

# PRACTICE EXAM 7: ASE L4 SIMULATION (50 QUESTIONS)

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1. A scan tool measurement shows CAN-H at a steady 3.6 volts and CAN-L at a steady 1.4 volts with the ignition on and the vehicle at idle. The most likely interpretation is:

- A. The bus is completely open with no communication occurring between modules
- B. The bus terminators have failed and need immediate replacement to restore function
- C. A module is transmitting continuously without releasing the bus, jamming communication
- D. Normal healthy bus operation with expected differential voltage during idle

2. A fuse protecting a circuit that powers two ADAS modules has blown. After replacement, the fuse blows again within seconds. The most productive next step is to:

- A. Install a fuse with a higher amperage rating to prevent additional blowing
- B. Disconnect each module one at a time while testing with a fresh fuse to isolate the short
- C. Replace both modules simultaneously as a precaution against internal failure
- D. Clear all codes and continue diagnosing other vehicle systems while ignoring the fuse

3. A scan tool reports that the ADAS Central Module sees the forward camera correctly but the forward camera does not report receiving acknowledgment messages from the ADAS Central Module. The most likely cause is:

- A. Normal operation — the forward camera does not need acknowledgment from other modules
- B. A complete power loss to the ADAS Central Module that has not yet been detected
- C. Internal failure of the forward camera requiring replacement with a new unit

D. A partial bus communication fault affecting message flow in only one direction

4. A customer's vehicle arrives with a complaint of "slow scanning" in the diagnostic session, where multiple modules are reported missing on various scan attempts. The scan tool's communication with the vehicle is otherwise unremarkable. The most productive investigation is:

A. Scan tool and OBD-II connector condition, plus Gateway Module functionality

B. Replacing every module that fails to respond consistently across scan attempts

C. Reprogramming the ADAS Central Module with the current software release

D. Performing a complete static calibration of every ADAS sensor on the vehicle

5. The specific diagnostic purpose of scoping a CAN bus waveform with a digital storage oscilloscope is to reveal:

A. The exact voltage rails of the vehicle's primary electrical supply system

B. The speed at which data bytes are being transmitted across the bus lines

C. Signal quality and symmetry that resistance measurements alone cannot detect

D. The complete contents of each individual data message being transmitted on the bus

6. A technician suspects a marginal ground connection on an ADAS module. The most sensitive test for this condition is:

A. A DC resistance measurement with the multimeter on the ohms setting

B. Voltage drop testing between the module's ground point and the battery negative terminal under load

C. Visual inspection of the ground ring terminal for loose bolts or corrosion

D. Continuity testing with the circuit completely disconnected from all power

7. A scan tool reports all four corner radar modules as present and communicating, but the ADAS Central Module reports "unable to receive data from left rear corner radar" specifically. The most accurate interpretation is:

- A. Every corner radar has failed simultaneously despite the scan tool reading them
- B. The scan tool is incorrectly reporting the corner radar presence to the technician
- C. The ADAS Central Module requires immediate complete reprogramming
- D. A data pathway issue specifically between the left rear corner radar and the ADAS Central Module

8. A vehicle has had its battery disconnected for 8 hours during bodywork. After reconnection and a complete pre-repair scan, multiple modules report "memory cleared" status messages. The most appropriate next action is:

- A. Research OEM service information for any relearn or initialization procedures required by affected modules
- B. Clear all messages and deliver the vehicle without any further verification work
- C. Replace every module that reports a memory-cleared status as a precaution
- D. Perform a full static calibration of every ADAS sensor to reset all memory defaults

9. On the composite vehicle, the Ultrasonic Control Module, the Surround View Module, and the ADAS Central Module all communicate with each other. The communication pathway connecting these modules is:

- A. A dedicated private CAN bus reserved for low-speed sensor modules only
- B. Individual hardwired signal lines between each pair of modules directly
- C. The public ADAS CAN bus shared with other ADAS-related modules
- D. The cellular connection routed through the Telematics Control Module

10. A forward camera's dynamic calibration has been attempted on a highway with clearly marked lanes, moderate traffic, and sustained speed in the OEM-specified range. After 45 minutes the procedure reports "calibration incomplete" and requires another attempt. The most productive investigation is:

- A. Replacing the forward camera as a likely cause of repeated dynamic calibration failure
- B. Reviewing precondition details including vehicle loading, tire pressure, and fluid levels
- C. Reprogramming the ADAS Central Module with the most current firmware version
- D. Performing a complete four-wheel alignment before the next calibration attempt

11. Technician A says that OEM position statements generally require calibration after a windshield replacement on a vehicle with a forward camera. Technician B says position statements are only recommendations that can be bypassed if the customer consents. Who is correct?

