When preparing for an ADAS repair, the correct sequence of research activities typically includes:

A. Starting the repair first and consulting OEM information only when questions arise during work

B. Consulting OEM service procedures, position statements, and TSBs before beginning any repair work

C. Relying on general automotive knowledge since ADAS procedures are similar across all manufacturers

D. Consulting only aftermarket repair databases since OEM information is not relevant to ADAS service

16. After completing an ADAS repair, the correct post-repair scan sequence involves:

A. Running only a quick check of the module that was repaired without scanning other modules

B. Comparing the post-repair scan to last year's scan to check for long-term condition changes

C. Comparing the post-repair scan to the pre-repair scan to verify codes cleared and no new codes appeared

D. Skipping the post-repair scan entirely if the repair appears to have been successful based on testing

17. Freeze frame data from an ADAS DTC shows battery voltage at 11.8 volts during the fault event. The correct diagnostic sequence considers:

A. Investigating the charging system and battery condition before assuming an ADAS module fault

B. Immediately replacing the ADAS module since the fault set under the low-voltage conditions

C. Clearing the code and delivering the vehicle since low voltage is only a transient condition

D. Reprogramming every ADAS module to compensate for any future low-voltage events observed

18. After physically installing a replacement forward camera, the correct sequence of scan tool operations is:

A. Calibration first, then programming, then coding, then initialization in that specific order

B. Programming, then coding, then initialization, then calibration per the OEM procedure

C. Clearing all codes first, then performing any remaining scan tool operations as needed

D. Only calibration since programming and coding happen automatically during replacement

19. After a windshield replacement on a vehicle with a forward camera, the correct follow-up sequence includes:

A. Verifying camera mounting, cleaning the windshield area, confirming preconditions, then calibrating

B. Proceeding directly to calibration without any preparation or verification of the camera mounting

C. Dynamic calibration first during a drive, then static calibration afterward at the shop location

D. Delivering the vehicle without calibration since windshield replacement does not affect cameras

20. Before beginning a forward camera static calibration, the correct order of precondition verification includes:

A. Only verifying battery voltage since other preconditions are not important for camera calibration

B. Starting the procedure and watching the scan tool for any precondition-related messages

C. Verifying only the target placement since other preconditions are handled by the scan tool

D. Battery voltage, tire pressure, vehicle loading, fuel level, floor slope, and target placement first

21. A surround view camera has been replaced in the front bumper cover. The correct sequence of steps includes:

A. Delivering the vehicle without calibration since surround view is a secondary feature only

B. Dynamic calibration only during normal driving without any static procedure beforehand at shop

C. Programming, coding, initialization, then static calibration of the replaced surround view camera

D. Replacing all four surround view cameras simultaneously to maintain image consistency always

22. After a driver monitoring camera has been replaced and programmed, the correct next step is:

A. Delivering the vehicle immediately since driver monitoring calibration is automatic always

B. Performing a dynamic calibration drive without any static setup or initialization procedure

C. Reprogramming every other ADAS module to match the new driver monitoring camera installed

D. Completing OEM-specified initialization and calibration steps for the driver monitoring system

23. A vehicle requires replacement of both the forward camera and a corner radar module. The correct sequence is:

A. Calibrating every module simultaneously in a single combined procedure without any sequence

B. Completing programming, coding, initialization, and calibration for each module per OEM procedure

C. Delivering the vehicle without calibrating either module since the customer wants a quick repair

D. Performing only dynamic calibration for both modules without any static procedures at all

24. A customer reports that lane departure warning fails on a specific stretch of highway only. The correct diagnostic sequence includes:

A. Replacing the forward camera immediately as a starting point for the complaint without testing

B. Reprogramming the ADAS Central Module with the most current firmware release available

C. Road testing under the same conditions while observing scan tool data for lane detection

D. Clearing all codes and delivering the vehicle without any further investigation of the complaint

25. A customer complains that automatic high beam control activates high beams inappropriately at night. The correct diagnostic sequence begins with:

