PRACTICE EXAM 35

1. Why must a forward camera be recalibrated after a windshield replacement, even if it shows no fault codes?

A. Because replacing the glass disturbs the camera's exact position and aim

B. Because the camera loses all its software during removal

C. Because new glass always carries a darker tint

D. Because the wipers must be re-timed to the camera

2. Why does radar continue to function in fog while a camera-based feature degrades?

A. Because radar operates at a lower frequency that the fog amplifies

B. Because the camera switches to radar mode in fog

C. Because radio waves pass through fog while the camera needs a clear optical view

D. Because fog improves radar reflections off the road

3. Why is the L4 test built around a fictional composite vehicle rather than a real production model?

A. Because composite vehicles are cheaper to photograph

B. Because real vehicles lack ADAS

C. To prevent technicians familiar with one brand from having an unfair advantage

D. To make the test shorter than other ASE exams

4. Why must a voltage-drop test be performed while the circuit is loaded and operating?

A. Because resistance readings are impossible on live circuits

B. Because current must be flowing for the voltage drop to appear

C. Because the battery must be disconnected first

D. Because the key must be off for accuracy

5. Why does a high-speed CAN bus use a twisted pair carrying differential signals?

A. To raise the supply voltage to the modules

B. To reject electrical noise and keep safety-critical data reliable

C. To allow operation without terminating resistors

D. To convert digital data into analog form

6. Why is correct ride height required before calibrating forward sensors?

A. Because incorrect ride height misaims body-mounted sensors and would bake the error into the calibration

B. Because ride height changes the radar's frequency band

C. Because ride height erases the camera's software

D. Because ride height disables the gateway module

7. Why is a miscalibrated forward collision system considered especially dangerous?

A. Because it continuously applies the brakes

B. Because it increases fuel consumption

C. Because it cannot set any fault codes

D. Because the driver trusts a system that may fail to detect a real hazard

8. Why does a single failed forward camera often disable several features at once?

A. Because lane keeping, sign recognition, and high beams all share that one camera

B. Because each feature has its own camera that fails together

C. Because the radar takes over and also fails

D. Because the gateway disables unrelated systems

9. Why is a pre-repair scan performed before ADAS service begins?

A. To recalibrate the sensors automatically

B. To document existing fault codes and establish a baseline

C. To update the navigation maps

D. To set the driver's climate preferences

10. Why does the forward radar's narrow long-range beam make its aim so critical?

A. Because radar must read lane lines at a distance

B. Because the beam only reaches a few inches ahead

C. Because radar self-corrects and aim is irrelevant

D. Because a small angular error becomes a large miss far ahead

11. Why must the area be cleared before initiating a park-assist procedure that can steer the vehicle?

A. Because the procedure drains the battery

B. Because the bumper must be removed first

C. Because the system may command steering and move the vehicle

D. Because the gateway must be disconnected

12. Why is the Composite Vehicle Type 1 Reference the authoritative source for many L4 questions?

A. Because the composite vehicle defines its own parameters that the questions are based on

B. Because real vehicles always behave identically to it

C. Because it lists every recall campaign

D. Because it replaces the need for any diagnosis

13. Why does excessive or metallic paint on a fascia affect a forward radar?

A. Because it changes the vehicle's ride height

B. Because it distorts the windshield glass

C. Because it reprograms the gateway

D. Because it can attenuate the radar signal passing through the fascia

14. Why must a static calibration be performed on a level floor?

A. Because a sloped floor raises the supply voltage

B. Because a level floor reprograms the camera

C. Because a sloped floor changes the radar frequency

D. Because the geometric relationship between vehicle and target depends on it

15. Why is functional verification required in addition to a clean post-repair scan?

A. Because a misaimed sensor can complete and pass a scan

B. Because the scan recalibrates the sensors

C. Because scans only work on hybrids

D. Because verification updates the navigation maps

16. Why does a poor shared ground produce erratic, intermittent symptoms across several modules?

A. Because many modules share ground points

B. Because a poor ground changes the camera's optical spec

C. Because a poor ground raises only the bus resistance

D. Because a poor ground affects only tire sensors

17. Why does ultrasonic sensing have such a short effective range?

A. Because it is intentionally software-limited for safety

B. Because sound pulses attenuate quickly over distance

C. Because it shares the radar's frequency band

D. Because it only works above highway speed