- A. Technician A only is correct in this scenario
- B. Both technicians are correct under different circumstances
- C. Technician B only is correct in this scenario
- D. Neither technician is correct about position statements

12. A forward camera has been replaced and programming, coding, initialization, and calibration have all completed successfully per scan tool confirmation. The technician is preparing to deliver the vehicle. The correct final verification step is:

- A. Clearing all remaining codes once more and then delivering the vehicle
- B. Running a complete diagnostic scan without any road testing of features
- C. Photographing the vehicle's interior as additional documentation for the repair file
- D. Operational road test to exercise the camera-dependent features under real conditions

13. A customer reports that the vehicle's "ADAS light" came on for 10 minutes and then went out. The scan tool shows a history code with no current fault. Freeze frame data shows battery voltage at 11.7 volts. The most accurate interpretation is:

- A. Normal operation that does not warrant any further investigation
- B. The customer is misreporting the duration of the dashboard warning light
- C. A low voltage event triggered the protective feature disablement — investigate the charging system
- D. The ADAS Central Module needs reprogramming with current software release immediately

14. A CAN bus measurement shows one wire at 2.5 volts (normal) and the other stuck at 0 volts. The most likely interpretation is:

- A. Both bus wires are normal and the measurement is being taken incorrectly
- B. The wire reading 0 volts has a short to ground preventing bus communication
- C. Both wires are correctly at their recessive state voltages for the bus
- D. A healthy bus where CAN-L is always at 0 volts at rest per specification

15. A customer has had a vehicle's bumper cover replaced after a minor collision. The replacement cover is aftermarket with non-OEM paint. The customer reports intermittent adaptive cruise control issues. The most likely cause affecting ADAS operation is:

- A. Non-OEM materials and paint attenuating radar signals behind the bumper
- B. The Electronic Brake Control Module has failed during the collision repair
- C. The ADAS Central Module has been disturbed by the bumper replacement
- D. Normal ACC behavior that occurs after any collision involving the front of the vehicle

16. A technician measures battery voltage at 12.5 volts at the start of an ADAS calibration and 12.1 volts at the completion 35 minutes later. The scan tool reports calibration completed successfully. The most accurate interpretation is:

- A. The calibration is completely valid since the scan tool reported successful completion
- B. Voltage drop during calibration is normal and does not affect results in any way
- C. A slight voltage drop that stays above minimum is acceptable for most calibrations
- D. Voltage dropped below the minimum required — the calibration result is suspect and should be repeated

17. On the composite vehicle, if the Gateway Module loses all power, which diagnostic symptom would most likely appear?

- A. Only the ultrasonic parking system stops working while other ADAS features continue
- B. Only the infotainment display fails while all ADAS systems continue operating
- C. The scan tool cannot communicate with modules behind the gateway through OBD-II
- D. Only the forward camera fails while radar and ultrasonic systems continue working

18. A voltage drop test on the positive-side wire from the battery to the forward radar under load reads 0.45 volts. The accepted general threshold for a complete positive-side run is under 0.5 volts. The most accurate interpretation is:

- A. The wire is badly damaged and must be replaced immediately regardless of symptoms
- B. A marginal reading near the threshold that warrants additional investigation of connections
- C. Normal operation with no concerns about the circuit's electrical condition
- D. The positive side has a complete open circuit preventing any current flow

19. A forward camera calibration is being performed. The shop floor has a slope of 1.5 degrees total. The OEM specification limit is 1 degree maximum. The most likely outcome of proceeding with the calibration is:

- A. The scan tool will detect the floor slope and abort the procedure immediately
- B. The calibration will be slightly more accurate due to the tilted geometric reference
- C. The calibration will self-correct during subsequent driving without any issues
- D. Silent miscalibration producing degraded camera performance after the vehicle is delivered

20. A scan tool data stream shows the forward radar's target range as 155 meters for a vehicle known to be 50 meters ahead. The reading is consistent across multiple readings. The most likely interpretation is:

- A. The radar's calibration or internal processing is producing systematically incorrect range data
- B. The target vehicle is actually at 155 meters and the technician misjudged the visual distance
- C. Normal operation showing different target data than the actual scene presents
- D. The scan tool's data display function has failed and requires factory reset procedure

21. Enable criteria for a specific DTC require battery voltage above 12 volts and engine running for at least 3 minutes. Which of the following conditions would prevent the monitor from running?

