PRACTICE EXAM 37

1. A technician has the vehicle in the bay for a forward camera static calibration. Before placing the target, the first action should be to:

A. Verify the vehicle is at correct ride height on a level floor surface

B. Drive the vehicle on a marked roadway to warm the camera module

C. Disconnect the battery to clear any stored ADAS diagnostic codes

D. Reflash the camera module to the newest available software version

2. A technician has confirmed ride height and floor level, and the target is positioned. The next requirement for an accurate static camera calibration is that the target be:

A. Backlit by a high-intensity source aimed at its rear surface

B. Tilted forty-five degrees toward the vehicle's front bumper line

C. Set at the correct distance and centered on the vehicle axis

D. Placed several feet behind the vehicle's rear bumper position

3. A scan reveals a forward radar reporting implausible distances after a collision, though it communicates on the bus. The most appropriate next step is to:

A. Reinitialize the ultrasonic park assist controller in the rear bumper

B. Replace the instrument cluster module to restore the ACC settings

C. Reflash the powertrain control module to a current software level

D. Check the radar's physical aim and mounting for crash disturbance

4. A rear corner radar has just been replaced. Before the module will communicate normally, the technician must first:

A. Perform a four-wheel alignment to reset the thrust angle reference

B. Adjust the high-beam headlight aim before powering up the module

C. Perform an initialization of the module after its replacement

D. Recalibrate the windshield-mounted forward camera assembly

5. A medium-range forward radar on the Composite Vehicle is specified to cover approximately:

A. A medium range of about 0 to 160 meters (0 to 525 feet) ahead

B. A fixed range limited to the first 30 meters directly ahead only

C. A close range under 5 meters intended only for parking maneuvers

D. An extended range beyond 500 meters for open highway driving use

6. A blind spot warning is inoperative on one side, with a code for lost communication to that side's corner radar. The first diagnostic step should be to:

A. Replace both rear corner radar modules together as a matched set

B. Recalibrate the forward camera to restore the module communication

C. Test the affected module's power, ground, and bus continuity first

D. Reflash the instrument cluster module to a current software level

7. When the driver wants to change the adaptive cruise control following distance, the input is made through:

A. The instrument cluster module (ICM) interface located in the dash

B. A rotary dial mounted on the lower left dashboard trim panel area

C. A handheld scan tool connected at the diagnostic link connector

D. A center console touchscreen housed within the stack assembly unit

8. A vehicle with an aftermarket lift kit reads forward radar elevations consistently high. The correct first action to address the root cause is to:

A. Restore the correct ride height before re-aiming and calibrating

B. Replace the forward radar with an updated service part number

C. Reflash the camera module to compensate for the added height

D. Lower the ultrasonic sensor sensitivity threshold in the software

9. The Composite Vehicle's adaptive cruise control becomes active in any forward gear once vehicle speed exceeds approximately:

A. A minimum of 25 mph regardless of the selected forward gear

B. About 5 mph (8.0 km/h) once the vehicle is in forward motion

C. A minimum of 45 mph on level roadway surfaces only at speed

D. Any speed including a complete stop with no lower limit applied

10. A static camera calibration aborts repeatedly even with correct target distance and centering confirmed. The technician should next check whether:

A. The diagnostic scan tool is running an outdated software release

B. The rear ultrasonic park sensors were unplugged during the setup

C. The bay floor has a slope beneath the vehicle being calibrated

D. The cabin air filter is clogged and restricting airflow to the camera

11. A traffic sign recognition feature has stopped working while radar features operate normally. The fault most likely lies with the:

A. Rear corner radar modules connected over the private CAN bus

B. Forward-facing camera, its calibration, or its lens condition

C. Ultrasonic park assist sensors mounted within the bumper covers

D. Adaptive cruise control switch located on the steering wheel

12. A windshield with a glass-mounted forward camera has been replaced. The required service afterward is to:

A. Initialize the rear ultrasonic park assist sensor array first

B. Perform a static or dynamic recalibration of the forward camera

C. Replace both rear corner radar mounting brackets as a set

D. Reflash the powertrain control module operating software level

13. A rear cross traffic alert never warns when the vehicle backs out of a parking space. The most likely direct cause is a rear corner radar that is:

A. Reading the posted speed limit signs along the side of the roadway

B. Measuring the precise color of vehicles approaching from the sides

C. Obstructed, misaimed, or not communicating on the bus correctly

D. Interpreting lane markings to confirm the host vehicle's position

14. A technician is about to begin diagnosing an intermittent ADAS communication fault. The most appropriate first step is to:

A. Replace the most expensive suspect module as the starting action

B. Capture the stored and pending codes along with the network status

C. Clear all stored codes before recording any freeze frame data set

D. Perform a full calibration before retrieving any of the fault codes

15. Each rear corner radar module contains a 120-ohm component. On the private CAN bus, this component functions to:

A. Terminate the bus correctly to prevent signal reflections on it

B. Reduce the battery supply voltage feeding the radar emitter circuit

C. Convert the analog radar return into a usable digital distance value

D. Filter electromagnetic noise originating from the forward camera

16. A technician completes a calibration and clears codes. The step that best confirms the repair is fully resolved is to:

A. Disconnect the battery for thirty minutes to force a module reset

B. Perform a post-scan and verify the systems operate correctly

C. Remove and reinstall each ADAS fuse one at a time in sequence

D. Drive the vehicle at maximum road speed to stress-test the sensors

17. On the Composite Vehicle, the rear corner radar modules communicate with each other over:

A. The main ADAS CAN bus shared with the forward radar and camera

B. A wireless internal link that requires no physical wiring connection

C. The low-speed body lighting circuit shared with exterior lamp loads

D. A private CAN bus that is separate from the main ADAS network

18. A forward radar mounts to a bracket behind the fascia. According to the reference, the bracket and module are:

A. Welded together permanently and replaced only as a single unit

B. Aimed automatically by the module with no physical adjustment step

C. Calibrated solely through a dynamic road test with no aiming step

D. Serviced separately as distinct, individually replaceable components

19. A vehicle's ride height is below specification due to worn springs. Before an ADAS calibration can proceed, the technician must first:

A. Correct the ride height so the sensor aim matches the reference

B. Increase the radar sensitivity to compensate for the low stance

C. Reflash the camera to a special lowered-vehicle calibration file

D. Disable the ultrasonic sensors until the worn springs are replaced

20. A blind spot warning indicator on the Composite Vehicle illuminates specifically when:

A. The following distance to a forward target exceeds 160 meters

B. The transmission is shifted into reverse gear at any road speed

C. The forward radar detects a stationary object in the travel path

D. A vehicle occupies the blind spot zone in an adjacent rear lane

21. A forward collision warning intermittently misses a stopped vehicle ahead, and the radar passes its self-test. The most appropriate next step is to:

A. Reprogram the instrument cluster module to a newer software version

B. Replace the multifunction forward camera assembly as the first step

C. Inspect the radar's aim, mounting, and any front fascia obstruction

D. Perform a dynamic recalibration before any visual inspection occurs

22. When a pre-scan is performed before an ADAS repair begins, its primary function is to:

A. Permanently clear all of the stored codes without keeping a record

B. Raise the battery voltage needed to support the calibration process

C. Reset the tire pressure monitoring system baseline reference values

D. Document the fault codes already present before the repair starts

23. A technician must establish vehicle geometry before a forward camera calibration. The references that define that geometry are:

A. The odometer reading and engine hours stored in the cluster memory

B. The vehicle's thrust line and centerline geometric reference axes

C. The radar transmit frequency and the ultrasonic firmware revision

D. The battery state of charge and the engine coolant temperature value

24. A four-wheel alignment corrects the thrust angle on a vehicle scheduled for ADAS calibration. This step matters because:

A. Alignment changes the radar module's internal clock timing rate

B. Thrust angle directly alters the engine's fuel injection timing

C. Sensor reference geometry depends on a correct vehicle thrust line

D. Alignment is unrelated and has no effect on the ADAS sensor aim

25. A dynamic camera calibration aborts repeatedly on a clear, dry day with good lane markings, on a heavily congested route. The most likely cause is that:

A. The lane markings are too reflective for the camera to interpret

B. The forward radar bracket is bent and obstructing the camera view

C. The ultrasonic sensors are interfering with the camera data feed

D. The required road speed cannot be sustained in stop-and-go traffic

26. Several ADAS modules report "no communication" while the engine and transmission modules respond normally. This pattern most strongly indicates:

A. A single failed ultrasonic park sensor element in the rear bumper

B. A fault in the ADAS CAN bus segment serving those ADAS modules

C. An obstructed forward camera lens covered by accumulated debris

D. An internal processor failure within the powertrain control module

27. When a forward collision warning false-activates after a fascia repair, with the radar testing good and the bracket straight, the best next check is to:

A. Replace the instrument cluster module to stop the false alert events

B. Verify radar aim and inspect the fascia for material or paint buildup

C. Reinitialize the ultrasonic park sensors located in the rear bumper

D. Reflash the transmission control module to current calibration data

28. The ultrasonic sensors on the Composite Vehicle are best described as providing the ADAS system with:

A. A close-range input analyzed for use by the overall ADAS system

B. A long-range input that drives the adaptive cruise control feature

C. A lane-marking input used by the lane keep assistance function set

D. A traffic-sign input feeding the posted speed limit display feature

29. A bent forward radar bracket is found after a low-speed impact while the module tests good. The correct action is to:

A. Leave the bracket since radar self-corrects for any small offset

B. Repair or replace the bracket, then aim and calibrate the radar

C. Replace the forward camera because it shares the radar bracket

D. Recalibrate only the ultrasonic sensors to offset the bent bracket

30. A multifunction camera is replaced and initialized, yet lane keep assist still performs erratically. The remaining required step is most likely:

A. A camera calibration following the vehicle's specified procedure

B. A reset of the tire pressure monitoring system threshold values

C. A reinitialization of the ultrasonic park assist controller module

D. A replacement of the forward radar sensor module assembly unit

31. When several ADAS features fail at once after minor front-end work, the fastest path to an accurate diagnosis is to:

A. Replace the forward radar and camera together as a precaution first

B. Clear all codes and return the vehicle without any further testing

C. Recalibrate every sensor on the vehicle before scanning for codes

D. Pre-scan, review codes and network status, then test systematically

32. Which module is identified as primary for ADAS CAN bus communication among the rear corner radars on the Composite Vehicle?

A. The right rear corner radar module nearest the exhaust system outlet

B. The left rear corner radar module designated as the primary bus node

C. The forward radar module mounted behind the front fascia panel area

D. The instrument cluster module located within the dashboard assembly

33. When the ignition switch is cycled from ON to OFF and back to ON, the Composite Vehicle's ACC system defaults to:

A. The ON state when the ignition is cycled back to the on position

B. A permanently disabled state requiring a scan tool to re-enable it

C. A locked-out state below a 45 mph minimum activation threshold

D. Whatever custom following-distance setting was last selected

34. A static radar calibration is in progress, and a metal tool cart sits a few feet from the target fixture. The likely effect is that the cart:

A. Improves the radar return by reinforcing the reflected signal strength

B. Can corrupt the radar return and skew the resulting calibration outcome

C. Has no effect because radar disregards nearby stationary metal objects

D. Affects only the camera calibration and not the radar-based procedure

35. A dynamic camera calibration never completes, and the log shows the required speed was rarely held. The corrective action is to:

A. Repeat the drive on a route allowing the sustained required speed

B. Switch immediately to a static calibration inside the service bay

C. Replace the forward camera because the dynamic calibration failed

D. Initialize the rear corner radar modules before retrying the drive

36. The forward radar module and multifunction forward camera are described in the reference as serving the role of:

A. The primary inputs for several of the forward ADAS features

B. Outputs that only illuminate the dashboard warning indicators

C. Components used exclusively by the ultrasonic park assist system

D. Independent units that never share any sensor data with each other

37. A module on the Composite Vehicle receives battery supply voltage and switched ignition voltage. If only the switched-voltage feed is open, the module will:

A. Operate normally with no detectable difference in its function

B. Raise its transmit frequency above the legal operating band limit

C. Overcharge the private CAN terminating resistor in a corner radar

D. Fail to power up or operate when the ignition is switched on

38. A technician must turn off an ADAS feature for a road test. On the Composite Vehicle, the intended method is to use:

A. The dedicated ADAS fuse pulled directly from the underhood fuse box

B. The ADAS control panel switch located inside the vehicle cabin area

C. A factory scan tool session that the manufacturer must authorize first

D. The forward camera connector disconnected by hand at the mirror base

39. Underinflated, unevenly worn tires must be corrected before calibration because they:

A. Increase the electromagnetic noise carried on the ADAS CAN bus wiring

B. Raise the radar module's transmit frequency above its legal band limit

C. Change the vehicle's ride height and therefore the sensor aim angle

D. Discharge the battery below the minimum required calibration voltage

40. Which feature relies primarily on the forward-facing camera rather than on radar?

A. Maintaining a set following distance behind a detected lead vehicle

B. Warning of a vehicle present in the adjacent rear blind spot zone

C. Alerting to cross traffic while the vehicle is backing out slowly

D. Reading posted speed limit signs positioned along the roadway ahead

41. A static camera calibration has completed, but the vehicle drifts within the lane during lane keep assist. The most likely setup error is that:

A. The engine was idling during the static calibration procedure

B. A rear-seat passenger remained aboard throughout the calibration

C. The calibration target was slightly off-center from the vehicle axis

D. The audio system was operating during the static calibration step

42. Both rear corner radars drop offline together while the rest of the ADAS network communicates normally. The shared design points the diagnosis toward:

A. A bent forward radar bracket located behind the front fascia panel

B. A windshield camera that lost its stored calibration reference data

C. An open or fault in the private CAN bus between the corner radars

D. A clogged cabin air filter restricting airflow across both modules

43. ADAS data on the Composite Vehicle is communicated primarily over which network?

A. A wireless link established individually between each sensor pairing

B. The low-speed body circuit shared with the exterior lighting loads

C. A point-to-point analog harness with no shared digital bus at all

D. The ADAS CAN bus connecting the system's various ADAS modules

44. The proper ADAS repair workflow following a sensor-affecting collision repair is:

A. Pre-scan, repair, calibrate per procedure, then post-scan to verify

B. Calibrate first, then repair, then pre-scan, then a road test only

C. Clear codes, repair, then return the vehicle with no further scan

D. Post-scan, replace all sensors, then pre-scan as the closing step

45. Which of the following would NOT typically require a forward camera recalibration?

A. A windshield replacement on a vehicle with a glass-mounted camera

B. A camera module replaced with a new multifunction camera unit

C. A routine engine oil and filter change performed during service

D. A vehicle ride height changed by an aftermarket suspension lift

46. The single most critical requirement for static forward camera target placement is:

A. A backlight source illuminating the rear face of the target board

B. A 45-degree tilt of the target toward the front bumper of the vehicle

C. Placement several feet behind the vehicle's rear bumper line area

D. Correct distance and centering relative to the vehicle reference axis

47. Skipping a required calibration after a sensor-affecting repair is a safety concern because:

A. The vehicle's fuel economy will immediately decrease after the repair

B. A misreferenced sensor may cause the feature to operate unreliably

C. The transmission will begin shifting erratically at highway road speeds

D. The battery will discharge faster than normal during routine driving

48. Understanding which modules share a given bus segment during a communication-fault diagnosis primarily helps the technician to:

A. Select the correct engine oil viscosity for the verification road test

B. Determine the proper tire inflation pressure for the calibration setup

C. Narrow the fault to the affected bus and its connected ADAS modules

D. Choose the appropriate wiper blade length for the test road drive

49. A medium-range radar specified at 0–160 meters is best suited to support which feature?

A. Forward detection for adaptive cruise control and collision warning

B. Close-range park assist maneuvering within one meter of an obstacle

C. Reading posted speed limit signs positioned along the roadway ahead

D. Detecting painted lane markings used by the lane keep assist function

50. Adaptive cruise control settings on the Composite Vehicle are controlled using a switch located:

A. On the lower center console near the gear shifter assembly housing

B. On the driver's door armrest beside the power window control switches

C. Within the overhead console next to the interior map lamp cluster

D. On the steering wheel as the adaptive cruise control switch itself

Answer Key & Full Answer Explanations

1. A — Verifying correct ride height on a level floor is the first action before placing a static calibration target. These conditions establish the vehicle's reference attitude for accurate aim. Road-driving the camera, disconnecting the battery, or reflashing are not the first step here.

2. C — The target must be set at the correct distance and centered on the vehicle axis for accurate static camera calibration. That geometric relationship is what the camera learns. Backlighting, a 45-degree tilt, and rear placement are not the requirement.

3. D — Checking the radar's physical aim and mounting for crash disturbance is the appropriate next step when it communicates but reports implausible distances. Bus communication is intact, so the fault is mechanical aim. Ultrasonic init, cluster replacement, and a PCM reflash do not address radar aim.

4. C — An initialization of the module after replacement is required before a new corner radar will communicate normally, per the reference. Initialization restores communication. Alignment, headlight aim, and windshield recalibration are unrelated to module startup.

5. A — The medium-range forward radar covers about 0 to 160 meters (0–525 ft) per the reference. This range supports forward functions like ACC and collision warning. The 30-meter, sub-5-meter, and 500-meter options contradict the specification.

6. C — Testing the affected module's power, ground, and bus continuity is the first diagnostic step for a one-sided "lost communication" fault. This pinpoints supply, ground, or bus-path issues before replacing parts. Replacing both modules, recalibrating the camera, or reflashing the cluster wastes effort.

7. A — ACC following distance is adjusted through the instrument cluster module (ICM) interface in the dash, per the reference. That is the documented driver interface. A rotary dial, scan tool, or console touchscreen are not specified for this.

8. A — Restoring the correct ride height before re-aiming and calibrating addresses the root cause when a lift raises elevation readings. The lift changes vehicle attitude and shifts radar aim. Replacing or reflashing modules and lowering sensitivity do not correct a physical aim change.

9. B — ACC becomes active in any forward gear above about 5 mph (8.0 km/h) per the reference. That is the documented activation threshold. The 25 mph, 45 mph, and no-limit options are incorrect.

10. C — A sloped bay floor is the next thing to check when a static camera calibration aborts despite correct target distance and centering. Static calibration assumes the vehicle sits level on its reference geometry. Scan software version, unplugged ultrasonics, and a cabin filter do not cause this aiming failure.

11. B — A camera-specific loss of sign recognition, with radar normal, points to the forward-facing camera, its calibration, or lens condition. Sign recognition is an image-based camera function. Rear radars, ultrasonic sensors, and the ACC switch are not involved.

12. B — A windshield-mounted camera disturbed during glass replacement requires a static or dynamic recalibration of that camera. Replacing the glass shifts the camera reference. Ultrasonic init, corner radar brackets, and a PCM reflash are unrelated.

13. C — A rear corner radar that is obstructed, misaimed, or not communicating would most directly cause RCTA to never warn while backing out. RCTA depends on that radar detecting crossing traffic. Reading signs, measuring color, and interpreting lane markings are not its function here.

14. B — Capturing the stored and pending codes along with network status is the appropriate first step for an intermittent communication fault. Gathering data before acting preserves the evidence needed to trace the problem. Replacing parts or clearing codes first destroys that evidence.

15. A — The 120-ohm component terminates the private CAN bus correctly to prevent signal reflections. Proper termination maintains reliable corner-radar communication. It does not reduce supply voltage, convert returns to digital, or filter camera image noise.