A. Inspecting the forward camera view area, verifying calibration, and reviewing scan tool data

B. Replacing the entire lighting system including every bulb as a starting point for the issue

C. Reprogramming the Gateway Module with the current firmware release available for update

D. Delivering the vehicle without any investigation since HBA behavior is unpredictable generally

26. Surround view display shows a blank area where one camera's image should appear. The correct diagnostic sequence begins with:

A. Replacing the entire Surround View Module as a starting point for the specific complaint

B. Replacing every surround view camera on the vehicle as a precaution against future failure

C. Reprogramming the ADAS Central Module with the current firmware release available immediately

D. Physical inspection of the affected camera followed by scan tool communication verification

27. Traffic sign recognition has stopped working while lane departure warning continues normally. The correct diagnostic sequence considers:

A. The camera's sign-sensing area on the windshield, then calibration status, then module communication

B. Replacing the forward camera module immediately as the first step of diagnostic investigation

C. Complete replacement of the entire ADAS system regardless of any other diagnostic factors

D. Reprogramming every ADAS module with the current firmware release release immediately now

28. A customer reports camera features fail specifically during cold weather driving. The correct diagnostic sequence begins with:

A. Replacing the forward camera module as a precaution against cold-weather component failure

B. Reprogramming the ADAS Central Module with cold-weather specific firmware when available

C. Normal operation during cold weather that should not be investigated further by technicians

D. Verifying forward camera heater operation and checking for cold-start camera view obstruction

29. A forward camera calibration has failed three times with the same error message. The correct next diagnostic sequence is:

A. Replacing the forward camera module since three failures indicate a defective replacement unit

B. Reviewing OEM service information for recent TSBs affecting this specific calibration procedure

C. Proceeding with delivery since the third attempt made progress toward completion of the procedure

D. Performing a four-wheel alignment to reset the vehicle's geometric references for the camera

30. After a forward camera calibration has been completed successfully, the correct verification sequence includes:

A. Clearing all codes and delivering the vehicle without any operational testing required whatsoever

B. A second static calibration immediately after the first to verify the result was correct and valid

C. Keeping the vehicle overnight without any operational testing before delivery to the customer

D. Post-repair scan verification followed by operational road test of camera-dependent features

31. A forward radar module has been physically installed. The correct sequence of subsequent actions is:

A. Delivering the vehicle since the physical installation has been completed successfully now

B. Programming, coding, initialization, and OEM-specified calibration completed before delivery

C. Only dynamic calibration during the next driving session without any static procedure required

D. Clearing all codes and completing the workflow without any additional procedures required

32. A forward radar static calibration is about to begin. The correct precondition verification sequence includes:

A. Starting the procedure immediately and addressing issues as they arise during calibration

B. Verifying only battery voltage before beginning since other factors do not affect radar

C. Battery voltage, tire pressure, vehicle loading, fuel level, floor slope, and target placement

D. Clearing all codes and assuming preconditions are met based on the scan tool's assessment

33. After a bumper cover replacement on a vehicle with forward radar, the correct follow-up sequence is:

A. Verifying radar mounting, confirming transparency of bumper materials, then calibrating per OEM

B. Delivering the vehicle without calibration since bumper work does not affect radar operation

C. Dynamic calibration only during driving without any static calibration procedure at the shop

D. Replacing the forward radar after any bumper cover replacement as a general precaution

34. A corner radar module has been replaced. The correct sequence of actions is:

A. Delivering the vehicle immediately since corner radars calibrate automatically during driving

B. Dynamic calibration only without any static calibration procedure specified for the corner radar

C. Programming, coding, initialization, and OEM-specified calibration for the replaced corner radar

D. Only clearing the codes without any other procedures after the physical replacement is done

35. A customer reports erratic ACC behavior throughout their daily driving. The correct diagnostic sequence begins with:

A. Pre-repair scan, review of freeze frame data, and inspection of the forward radar zone area

B. Replacing the forward radar immediately as a starting point for any ACC-related complaints

C. Reprogramming the ADAS Central Module as the first step of the diagnostic investigation

D. Performing a four-wheel alignment to correct the radar's geometric reference during the visit

36. A technician is diagnosing a corner radar CAN bus communication issue. The correct sequence begins with:

A. Replacing each corner radar module on the private bus sequentially until the issue resolves

B. Measuring bus resistance, then observing waveforms, then verifying supply and ground connections

C. Reprogramming the Gateway Module as a first step for any CAN bus communication related issue

D. Clearing all codes and delivering the vehicle since private bus issues typically resolve themselves

37. A forward radar calibration procedure has aborted with a specific precondition error displayed. The correct next sequence is:

A. Ignoring the error and attempting the calibration again with identical settings as before

B. Replacing the forward radar module based on the precondition error appearing during procedure

C. Proceeding to dynamic calibration only, bypassing the static calibration step that was aborted

D. Reviewing each flagged precondition, addressing them, then retrying the calibration procedure

38. A customer reports AEB triggering on roadside fixtures. The forward radar was calibrated last month. The correct diagnostic sequence considers:

A. Replacing the forward radar immediately based on the complaint of false activation issues

B. Normal AEB behavior that should be accepted without any investigation or corrective action

C. Calibration drift, recent mechanical changes, bumper condition, and radar mounting integrity

D. Reprogramming the Electronic Brake Control Module with the most current firmware release

39. A radar calibration has been completed with scan tool success but real-world ACC performance is erratic. The correct sequence considers:

A. Accepting the calibration as valid since the scan tool reported successful completion of it

B. Replacing the forward radar module regardless of the calibration result shown on the scan tool

C. Delivering the vehicle to the customer and allowing them to adjust to the new radar behavior

D. Investigating whether preconditions were met during the calibration — silent miscalibration is possible

40. A customer reports blind spot warning now activates when it should not be active. The correct diagnostic sequence begins with:

A. Replacing every corner radar on the vehicle as a precaution against false activation issues

B. Physical inspection of the affected corner radar area, followed by scan tool data review of the sensor

C. Reprogramming the ADAS Central Module with the current firmware release immediately for the issue

D. Delivering the vehicle without investigation since BSW false activations are generally considered normal

41. After a radar module has been programmed, coded, initialized, and calibrated, the correct verification sequence is:

A. Clearing all codes and delivering the vehicle without any operational road testing performed at all

B. Another complete calibration cycle immediately after the first to verify the result was valid

C. Post-repair scan followed by operational road test of the radar-dependent features during driving

D. Keeping the vehicle overnight without any operational testing before customer delivery on pickup day

42. A customer reports intermittent ACC failure with history U-codes for forward radar communication. The correct sequence is:

A. Delivering the vehicle since the codes are only in history and may not recur during normal driving

B. Testing the forward radar's supply, ground, and CAN bus connections under load conditions

C. Replacing the forward radar module based on the history codes without any further investigation

D. Reprogramming the ADAS Central Module with the current firmware release immediately for the fault

43. A forward radar calibration has been completed successfully. Before customer delivery, the correct operational check sequence is:

A. Post-repair scan, then a road test exercising ACC and AEB in representative driving conditions

B. Only a scan tool check without any road testing since the tool confirms everything required

C. Only a road test without a scan since driving verifies the system more reliably than any tools

D. Clearing codes and delivering the vehicle immediately without any verification steps performed

44. A rear corner radar has been replaced. The correct follow-up sequence before vehicle delivery is:

A. Delivering the vehicle immediately since rear corner radars calibrate during normal driving activity

B. Dynamic calibration only without any static calibration procedure for the rear corner radar service

C. Programming, coding, initialization, calibration, and verification of BSW and RCTA operation

D. Only clearing codes without any other procedures after the physical replacement is completed

45. A radar has been determined to have silent miscalibration from unmet preconditions during a previous procedure. The correct remediation sequence is:

A. Replacing the radar module with a new unit to resolve the silent miscalibration issue identified

B. Recalibrating on a verified level surface with all preconditions correctly met this second attempt

C. Performing dynamic calibration only, since the static calibration was silently miscalibrated before

D. Delivering the vehicle and telling the customer to return if ADAS issues continue to occur further

46. A single ultrasonic sensor has failed on a vehicle. The correct service sequence is:

A. Verifying supply and ground to the sensor, replacing the sensor, then scan tool verification

B. Replacing every ultrasonic sensor on the vehicle simultaneously to maintain balance across all

C. Reprogramming the Ultrasonic Control Module as the first step for any sensor failure occurring

D. Performing a complete four-wheel alignment before replacing the ultrasonic sensor on vehicle

47. A bumper cover with ultrasonic sensors will be repainted. The correct service sequence is:

A. Painting the bumper cover with sensors in place to maintain the factory installation position

B. Removing the ultrasonic sensors before painting, then reinstalling after paint has cured properly

C. Applying protective tape over sensor faces while painting continues around them on the cover

D. Replacing all ultrasonic sensors after any painting of the bumper cover with them present on it

48. A customer reports parking assist chimes continuously in an empty parking lot. The correct diagnostic sequence begins with:

A. Replacing every ultrasonic sensor as a precaution against widespread sensor failure immediately

B. Reprogramming the Ultrasonic Control Module with the current firmware release on the vehicle

C. Physical inspection of the sensors followed by scan tool data review of individual sensor values

D. Performing a complete static calibration of every ADAS sensor to reset the ultrasonic system

49. A customer reports parking sensors fail only in cold weather. The sensors appear clean at the warm shop. The correct diagnostic sequence considers:

A. Ice or snow accumulation during cold driving that melts before arrival at the warm shop location

B. Immediate replacement of every ultrasonic sensor after any cold-weather complaint from the customer

C. Complete reprogramming of the Ultrasonic Control Module with the current firmware release available

D. Normal operation during any winter weather that should not require any action from the technician

50. After an ultrasonic sensor has been replaced and installed correctly, the correct verification sequence is:

A. Delivering the vehicle immediately without any verification since the replacement is routine work

B. Performing a complete four-wheel alignment to integrate the newly installed ultrasonic sensor

C. Reprogramming every ADAS module after any ultrasonic sensor replacement as a general precaution

D. Scan tool verification of the new sensor's distance readings plus operational parking assist check

PRACTICE EXAM 13: ANSWER KEY AND EXPLANATIONS

1. A — The pre-repair scan documents the vehicle's starting diagnostic condition and establishes the baseline for all subsequent work. This is the foundational first step in professional ADAS service — it protects the shop from liability for pre-existing issues, identifies what codes were already present, and informs the subsequent diagnostic investigation.

2. D — After the pre-repair scan documents the current state, researching OEM service information, position statements, and TSBs is the next required step. This research identifies current procedures, known issues affecting the specific vehicle, and any calibration or repair requirements the OEM has documented before the technician begins hands-on work.

3. C — Programming is the first scan tool step after physical module installation — the module needs its firmware loaded before it can function. Programming, coding, initialization, and calibration must occur in sequence, and each step depends on the previous being complete before it can proceed correctly.

4. D — After programming loads the firmware, coding configures the module with vehicle-specific parameters and feature options. This step tells the module which specific vehicle it is installed in, enabling features appropriate to that vehicle's configuration. Without coding, the programmed module cannot correctly apply its firmware to the vehicle.

5. A — After programming and coding, module initialization establishes the OEM-specified setup routines that prepare the module for calibration. Initialization typically involves specific ignition cycling sequences, bidirectional commands, or driving parameters that ready the module to accept its geometric reference during calibration.