- A. Battery voltage reads 13.5 volts during engine operation at highway speeds
- B. The vehicle has been parked with ignition on for 15 minutes before driving
- C. Battery voltage drops to 11.5 volts during engine operation at idle
- D. Ignition has been on for 10 minutes with the engine running continuously

22. A J2534 pass-through programming session fails partway through a module update. The scan tool reports "communication lost during programming" and the module now shows incomplete firmware. The most productive next action is:

- A. Replacing the partially-programmed module immediately as it has failed
- B. Following OEM service procedure for recovery of an interrupted programming session
- C. Performing a dynamic calibration to reset the module's programming state
- D. Clearing all codes and delivering the vehicle for the customer to use normally

23. On the composite vehicle, the ADAS Central Module issues a brake pressure request during an automatic emergency braking event. The module that receives and executes this request is:

- A. The Gateway Module which then sends commands to individual wheel speed sensors
- B. The Electronic Power Steering Module which handles all emergency interventions
- C. The Instrument Cluster Module which converts the request to dashboard warnings
- D. The Electronic Brake Control Module which applies hydraulic pressure to the brakes

24. A forward camera calibration on the composite vehicle has been attempted with the vehicle's fuel tank at one-eighth full. The OEM specification requires the tank to be at least half full. The most likely outcome is:

- A. Silent miscalibration — the procedure will likely complete but produce incorrect results
- B. The scan tool will detect the fuel level and abort the calibration procedure instantly
- C. Enhanced camera calibration accuracy from the reduced vehicle weight during the drive
- D. Automatic compensation by the scan tool for the incorrect fuel level condition

25. A scan tool bidirectional test activates the forward collision warning chime. The chime sounds correctly. The most accurate interpretation of this successful test is:

- A. The entire forward collision warning system has been completely verified as working
- B. The forward radar module has been confirmed as correctly detecting all targets
- C. The chime output pathway from the relevant module to the speaker is verified
- D. The ADAS Central Module's decision-making logic has been fully tested

26. A customer reports that their vehicle's surround view display has stopped working completely. The infotainment screen shows a solid black area where the surround view should appear. The most productive first investigation is:

- A. Physical inspection of the surround view cameras for damage or contamination
- B. Scan tool diagnosis of the Surround View Module communication status and fault codes
- C. Replacing the ADAS Central Module as a likely cause of the display issue
- D. Performing a full static calibration of every camera on the vehicle immediately

27. A driver monitoring system produces false warnings specifically when the driver is wearing prescription glasses with anti-reflective coating. The most likely cause is:

- A. Normal operation that the driver should accept as a system limitation
- B. Complete failure of the infrared illuminators requiring immediate replacement
- C. Internal failure of the driver monitoring camera module requiring replacement
- D. The anti-reflective coating interferes with the infrared imaging the system uses

28. A technician examines a CAN bus oscilloscope waveform and notices that CAN-H rises to 3.5 volts cleanly but CAN-L only falls to 1.9 volts (not the expected 1.5 volts). The most likely cause is:

- A. A resistance problem on the CAN-L wire reducing the differential amplitude

- B. Normal operation where CAN-H and CAN-L can have different amplitude patterns
- C. Complete bus failure requiring immediate replacement of every module
- D. The scan tool is measuring voltages incorrectly on one of the wires

29. A customer reports that their forward camera's automatic high beam feature activates high beams even when streetlights are visible ahead. The scan tool shows no stored codes. The most likely cause is:

- A. Replacing the entire lighting system starting with the high beam relay
- B. Performing a four-wheel alignment to adjust the camera's geometric reference
- C. Reprogramming the Electronic Power Steering Module to handle lighting requests
- D. Camera view impairment, contamination, or sensitivity drift affecting HBA detection

30. Windshield replacement on an ADAS-equipped vehicle with a forward camera typically requires which specific follow-up activity?

- A. Complete reprogramming of every module in the vehicle with current firmware
- B. Replacement of the forward camera assembly during the windshield installation
- C. Forward camera calibration per OEM procedure before returning the vehicle
- D. Installation of additional shielding around the camera to protect from heat

31. A forward radar module is reporting a target at 0 meters constantly regardless of what is actually in front of the vehicle. The scan tool shows the module is communicating normally. The most likely cause is:

- A. Normal operation that radar modules frequently exhibit during diagnostic testing
- B. Internal hardware failure of the radar module requiring replacement and calibration
- C. The scan tool software needs updating before the radar will report correct values
- D. The target vehicle ahead is stationary and the radar is correctly reporting 0 meters

32. Technician A says that adaptive cruise control can operate without the forward camera if the forward radar is working. Technician B says adaptive cruise control requires both the camera and the radar to function at all. Who is correct?