18. Why does radar measure closing speed so precisely?

A. Because it reads the brightness of the reflected image

B. Because it measures the object's temperature

C. Because it times an ultrasonic echo

D. Because it reads the Doppler frequency shift of the reflected signal

19. Why should a technician confirm a module's power, ground, and bus connection before replacing it?

A. Because new modules never need configuration

B. Because replacement is always faster than testing

C. Because a module lacking power or a bus connection appears dead but may not be failed

D. Because power and ground do not affect modules

20. Why is a new, never-installed forward camera still calibrated before release?

A. Because new parts arrive pre-aimed to every vehicle

B. Because a new camera has no established reference to the specific vehicle

C. Because calibration only applies to used sensors

D. Because the camera needs only a software update

21. Why does a dynamic calibration require clear lane markings?

A. Because the radar reads the markings

B. Because the gateway supplies the markings

C. Because the camera establishes its reference by tracking the markings

D. Because markings change the vehicle's ride height

22. Why is a blind spot warning complaint investigated at the rear corner radar?

A. Because the forward radar covers the blind spots

B. Because the camera covers the blind spots

C. Because the rear corner radar covers the adjacent-lane blind spots

D. Because the ultrasonic sensors cover the blind spots

23. Why does a radar reporting a "blocked" condition after a snowstorm usually not require replacement?

A. Because it is typically a correctable obstruction the radar safely detects

B. Because the gateway has failed

C. Because the camera is interfering

D. Because the module always fails in cold weather

24. Why is the thrust angle relevant when calibrating a forward sensor?

A. Because it represents the vehicle's true direction of travel that the sensor must align to

B. Because it sets the radar's frequency band

C. Because it changes the windshield tint

D. Because it controls the camera's field-of-view width

25. Why does replacing an ADAS module often require more than physical installation?

A. Because the module must be repainted

B. Because the brakes must be bled

C. Because the windshield must be replaced

D. Because the module often needs programming, configuration, initialization, and calibration

26. Why are pre-repair and post-repair scans both performed around ADAS service?

A. Because scans recalibrate the sensors

B. Because the pre-repair scan baselines existing faults and the post-repair scan confirms completion

C. Because scans are required only on hybrids

D. Because scans update the climate control

27. Why does sensor fusion combine multiple sensor types?

A. Because it reduces the number of modules on the bus

B. Because it lets a single sensor perform every function

C. Because it welds sensors into one housing

D. Because each sensor's strengths cover another's weaknesses

28. Why must calibration targets be placed at precise positions in a static calibration?

A. Because target position changes the supply voltage

B. Because targets must match the windshield tint

C. Because a misplaced target teaches the sensor a wrong reference

D. Because targets reprogram the gateway

29. Why does a forward camera depend on the optical quality of the windshield?

A. Because the camera looks through the glass, so distortion degrades its image

B. Because the glass powers the camera

C. Because the glass stores the camera's software

D. Because the glass aims the radar

30. Why is "find the shared cause" the guiding principle for multiple simultaneous ADAS faults?

A. Because the most expensive part is usually the cause

B. Because each system always fails independently

C. Because clearing codes resolves shared faults

D. Because the simplest cause that explains all symptoms is usually correct

31. Why does a feature defined to default to ON after an ignition cycle reactivate each morning?

A. Because the control switch is shorted

B. Because the gateway forces it on

C. Because that reactivation is the defined normal behavior

D. Because the module lost its configuration

32. Why is back-probing preferred when measuring a live ADAS circuit?

A. Because it seals the connector against moisture

B. Because it measures under actual operating conditions without disconnecting the circuit

C. Because it raises the circuit's voltage

D. Because it recalibrates the sensor

33. Why does a CAN bus read about 60 ohms at rest when healthy?

A. Because one 120-ohm terminator carries the whole bus

B. Because two 120-ohm terminators in parallel give about 60 ohms

C. Because the bus has no terminators

D. Because the modules each add 60 ohms

34. Why must a static-calibration bay have a clean, non-reflective background?

A. Because clutter raises the supply voltage

B. Because reflections change the radar frequency

C. Because a clean background reprograms the camera

D. Because clutter or reflections can confuse a camera during calibration

35. Why does a forward camera complaint that appears only in heavy fog often indicate normal behavior?

A. Because the camera module is failing intermittently