16. B — Performing a post-scan and verifying correct system operation best confirms the repair is resolved. The post-scan confirms codes cleared with no new faults, and a functional check validates the systems. Battery disconnects, fuse cycling, and max-speed runs do not validate a calibration.

17. D — The rear corner radars communicate over a private CAN bus separate from the main ADAS network, per the reference. This dedicated bus isolates their inter-module traffic. The main bus, a wireless link, and the body lighting circuit are incorrect.

18. D — The bracket and forward radar module are serviced separately as distinct, replaceable components, per the reference. This allows bracket service without replacing the module. They are not welded as one unit, self-aiming, or dynamic-only.

19. A — Correcting the ride height so sensor aim matches the reference is required first when worn springs lower the vehicle. Calibration assumes the specified ride height. Raising sensitivity, reflashing to a "lowered" file, or disabling sensors does not restore correct aim.

20. D — The blind spot warning indicator illuminates when a vehicle occupies the blind spot zone in an adjacent rear lane. That is the defined BSW detection condition. A 160-meter following distance, reverse gear, and forward stationary-object detection describe other systems.

21. C — Inspecting the radar's aim, mounting, and any front fascia obstruction is the appropriate next step when the module self-tests good but misses stopped vehicles intermittently. Physical misalignment or obstruction commonly causes missed targets. Reprogramming the cluster, replacing the camera, or recalibrating first does not address radar aim.

22. D — A pre-scan documents the fault codes already present before the repair starts, creating a baseline record. It identifies pre-existing faults for the shop and customer. It does not clear codes without record, raise voltage, or reset TPMS.

23. B — The vehicle's thrust line and centerline geometric reference axes define vehicle geometry for camera calibration. Targets are positioned relative to these axes. Odometer/engine hours, radar frequency/firmware, and battery/coolant values do not define this geometry.

24. C — Sensor reference geometry depends on a correct vehicle thrust line, which is why thrust-angle correction matters before calibration. Alignment establishes the geometric axes ADAS aiming references. It does not change radar clock timing or fuel injection, and it is not unrelated.

25. D — The required road speed cannot be sustained in stop-and-go congestion, which aborts a dynamic camera calibration even on a clear day with good markings. Dynamic calibration depends on holding the specified speed. Reflective markings, a bent radar bracket, and ultrasonic interference are not the cause here.

26. B — A fault in the ADAS CAN bus segment serving those modules explains multiple ADAS "no communication" reports while powertrain modules respond. The pattern localizes to the shared ADAS network. A single sensor, a dirty lens, or a PCM processor failure would not knock out multiple ADAS modules at once.

27. B — Verifying radar aim and inspecting the fascia for material or paint buildup is the best next check for false FCW after a fascia repair. Excess material in front of the radar or a slight aim error can cause false alerts even with a good bracket. Cluster replacement, ultrasonic init, and a transmission reflash do not address this.

28. A — The ultrasonic sensors provide a close-range input analyzed for use by the overall ADAS system, per the reference, consistent with park-assist sensing. They are short-range devices. They do not drive ACC, read lane markings, or feed sign recognition.

29. B — Repairing or replacing the bent bracket, then aiming and calibrating the radar, is correct because a bent bracket misaims an otherwise good module. Radar does not self-compensate for physical misalignment. The camera and ultrasonic options are unrelated.

30. A — A camera calibration following the vehicle's specified procedure is the remaining required step. Initialization alone does not establish the camera's aim reference, so erratic lane keep assist persists. Resetting TPMS, reinitializing ultrasonics, or replacing the radar does not address camera referencing.

31. D — Pre-scanning, reviewing codes and network status, then testing systematically is the fastest path to an accurate diagnosis when several features fail after front-end work. This gathers evidence before acting. Blanket replacement, clearing codes, or recalibrating everything first are inefficient and risk masking the fault.

32. B — The left rear corner radar module is designated as the primary node for ADAS CAN bus communication, per the reference. The reference assigns this role specifically to the left rear unit. The right rear radar, forward radar, and cluster module are not the primary node.