- A. Technician A only — the forward radar is the primary ACC sensor on most vehicles
- B. Technician B only — ACC cannot function without both sensors working together
- C. Both technicians are correct under different operating conditions and speeds
- D. Neither technician is correct about adaptive cruise control sensor requirements

33. A radar calibration procedure aborts with a "preconditions not met" error. The scan tool displays a list of specific precondition violations. The most productive next step is:

- A. Replacing the radar module with a new unit before retrying the calibration procedure
- B. Reprogramming the ADAS Central Module with current software before retrying
- C. Ignoring the precondition list and retrying the calibration with identical settings
- D. Reviewing each violation flagged by the scan tool and addressing them before retrying

34. The composite vehicle's forward radar module has a specified maximum detection range that is most accurate in the reference as approximately:

- A. 80 meters which is suitable for low-speed urban driving conditions
- B. 160 meters which is suitable for highway-speed ACC and AEB operations
- C. 250 meters which is typical of luxury-segment long-range radar systems
- D. 40 meters which is typical of short-range parking radar configurations

35. A customer reports intermittent ACC failure where the feature works normally for 15 minutes and then disables itself with no warning. The scan tool shows history U-codes for intermittent forward radar communication. The most productive next step is:

- A. Delivering the vehicle to the customer since the fault is intermittent and hard to reproduce
- B. Replacing the forward radar module based solely on the intermittent history codes
- C. Checking the radar module's supply, ground, and CAN connections while monitoring under load
- D. Reprogramming the ADAS Central Module with the most current software version

36. A forward radar behind an aftermarket front grille emblem may experience:

- A. Radar signal attenuation from the metallic emblem blocking or reducing the signal
- B. Enhanced radar performance from the reflective properties of the emblem's surface
- C. No effect whatsoever from any aftermarket accessory mounted anywhere near the radar
- D. Automatic compensation by the radar for any external accessories in its beam path

37. A corner radar module has been replaced and the scan tool shows programming and coding completed successfully. Before delivering the vehicle, the remaining required step is:

- A. Clearing all codes and allowing the customer to test the repaired system during use
- B. Completing a dynamic drive of at least 30 minutes without any static preparation work
- C. Running an all-systems scan of every module and delivering if the results are clean
- D. Performing the OEM-specified calibration procedure for the specific corner radar

38. A customer reports that their blind spot warning system now activates when passing the center divider on highways. The forward camera and radar have been recently calibrated. The most likely cause is:

- A. The Electronic Brake Control Module has failed and requires replacement immediately

- B. Corner radar mis-calibration, contamination, or mounting disturbance affecting detection accuracy
- C. Normal operation — blind spot warning frequently activates on center dividers
- D. The driver monitoring camera requires immediate replacement with a new unit

39. On the composite vehicle, the private CAN bus connecting the corner radars has terminators located at:

- A. Both ends of the physical bus wire runs mounted to the vehicle chassis
- B. Only within the ADAS Central Module which serves the primary hub function
- C. Inside each individual corner radar module with 120-ohm values per module
- D. Inside the Gateway Module which routes between public and private networks

40. A scan tool bidirectional test of a corner radar module activates the module's built-in self-test. The self-test completes with all parameters within specification. The vehicle's blind spot warning still fails in real-world use. The most accurate interpretation is:

- A. The self-test has completely verified every aspect of the corner radar system operation
- B. The corner radar must be replaced since the real-world fault persists after the test
- C. The self-test is unreliable and should not be used for any diagnostic purpose
- D. Basic module function is confirmed — calibration, pathways, or external conditions still to be checked

41. A customer's vehicle has had a rear bumper cover replaced. Rear cross-traffic alert has stopped working. The corner radar modules are physically intact. The most likely cause is:

- A. Corner radar mounting or calibration disturbance from the bumper cover service
- B. Normal operation — rear cross-traffic alert always fails after bumper cover work
- C. The Electronic Brake Control Module has failed during the bumper replacement work
- D. The ADAS Central Module requires complete reprogramming after any bumper service

42. A radar calibration performed with a target slightly misaligned from the OEM specification will most likely produce:

- A. An immediate abort of the calibration procedure at the scan tool's initial screen
- B. Enhanced radar performance due to the technician's careful adjustment work
- C. Silent miscalibration — completed procedure with incorrect geometric reference
- D. Automatic compensation by the scan tool software for the target misalignment