6. B — Calibration per OEM procedure is the final required step, establishing the geometric reference that the module uses to correctly interpret its sensor inputs or issue correct outputs. Calibration cannot be skipped — the module will not function correctly without the geometric reference that calibration provides to the module.

7. A — After calibration, a post-repair scan followed by operational road testing of the affected ADAS features is the correct verification sequence. Scan tool verification confirms no new codes appeared; road testing confirms the feature actually works under real-world conditions. Both forms of verification are required for complete professional ADAS service.

8. B — After battery reconnection, checking OEM procedures for required relearn procedures for affected modules is the correct action. Battery disconnection causes various modules to lose

learned data that must be re-established through specific initialization or relearn procedures per OEM specifications before the modules function correctly.

9. D — Before beginning any ADAS calibration, all preconditions — voltage, tire pressure, vehicle loading, fuel level, floor slope, and target placement — must be verified first. Unverified preconditions are the single largest cause of silent miscalibration, and verifying them up front prevents wasted labor and incorrect calibration results.

10. A — A voltage drop test requires the multimeter set to DC volts, test leads placed at each end of the wire under test, and the circuit operating under load. This specific procedure is what makes voltage drop testing diagnostically sensitive — continuity or resistance modes cannot detect the load-dependent resistance that voltage drop testing reveals directly.

11. C — CAN bus diagnosis begins with measuring bus resistance with ignition off (expecting 60 ohms for healthy bus with two terminators in parallel), then observing signal waveforms with a scope. This foundational sequence reveals whether bus termination is correct and whether signals are propagating properly before any module-level replacement is considered.

12. A — When a fuse blows repeatedly after replacement, disconnecting modules one at a time while testing with a fresh fuse isolates the short to the specific module or wire segment causing the fault. This is the correct diagnostic sequence — installing a higher-rated fuse or clearing codes does not address the underlying short causing the problem.

13. B — Intermittent ADAS faults require identifying the enable criteria for the affected code, driving under conditions that match those criteria, and monitoring scan tool data during testing. This sequence reproduces the fault under observable conditions, allowing targeted diagnosis rather than speculative parts replacement or random reprogramming attempts.

14. C — After all verification steps on the scan tool are complete, an operational road test exercising the feature under real conditions is the final verification before delivery. Customer handoff should include clear expectations about the feature's operation and limitations. Scan tool verification alone is insufficient for complete professional ADAS service.

15. B — Consulting OEM service procedures, position statements, and TSBs before beginning any repair work is the correct research sequence. This up-front research identifies current procedures, known issues, and specific requirements, preventing rework and wasted labor from discovering these requirements mid-repair or missing them entirely.

16. C — Comparing the post-repair scan to the pre-repair scan verifies which codes cleared and identifies any new codes introduced during service. This comparison is the core of repair verification documentation, demonstrating that the service resolved the original issues without creating new ones in the process.

17. A — Freeze frame data showing battery voltage at 11.8V during the fault indicates the charging system or battery is the likely root cause. Investigating these before assuming an ADAS module

fault prevents unnecessary module replacement — the ADAS system is responding correctly to low voltage by disabling itself protectively.

18. B — Forward camera replacement requires programming (loading firmware), then coding (configuring for the specific vehicle), then initialization (OEM-specified setup), and finally calibration (establishing geometric reference). Each step depends on the previous being complete; performing them out of order leaves the module in an incomplete state regardless of later steps.

19. A — Windshield replacement follow-up requires verifying camera mounting integrity, cleaning the windshield area so the camera's view is clear, confirming preconditions are met, and then performing the calibration procedure. Each step ensures the calibration produces valid results — skipping any of these leads to calibration failure or silent miscalibration.

20. D — Before camera calibration, battery voltage, tire pressure, vehicle loading, fuel level, floor slope, and target placement must all be verified first. These preconditions affect the geometric reference the camera is calibrated to, and unverified preconditions are the primary cause of silent miscalibration.