B. Because the camera cannot see through fog by design

C. Because the gateway drops messages in fog

D. Because the radar interferes in fog

36. Why does the gateway module occupy a central place in multi-system diagnosis?

A. Because it aims the forward radar

B. Because it measures windshield clarity

C. Because it routes communication between networks and is where lost-communication often surfaces

D. Because it detects close-range obstacles

37. Why does a communication fault sometimes mimic a sensor failure?

A. Because a healthy sensor's data may not reach its module

B. Because sensors never depend on the bus

C. Because the camera glass distorts the signal

D. Because the radar changes frequency

38. Why is a parking complaint on a fused system not necessarily an ultrasonic problem?

A. Because ultrasonic sensors always fail first

B. Because the cause could lie in the surround-view cameras or their integration

C. Because surround-view cameras use radar

D. Because the gateway cannot route ultrasonic data

39. Why must a unit conversion be done carefully during static calibration setup?

A. Because the scan tool only accepts kelvin

B. Because conversion changes the radar frequency

C. Because conversion sets the ride height

D. Because a conversion error places the target in the wrong location

40. Why does a radar that disables in heavy snow buildup and resumes once cleared not indicate a failure?

A. Because the gateway recovers on its own

B. Because the camera was distorted and cleared

C. Because the module always resets in cold

D. Because the blockage was a normal, self-resolving condition

41. Why are adaptive cruise, forward collision warning, and automatic emergency braking grouped together diagnostically?

A. Because they all rely on the forward radar

B. Because they all rely on the rear corner radar

C. Because they all rely on ultrasonic sensors

D. Because they all rely on the driver-monitoring camera

42. Why does diagnosis rely on comparing a schematic to DMM readings?

A. Because the schematic shows actual measured values

B. Because the DMM shows expected values

C. Because the schematic shows the expected value and the meter shows the actual, and the gap localizes the fault

D. Because both are ignored in diagnosis

43. Why does a forward camera serving multiple features mean grouped failures point to it?

A. Because the shared camera is the common element among those features

B. Because each feature has a separate camera

C. Because the radar serves all those features

D. Because the gateway disables them independently

44. Why should a technician research a vehicle's service history before diagnosing an ADAS fault?

A. Because it reveals the driver's radio presets

B. Because prior repairs often disturb sensor aim and explain current faults

C. Because it shows the fuel economy

D. Because it lists the maintenance schedule only

45. Why is a near-zero CAN-H to CAN-L resistance reading significant?

A. Because it confirms healthy termination

B. Because it indicates a missing terminator

C. Because it indicates a short across the bus

D. Because it indicates an open circuit

46. Why must some sensors undergo both static and dynamic calibration?

A. Because static is always insufficient on its own

B. Because dynamic is always insufficient on its own

C. Because the manufacturer procedure specifies the combination for that sensor

D. Because both calibrate the radar frequency

47. Why does an ultrasonic sensor false-alert after a bumper repaint?

A. Because the forward radar lost communication

B. Because the windshield was distorted

C. Because the thrust angle changed

D. Because excessive paint on the sensor face muffles or distorts the sound pulses

48. Why is a calibration "completion" message alone insufficient for a safety-critical system?

A. Because completion messages only appear on hybrids

B. Because a misaimed sensor can complete and pass while still being wrong

C. Because completion recalibrates the sensor again

D. Because completion clears all codes

49. Why does correcting a single shared ground sometimes resolve several ADAS symptoms at once?

A. Because the shared ground was the common root cause of all the symptoms

B. Because each symptom had an independent cause

C. Because the ground reprograms every module

D. Because the ground recalibrates the sensors

50. Why is an ADAS repair considered confirmed only after both a post-repair scan and functional verification?

A. Because a completion message confirms it instead

B. Because a clean scan can pass a misaimed sensor, so function must also be confirmed

C. Because clearing codes confirms it

D. Because a normal engine start confirms it

Answer Key & Full Answer Explanations

1. A — Recalibration is required because replacing the glass disturbs the camera's exact position and aim. The camera does not lose software, tint is not the issue, and wiper timing is irrelevant. Even a tiny positional change exceeds what the camera can self-correct.

2. C — Radar keeps working because radio waves pass through fog while the camera needs a clear optical view. Radar does not amplify fog, the camera cannot switch to radar mode, and fog does not improve reflections. Weather penetration is radar's signature advantage.