33. A — Cycling the ignition OFF then back ON causes ACC to default to the ON state, per the reference. This documented default behavior must be recognized when verifying status. The disabled, locked-out, and retained-setting options contradict the reference.

34. B — A metal tool cart near the target can corrupt the radar return and skew a static calibration. Radar relies on clean returns from the intended target, so stray reflective objects introduce error. The claims that it helps, has no effect, or affects only cameras are incorrect.

35. A — Repeating the drive on a route that allows the required speed to be sustained is correct when logging shows the speed was rarely held. Dynamic calibration needs sustained specified speed to complete. Switching to static, replacing the camera, or initializing radars does not address the unmet drive condition.

36. A — The forward radar module and multifunction forward camera are the primary inputs for several forward ADAS features, per the reference. Multiple functions rely on these two sensors. They are not mere warning outputs, ultrasonic-only components, or fully isolated units.

37. D — With only the switched-voltage feed open, the module fails to power up or operate when the ignition is on, despite battery voltage being present. Both sources are needed for normal operation. It does not run normally, change frequency, or overcharge a resistor.

38. B — The ADAS control panel switch in the cabin is the intended method to turn an ADAS feature off for a road test, per the reference. It is the designed cabin-level disable control. Pulling a fuse, a factory-only session, or unplugging the camera are not the specified method.

39. C — Underinflated, unevenly worn tires change the vehicle's ride height and therefore the sensor aim angle, so they must be corrected first. Calibration assumes the specified reference height. Tire condition does not raise bus noise, change radar frequency, or discharge the battery for this reason.

40. D — Reading posted speed limit signs is a forward-facing camera function. Sign recognition is image-based, unlike radar ranging. Following-distance keeping, blind spot warning, and rear cross traffic alert are radar-based functions.

41. C — A target slightly off-center from the vehicle axis produces a marginally inaccurate calibration that appears as in-lane drift. Static camera accuracy depends on precise centering. An idling engine, a rear passenger, or audio operation are not the aiming cause.

42. C — Both rear corner radars offline while the rest of the network communicates points to an open or fault in the private CAN bus between them. Their shared private bus means one fault can disable both. A forward radar bracket, windshield camera, or cabin filter would not produce this pattern.

43. D — ADAS data is communicated over the ADAS CAN bus connecting the ADAS modules, per the reference. This shared network is the backbone for ADAS communication. A wireless link, the body lighting circuit, and a point-to-point analog harness are incorrect.

44. A — The proper workflow is pre-scan, repair, calibrate per procedure, then post-scan to verify. The pre-scan documents codes, calibration restores reference after repair, and the post-scan confirms resolution. The other sequences omit or misorder essential steps.

45. C — A routine engine oil and filter change would not require a forward camera recalibration. A windshield replacement, a camera module replacement, and a ride-height change from a lift all disturb the camera reference and do require recalibration. An oil change does not affect camera aim.

46. D — Correct distance and centering relative to the vehicle reference axis is the single most critical static camera target placement requirement. Accuracy depends on this precise geometric relationship. Backlighting, a 45-degree tilt, and rear placement are not the governing requirement.

47. B — A misreferenced sensor may cause the feature to operate unreliably, which is why skipping a required calibration is a safety concern. The feature cannot perform correctly without a valid reference. Fuel economy, transmission shifting, and battery drain are not the relevant consequences.

48. C — Knowing which modules share a bus segment lets the technician narrow the fault to the affected bus and its connected ADAS modules. Network mapping is a diagnostic aid for communication faults. Oil viscosity, tire pressure, and wiper length are irrelevant to that purpose.

49. A — A 0–160 meter medium-range radar is best suited to forward detection for adaptive cruise control and collision warning. That range matches forward ranging functions. Close-range park assist, sign reading, and lane marking detection are handled by other sensors.

50. D — ACC settings are controlled using a switch on the steering wheel, per the reference. This places primary cruise controls within the driver's immediate reach. The console, door armrest, and overhead console are not the specified location.