43. A forward radar module replacement requires which sequence of actions after physical installation?

- A. Calibration first, then coding and programming, then delivering to the customer
- B. Programming, coding, initialization, and then OEM-specified calibration before delivery
- C. Clearing all codes and delivering the vehicle to the customer without further work
- D. Installation of a generic default software version that works on any vehicle platform

44. A customer reports that AEB triggered unnecessarily on a bridge overpass when no traffic was present. The vehicle had a front bumper cover repaint three weeks ago. The most productive investigation considers:

- A. Normal AEB behavior that always occurs on overpasses regardless of any factors
- B. The Electronic Brake Control Module requires replacement after any AEB event
- C. Reprogramming the ADAS Central Module with the current firmware available
- D. Possible radar miscalibration from the bumper cover work — recalibration and non-OEM paint concerns

45. A radar module's bidirectional self-test reports no internal issues, but the ACC feature fails during road testing. The most accurate interpretation of this combination is:

- A. Self-test confirms module-internal function — the issue may be calibration or external conditions

- B. The self-test must be wrong since real-world operation fails during actual driving conditions
- C. The customer must accept the real-world failure as normal operation of the vehicle
- D. The Electronic Brake Control Module is the probable cause requiring immediate replacement

46. A customer reports that rear parking sensors produce intermittent false alerts only during rainy weather. In dry conditions the system works perfectly. The most likely cause is:

- A. Complete failure of every ultrasonic sensor simultaneously during rain events
- B. Water droplets on the sensor transducer faces causing false echo returns
- C. The Ultrasonic Control Module requires complete reprogramming with current software
- D. Normal operation — ultrasonic sensors always fail during any precipitation events

47. A bumper cover replaced with OEM parts during a collision repair has had the ultrasonic sensors properly reinstalled. A scan tool shows all sensors communicating normally, but one sensor consistently reports a closer distance than reality. The most likely cause is:

- A. Complete internal failure of the reported sensor requiring replacement with a new unit
- B. Normal behavior that varies with each ultrasonic sensor's physical position on the bumper
- C. The sensor's mounting angle or position in the bumper is off from OEM specification
- D. The Ultrasonic Control Module is miscommunicating with the scan tool during testing

48. On the composite vehicle, individual ultrasonic sensors are typically:

- A. Installed only at the factory and cannot be replaced in the aftermarket service industry
- B. Permanently bonded to the bumper cover and require full bumper replacement to service
- C. Serviceable as individual components that can be replaced as needed when failed
- D. Built into the Ultrasonic Control Module housing and cannot be serviced separately

49. A customer's parking assist chime activated constantly during winter driving in snowy conditions, then worked normally when the vehicle was brought inside and warmed up. The most likely cause is:

- A. Snow or ice accumulation on the sensor transducer faces during the cold driving
- B. Complete failure of the Ultrasonic Control Module during freezing temperatures alone
- C. Reprogramming is required for every winter weather event the vehicle encounters
- D. Normal operation that parking assist always activates during any winter weather driving

50. A customer brings in a vehicle reporting that the parking assist chimes work correctly, but when the surround view display shows what appears to be an object behind the vehicle, the distance warning seems inconsistent with the visual image. The most productive next step is:

- A. Replacing the Surround View Module since the visual display is incorrect during testing
- B. Scan tool data review of individual ultrasonic sensor distance readings versus visual observation
- C. Complete reprogramming of the ADAS Central Module with the current firmware release
- D. Performing a dynamic calibration drive cycle to synchronize all ADAS sensor readings

# PRACTICE EXAM 7: ANSWER KEY AND EXPLANATIONS

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1. C — CAN-H stuck high at 3.6 volts while CAN-L is stuck low at 1.4 volts indicates a module is transmitting continuously without releasing the bus to the recessive state. This "stuck dominant" condition jams the bus — no other module can transmit, and communication effectively stops. Normal bus operation alternates between dominant and recessive states with both wires resting at 2.5 volts between transmissions.
2. B — Rapid-repeat fuse blowing after replacement indicates a persistent short or excessive load in the circuit, and isolating the fault by disconnecting one module at a time while testing identifies which module (or wiring segment) is causing the short. Installing a higher-amperage fuse is dangerous and defeats the protection; clearing codes without addressing the short ignores the underlying cause.
3. D — When the ADAS Central Module reports seeing the forward camera but the camera does not report receiving acknowledgments, a partial bus communication fault is affecting message flow in only one direction. This asymmetric communication pattern points to wiring or terminal issues rather than complete module failure, and it requires CAN bus waveform and connector investigation.
4. A — Intermittent or slow scan tool communication points to issues with the OBD-II connector, the scan tool itself, or the Gateway Module that routes communications between the tool and the vehicle's internal networks. Investigating these elements before replacing modules or reprogramming is the efficient diagnostic path for inconsistent communication symptoms.
5. C — A digital storage oscilloscope reveals CAN bus signal quality, symmetry, transitions, and waveform health that resistance measurements alone cannot show. Distorted waveforms, amplitude mismatches, excessive ringing, and missing transitions all indicate specific fault conditions that only become visible through scope observation of the actual signal behavior.
6. B — Voltage drop testing between the module's ground point and battery negative under load is the most sensitive test for marginal ground connections. A corroded or loose ground shows excessive voltage drop under current flow that continuity and resistance tests cannot reveal, since those tests use very low current and miss load-dependent problems.
7. D — When all corner radars communicate with the scan tool but the ADAS Central Module reports inability to receive data from one specifically, a data pathway issue exists between that radar and