3. C — A fictional composite vehicle prevents technicians familiar with one brand from having an unfair advantage. Cost, a claim that real vehicles lack ADAS, and test length are not the reasons. The neutral vehicle measures reasoning, not brand exposure.

4. B — A voltage-drop test requires the circuit loaded and operating because current must be flowing for the drop to appear. Resistance can be read on dead circuits, the battery need not be disconnected, and the key must be on. Current flow reveals the hidden resistance.

5. B — The twisted-pair, differential design rejects electrical noise to keep safety-critical data reliable. It does not raise voltage, remove the need for terminators, or convert to analog. Noise immunity is the purpose of differential CAN.

6. A — Correct ride height is required because incorrect ride height misaims body-mounted sensors and would bake the error into the calibration. Ride height does not change radar frequency, erase software, or disable the gateway. Geometry is a prerequisite to calibration.

7. D — A miscalibrated collision system is dangerous because the driver trusts a system that may fail to detect a real hazard. It does not continuously brake, raise fuel use, or suppress all codes. A trusted but wrong safety system is uniquely hazardous.

8. A — One failed camera disables several features because lane keeping, sign recognition, and high beams all share that camera. They do not each have a separate camera, the radar does not take over, and the gateway does not disable them. Shared sensors explain grouped failures.

9. B — A pre-repair scan documents existing fault codes and establishes a baseline. It does not recalibrate, update maps, or set climate. The baseline distinguishes pre-existing issues from anything introduced later.

10. D — A forward radar's aim is critical because a small angular error becomes a large miss far ahead. It does not read lane lines, reach only inches, or self-correct. Beam geometry magnifies small aim errors.

11. C — The area must be cleared because the system may command steering and move the vehicle. Battery drain, bumper removal, and gateway disconnection do not address the actuation hazard. Any system that can move the vehicle needs a cleared area.

12. A — The reference is authoritative because the composite vehicle defines its own parameters that the questions are based on. Real vehicles do not always match it, it is not a recall list, and it does not replace diagnosis. The reference is the single source of truth.

13. D — Metallic or excessive paint affects radar because it can attenuate the radar signal passing through the fascia. It does not change ride height, distort the windshield, or reprogram the gateway. Refinish work directly affects radar transmission.

14. D — A level floor is required because the geometric relationship between vehicle and target depends on it. A sloped floor does not raise voltage, reprogram the camera, or change radar frequency. Level geometry is the foundation of static calibration.

15. A — Functional verification is required because a misaimed sensor can complete and pass a scan. The scan does not recalibrate, is not hybrid-only, and does not update maps. Verifying function closes the loop.

16. A — A poor shared ground causes widespread symptoms because many modules share ground points. It does not change glass spec, raise only bus resistance, or affect only tire sensors. Shared grounds are a classic source of multi-system faults.

17. B — Ultrasonic range is short because sound pulses attenuate quickly over distance. It is not software-limited, does not share radar's band, and does not require highway speed. Short range is inherent to sound-based sensing.

18. D — Radar measures closing speed by reading the Doppler frequency shift of the reflected signal. It does not use image brightness, temperature, or ultrasonic echo. Doppler-based velocity measurement is radar's signature strength.

19. C — Confirming power, ground, and bus first matters because a module lacking power or a bus connection appears dead but may not be failed. New modules can need configuration, testing is not always slower, and power and ground do affect modules. Verify the basics before condemning.

20. B — A new camera is still calibrated because it has no established reference to the specific vehicle. New parts are not pre-aimed, calibration is not used-only, and a software update is insufficient. New sensors need calibration too.

21. C — Dynamic calibration needs clear markings because the camera establishes its reference by tracking the markings. The radar and gateway do not supply markings, and markings do not change ride height. Clear markings are essential to dynamic camera calibration.

22. C — A blind spot complaint is investigated at the rear corner radar because it covers the adjacent-lane blind spots. The forward radar, camera, and ultrasonic sensors serve other zones. The affected feature identifies the corner radar.

23. A — A blocked condition after a snowstorm usually does not require replacement because it is typically a correctable obstruction the radar safely detects. The gateway, camera, and a cold-failure claim are not the cause. Blockage is a normal protective response.

24. A — Thrust angle is relevant because it represents the vehicle's true direction of travel that the sensor must align to. It does not set radar frequency, change tint, or control field of view. Forward sensors are referenced to the thrust line.