21. C — A replacement surround view camera requires programming, coding, initialization, and then static calibration of the specific camera replaced. The Surround View Module depends on accurate camera calibration to stitch images seamlessly, and skipping these steps leaves the module unable to correctly merge the four camera views.

22. D — After driver monitoring camera replacement and programming, OEM-specified initialization and calibration steps are required for the system to function correctly. Driver monitoring systems require specific setup procedures — they do not calibrate automatically, and delivery without completing these steps leaves the system non-functional.

23. B — Multiple module replacement requires completing programming, coding, initialization, and calibration for each module per the OEM procedure. Each module requires its own complete workflow — they cannot be combined or skipped, and parallel processing without proper sequencing introduces errors that are difficult to diagnose later.

24. C — Road testing under the same conditions that produced the complaint, while observing scan tool data for lane detection performance, is the correct diagnostic sequence. This reproduces the symptom and captures diagnostic data during the fault event, leading to targeted investigation rather than speculative replacement or reprogramming.

25. A — HBA diagnosis begins with inspecting the forward camera view area for contamination, verifying camera calibration, and reviewing scan tool data for HBA-specific parameters. This systematic approach targets the specific cause — HBA malfunctions are typically related to the camera's ability to detect light sources correctly.

26. D — A blank area in the surround view display begins with physical inspection of the affected camera followed by scan tool communication verification. Physical inspection is fast and cost-

free; if the camera is physically present and connected, scan tool communication testing identifies whether the issue is electrical or software-related, guiding subsequent investigation.

27. A — TSR failure with functional LDW isolates the diagnosis to the camera's sign-sensing area on the windshield, calibration status, and then module communication. The camera is clearly detecting lane markings (LDW works), so the issue is specific to sign detection — windshield view, calibration drift, or a specific pathway fault.

28. D — Cold-weather camera failures begin with verifying forward camera heater operation and checking for cold-start camera view obstructions. The heater is designed to clear fogging and icing; if it's not working, camera features will fail in cold conditions. This is the productive first investigation rather than module replacement or reprogramming.

29. B — After three failed calibrations with verified conditions, reviewing OEM service information for recent TSBs affecting the calibration procedure is productive. TSBs sometimes document known calibration issues and provide updated procedures, and this is faster than speculative module replacement, delivery without resolution, or unrelated procedures.

30. D — After successful camera calibration, post-repair scan verification followed by operational road test of camera-dependent features is the correct verification sequence. Scan verification confirms the software state; road testing confirms real-world function. Both are required for complete professional verification of ADAS repair work.

31. B — Radar module physical installation is followed by programming, coding, initialization, and OEM-specified calibration before delivery. Each step must be completed in sequence; the radar will not function correctly without calibration, and skipping steps leaves the module in an incomplete state regardless of later actions.

32. C — Radar static calibration preconditions include battery voltage, tire pressure, vehicle loading, fuel level, floor slope, and target placement — all verified before beginning. These factors affect the geometric reference the radar will be calibrated to, and verifying them up front prevents silent miscalibration.

33. A — Bumper cover replacement follow-up begins with verifying radar mounting, confirming transparency of bumper materials (OEM vs non-OEM), and then calibrating per OEM procedure. Both mounting integrity and material transparency affect radar performance, and addressing both before calibration ensures the procedure produces valid results.

34. C — Corner radar replacement requires programming, coding, initialization, and OEM-specified calibration — the same four-step workflow that applies to forward radar replacement. Corner radars are not self-calibrating, and skipping calibration leaves the system's blind spot and cross-traffic features non-functional despite the replacement being physically complete.

35. A — ACC diagnosis begins with a pre-repair scan to document current codes, review of freeze frame data to understand conditions during any stored faults, and inspection of the forward radar

zone area for physical issues. This systematic approach targets the most productive investigation areas rather than speculative replacement.