the ADAS Central Module — typically on the private CAN bus routing or at the Gateway if messages are bridged between networks. The radar is functional; the communication path is not.

8. A — Battery disconnection causes various modules to lose learned data that must be re-established through specific initialization or relearn procedures per OEM service information. Researching these requirements for each affected module is the proper response — clearing messages without addressing them leaves modules in an incomplete state that may not be obvious in daily operation.
9. C — The composite vehicle's Ultrasonic Control Module, Surround View Module, and ADAS Central Module all communicate over the public ADAS CAN bus shared with other ADAS-related modules. There is no dedicated private bus between these specific three modules, no direct hardwired interconnect, and no cellular pathway — the standard public ADAS CAN is the architecture.
10. B — A 45-minute dynamic calibration attempt with apparently correct driving conditions that still fails often points to precondition issues — incorrect vehicle loading, tire pressures off specification, fluid levels, or fuel level affecting ride height. These affect geometric reference subtly without triggering scan tool errors, and they're the productive investigation before assuming camera or software failure.
11. A — Technician A is correct. Major OEM position statements require camera calibration after windshield replacement on vehicles with forward-mounted ADAS cameras. Technician B is wrong — position statements cannot be bypassed based on customer consent because they define the standard of care and create liability implications the customer cannot waive on the shop's behalf.
12. D — After all scan tool-confirmed completion steps, the final verification is an operational road test that exercises the camera-dependent features under real-world conditions. Scan tool success does not guarantee real-world function — only operational testing confirms the features actually work for the customer. Delivery without road testing can produce comebacks and safety issues.
13. C — Freeze frame data showing 11.7 volts at the moment of fault indicates low battery voltage triggered the ADAS system's protective disablement. This is a charging system or battery condition issue, not an ADAS module fault. The ADAS system is correctly responding to low voltage by disabling itself to avoid erratic operation — the underlying electrical condition is the root cause.
14. B — One CAN bus wire at 2.5 volts while the other is stuck at 0 volts indicates the wire reading 0 has a short to ground that is pulling it below the normal resting voltage. The other wire's normal 2.5V reading confirms the bus's power and reference are present; the failed wire needs repair before communication can resume.
15. A — Non-OEM bumper covers with non-OEM paint may not meet the radar transparency specification for the 77 GHz band, producing signal attenuation that degrades ACC performance. This is a well-documented issue with non-OEM collision repair parts in radar zones, and it's the statistically most likely cause when ADAS problems appear after bumper cover work.

16. D — The minimum voltage required during ADAS calibration is typically 12.6 volts. Voltage dropping to 12.1 volts during the procedure means the calibration ran with inadequate voltage for a significant portion, and the scan tool's "successful completion" report does not validate the calibration under these conditions. The calibration should be repeated with proper battery support.
17. C — The Gateway Module routes messages between the vehicle's internal CAN networks and the external OBD-II connector. If the Gateway loses power, scan tool access to modules behind it is blocked — the scan tool cannot communicate even though the modules themselves may still be working internally. This is a diagnostic tool access issue distinct from module-level failures.
18. B — A voltage drop of 0.45 volts on a positive-side wire run approaches the 0.5-volt acceptable threshold. Readings this close to the limit warrant further investigation of specific connections and components to identify where the resistance is concentrated. A reading right at or above the threshold is a marginal condition that may worsen and cause future issues.
19. D — A shop floor slope of 1.5 degrees exceeds the OEM specification of 1 degree maximum. Performing calibration on this sloped floor produces silent miscalibration — the scan tool cannot detect the slope, so the calibration saves parameters based on incorrect geometric reference. The customer experiences degraded ADAS performance that the shop caused by ignoring the precondition.
20. A — A forward radar reporting 155 meters for a target actually at 50 meters, consistently across multiple readings, indicates systematic error in the radar's range calculation — either from calibration error or internal processing fault. The pattern (consistent wrong value rather than random oscillation) points to a specific defect in how the module computes distance.
21. C — The enable criteria require battery voltage above 12 volts AND engine running at least 3 minutes. Battery voltage dropping to 11.5 volts during engine operation violates the voltage criterion and prevents the monitor from running. This is why the diagnostic code would not set under the described conditions even if the underlying fault is present.
22. B — An interrupted J2534 programming session leaves the module in an incomplete state that must be recovered through the OEM's specific recovery procedure. The OEM service portal typically provides a recovery sequence — this is always the correct path rather than replacing the module (which may not be needed) or skipping the issue entirely.
23. D — The composite vehicle's ADAS Central Module sends brake pressure requests to the Electronic Brake Control Module, which then applies hydraulic pressure to the brake calipers through the ABS/ESC actuator during AEB events. The Gateway Module routes messages, the EPS handles steering (not braking), and the Instrument Cluster displays information — only the EBCM executes brake commands.
24. A — Performing calibration with the fuel tank at one-eighth full violates the OEM precondition requiring at least half full. The vehicle's ride height is slightly different, and the radar's view angle

is calibrated to that incorrect geometry. The scan tool cannot detect fuel level, so the calibration completes with silently incorrect parameters — a classic silent miscalibration scenario.

25. C — A successful bidirectional test of the forward collision warning chime verifies only the chime output pathway from the commanding module to the speaker. It does not confirm that the radar detects targets correctly, that the decision logic works properly, or that the full FCW system functions as a whole. The test verifies the activation pathway, not the full system.
26. B — A completely black display where the surround view should appear indicates either a communication fault with the Surround View Module or a display pathway issue. Scan tool diagnosis of the module's communication status and fault codes is the productive starting point — this isolates whether the module is powered and responsive, which focuses the subsequent investigation significantly.
27. D — Anti-reflective coatings on prescription glasses can interfere with the infrared imaging that driver monitoring systems use to observe the driver's eyes. The coating absorbs or scatters the infrared signal, producing the patterns that trigger false drowsiness warnings. This is a known limitation of current infrared-based driver monitoring systems.
28. A — When CAN-H rises cleanly to 3.5V but CAN-L only falls to 1.9V (not the expected 1.5V), the wire carrying CAN-L has additional resistance preventing it from reaching full amplitude. This resistance typically comes from a corroded connector, a partially broken wire strand, or a terminal problem somewhere on the CAN-L path — diagnosis should focus on that specific wire's connections.
29. D — HBA activating high beams when streetlights are visible ahead indicates the forward camera's HBA sensing is not correctly detecting light sources. Camera view impairment, contamination in the sensing area, or calibration drift affecting HBA's interpretation of forward scene lighting is the most productive investigation — not lighting system replacement or full vehicle reprogramming.
30. C — Windshield replacement on any vehicle with a windshield-mounted forward camera requires subsequent camera calibration per virtually every major OEM's position statement. The camera bracket is bonded to the windshield, so glass service inevitably disturbs the camera's mounting position and requires recalibration to restore correct feature operation.
31. B — A radar reporting a target at 0 meters constantly, regardless of actual conditions, indicates internal hardware failure in the radar module. The range calculation is defective, producing consistent wrong values. Replacement, followed by programming, configuration, and calibration, is the correct response — this pattern does not indicate a software issue or correct operation.
32. A — Technician A is correct. Adaptive cruise control's core function depends primarily on the forward radar for distance and closing-rate data. Cameras typically support enhanced ACC functions (object classification, lane detection) but the basic ACC does not require the camera. Technician B is wrong about requiring both sensors to function at all.