36. B — Corner radar CAN bus diagnosis begins with measuring bus resistance, then observing waveforms, then verifying supply and ground connections. This sequence reveals bus termination status, signal quality, and power-side integrity before any module replacement is considered, avoiding unnecessary parts replacement in favor of targeted diagnosis.

37. D — When a calibration aborts with a specific precondition error, reviewing each flagged precondition, addressing them, and retrying is the correct sequence. The scan tool is specifically indicating what needs correction — ignoring the errors, proceeding to different procedures, or replacing the module all fail to address what the tool identified as the cause.

38. C — AEB triggering on roadside fixtures months after calibration warrants investigating calibration drift, recent mechanical changes, bumper condition, and radar mounting integrity. Each of these factors can cause this specific symptom without setting a DTC, and targeted investigation is more productive than module replacement or customer-blame responses.

39. D — A calibration showing scan tool success but erratic real-world performance is the classic silent miscalibration scenario. Investigation of whether preconditions were truly met during the calibration is productive — tire pressure, vehicle loading, floor slope, and target placement can all be incorrect without triggering scan tool errors.

40. B — BSW false activation diagnosis begins with physical inspection of the affected corner radar area (for damage, debris, or modifications) followed by scan tool data review. This targeted approach identifies specific causes before broad replacement, which is inefficient and often addresses the wrong component entirely.

41. C — After radar calibration steps are complete, post-repair scan followed by operational road test of radar-dependent features is the correct verification sequence. Scan verification confirms no new codes appeared; road testing confirms ACC, AEB, or other radar features actually function during driving — both are required for complete professional verification.

42. B — Intermittent ACC failures with forward radar communication U-codes warrant testing the radar's supply, ground, and CAN bus connections under load conditions. Intermittent faults require diagnosis during the fault event, which requires load-stressing the circuit to reproduce the failure mode rather than module replacement based on history codes.

43. A — After radar calibration, the operational check is a post-repair scan followed by a road test exercising ACC and AEB in representative conditions. Both scan tool verification and real-world operational testing are required — neither alone is sufficient for complete professional verification of radar-dependent ADAS features.

44. C — Rear corner radar replacement requires programming, coding, initialization, calibration, and verification of BSW and RCTA operation before vehicle delivery. The feature verification is

particularly important for rear corner radars — the blind spot and cross-traffic functions depend on correct calibration that must be confirmed operationally.

45. B — Silent miscalibration remediation requires recalibrating on a verified level surface with all preconditions correctly met. The original calibration failed because preconditions weren't verified — addressing those specific preconditions and recalibrating correctly is the solution, not module replacement, customer-blame, or procedure substitution.

46. A — A failed ultrasonic sensor's replacement sequence involves verifying supply and ground to the sensor, replacing the sensor, then scan tool verification of the new sensor's operation. This targeted approach addresses the specific failure without unnecessary system-wide intervention that increases cost and time without benefit.

47. B — Bumper cover repainting with ultrasonic sensors requires removing the sensors before painting, then reinstalling after the paint has cured. Painting over the sensor faces attenuates the ultrasonic signal and degrades sensor operation; protective tape is not reliable, and painting through tape often leaves residue on the transducer faces.

48. C — Continuous parking assist chimes in an empty parking lot begins with physical inspection of the sensors (for contamination or damage) followed by scan tool data review of individual sensor values. This targeted approach identifies the specific sensor(s) reporting abnormally, leading to targeted repair rather than speculative replacement.

49. A — Cold-weather-only parking sensor failures with sensors appearing clean in the warm shop strongly suggest ice or snow accumulation during cold driving that melts before shop arrival. This weather-correlated pattern is a documented environmental interaction, and investigation of this cause is more productive than speculative replacement or reprogramming.

50. D — After ultrasonic sensor replacement, scan tool verification of the new sensor's distance readings plus operational parking assist check is the correct verification sequence. Scan verification confirms the sensor is reporting plausible values; the operational check confirms the replacement integrates correctly with the overall parking assist system during actual operation.