33. D — A scan tool displaying specific precondition violations is providing exactly the information needed to complete the calibration. Reviewing each flagged violation, addressing it, and then retrying is the correct professional approach. Replacing modules, reprogramming, or ignoring the list are all inappropriate when the scan tool has identified what needs to be corrected.
34. B — The composite vehicle specifies the forward radar module's medium-range detection zone at 0 to 160 meters. This specific reference value is commonly tested and distinguishes the composite vehicle's forward radar from shorter-range corner radars and longer-range luxury-segment implementations — it is a reference-sourced detail candidates are expected to know.
35. C — Intermittent ACC failures with history U-codes for forward radar communication point to a marginal electrical condition that only manifests under certain load conditions. Investigating the radar's supply, ground, and CAN bus connections under load reproduces the failure mode and identifies the root cause — rather than delivering the vehicle, speculatively replacing parts, or reprogramming software.
36. A — Aftermarket front grille emblems made of metallic materials attenuate radar signals and reduce effective detection range. The radar operates at 77 GHz and metal emblems within the beam path interfere with signal propagation. This is a common cause of ADAS degradation after aftermarket styling additions, and removal or replacement with a radar-transparent emblem is typically required.
37. D — Every corner radar module replacement requires OEM-specified calibration before delivery. Programming and coding confirm the module is functional; calibration establishes the geometric reference the module uses. The other options skip this required step or substitute inadequate alternatives, leaving the module without the reference data needed for correct operation.
38. B — Center divider false activation on blind spot warning points to corner radar calibration, contamination, or mounting disturbance affecting detection accuracy. The radar is detecting the divider as if it were a vehicle in the blind spot. Corner radar calibration and physical condition are the productive investigations — not unrelated modules or unrelated sensor systems.
39. C — The composite vehicle's private corner radar CAN bus has its terminators located inside each individual corner radar module, with each module containing a 120-ohm terminator. When two are active (typically at opposite ends of the bus) they combine in parallel to produce the standard 60-ohm resistance across the bus wires.
40. D — A radar self-test passing confirms basic module-internal function (transmitter, receiver, processor) but does not verify calibration parameters, communication pathways, or external conditions (bumper cover transparency, alignment, contamination). The real-world fault persisting after passed self-test means the investigation must extend beyond the radar itself to these other factors.

41. A — Rear bumper cover replacement commonly disturbs the mounting position and calibration reference of rear corner radars. The physical handling during removal and installation introduces small angular changes that require OEM-specified calibration to restore. RCTA failure after bumper work is a classic pattern pointing to this issue, not complete system failure.
42. C — Target slight misalignment from OEM specification produces silent miscalibration — the scan tool cannot measure target alignment precisely, so it accepts the incorrect setup and completes the procedure with wrong parameters. This is a real risk of poor target placement and is why OEM procedures specify exact measurements with verification tools.
43. B — The correct sequence after radar installation is programming (loading software), coding (configuring vehicle parameters), initialization per OEM requirements, then calibration. Each step depends on the previous being complete, and skipping any step or reordering them produces incomplete or incorrect results regardless of how well subsequent steps are performed.
44. D — AEB triggering on overpasses after recent bumper cover repaint points to two possibilities: radar miscalibration from the bumper work, or non-OEM paint affecting radar transparency. Both require investigation — checking calibration and verifying paint specifications protects the shop and identifies the root cause rather than blaming the customer or replacing modules unnecessarily.
45. A — A radar's self-test confirms module-internal function but doesn't verify calibration parameters or external conditions (bumper cover radar transparency, mounting, aim). The ACC failure during real-world driving after passed self-test means the investigation must extend to these other factors. Customer-blame, unrelated module replacement, or declaring "normal" are all wrong responses.
46. B — Water droplets on ultrasonic sensor transducer faces produce false echo returns during rainy weather. The sensors work correctly in dry conditions because the transducer face is clear. This intermittent, weather-correlated pattern is characteristic of water-sensor interaction, not module failure. The issue typically resolves on its own as the water evaporates, which confirms the diagnosis.
47. C — An ultrasonic sensor that reports a consistently closer distance than reality is likely mounted at the wrong angle — the transducer face is not perpendicular to the vehicle's reference, so its measured distance reflects a different geometric path than intended. This is a common aftermath of bumper cover work when OEM specifications for sensor cutouts are not matched exactly.
48. C — On the composite vehicle, individual ultrasonic sensors are serviceable as individual components that can be replaced when they fail. They are not permanently bonded, integrated into the control module, or factory-only items. This serviceability makes routine ultrasonic sensor replacement a manageable repair compared to control module or other integrated-component failures.
49. A — Snow or ice accumulation on the ultrasonic sensor transducer faces blocks the ultrasonic energy and produces false activations during winter driving. When the vehicle warms in the shop,

the snow and ice melt and the system returns to normal operation. This is a documented winter ADAS failure pattern that matches the customer's description exactly.

50. B — Inconsistency between visual surround view imagery and ultrasonic distance warnings is a genuine diagnostic question. Scan tool data review of individual ultrasonic sensor distance readings versus the visual observation identifies which sensor (or module) is reporting differently. This targeted investigation is more productive than speculative module replacement or unrelated calibration procedures.