25. D — Replacing a module often requires more than installation because it often needs programming, configuration, initialization, and calibration. Repainting, a brake bleed, and a windshield are unrelated. Electronic setup and calibration are both required.

26. B — Both scans are performed because the pre-repair scan baselines existing faults and the post-repair scan confirms completion. Scans do not recalibrate, are not hybrid-only, and do not set climate. The scans bookend service with distinct purposes.

27. D — Sensor fusion combines sensor types because each sensor's strengths cover another's weaknesses. It does not primarily reduce modules, enable a single sensor to do everything, or weld sensors together. Fusion lets radar measure distance while a camera classifies.

28. C — Targets must be precisely placed because a misplaced target teaches the sensor a wrong reference. Position does not change voltage, match tint, or reprogram the gateway. Target accuracy is calibration accuracy.

29. A — The camera depends on glass quality because it looks through the glass, so distortion degrades its image. The glass does not power, store software for, or aim the radar. Incorrect glass can impair features even with a healthy camera.

30. D — Finding the shared cause is the guiding principle because the simplest cause that explains all symptoms is usually correct. The priciest part is not usually the cause, systems do not always fail independently, and clearing codes does not resolve faults. Diagnose the pattern, not each symptom.

31. C — A feature reactivating each morning is normal because that reactivation is the defined default behavior. The switch is not shorted, the gateway is not forcing it on, and the configuration is intact. Defined defaults are not faults.

32. B — Back-probing is preferred because it measures under actual operating conditions without disconnecting the circuit. It does not seal the connector, raise voltage, or recalibrate. Preserving live conditions is why it is used.

33. B — A healthy bus reads about 60 ohms because two 120-ohm terminators in parallel give about 60. One terminator alone reads 120, no terminators give a high reading, and modules do not each add 60. Parallel terminators produce the ~60-ohm value.

34. D — A clean, non-reflective background is required because clutter or reflections can confuse a camera during calibration. Clutter does not raise voltage, reflections do not change radar frequency, and a clean background does not reprogram the camera. The bay environment is part of the procedure.

35. B — A fog-only camera complaint often indicates normal behavior because the camera cannot see through fog by design. It is not an intermittent module failure, a gateway dropout, or radar interference. Condition-specific symptoms usually reflect normal limits.

36. C — The gateway is central because it routes communication between networks and is where lost-communication often surfaces. It does not aim radar, measure clarity, or detect obstacles. Its position makes it key to multi-system diagnosis.

37. A — A communication fault mimics a sensor failure because a healthy sensor's data may not reach its module. Sensors do depend on the bus, glass does not distort the signal, and radar frequency is not the issue. The network must be considered, not just the endpoints.

38. B — A fused-system parking complaint may not be ultrasonic because the cause could lie in the surround-view cameras or their integration. Ultrasonic sensors do not always fail first, surround-view cameras do not use radar, and the gateway can route the data. Identify the responsible sensors first.

39. D — Careful unit conversion matters because a conversion error places the target in the wrong location. The scan tool does not require kelvin, conversion does not change radar frequency, and it does not set ride height. Precision in conversion is precision in calibration.

40. D — A radar disabling in snow buildup and resuming once cleared does not indicate failure because the blockage was a normal, self-resolving condition. The gateway, camera, and a cold-reset claim are not the cause. Blockage protection is designed behavior.

41. A — These three features are grouped because they all rely on the forward radar. They do not rely on the corner radar, ultrasonic sensors, or the driver-monitoring camera. The shared forward radar links them diagnostically.

42. C — Diagnosis compares schematic to meter because the schematic shows the expected value and the meter shows the actual, and the gap localizes the fault. Schematics do not show actual values, the DMM does not show expected values, and neither is ignored. Comparison is the core discipline.

43. A — Grouped failures point to the camera because the shared camera is the common element among those features. Each feature does not have a separate camera, the radar does not serve them, and the gateway does not disable them independently. The shared sensor is the common denominator.

44. B — Researching service history matters because prior repairs often disturb sensor aim and explain current faults. Radio presets, fuel economy, and the maintenance schedule alone are not diagnostic leads. History targets prior work that disturbs sensors.

45. C — A near-zero CAN-H to CAN-L reading is significant because it indicates a short across the bus. Healthy termination reads about 60, a missing terminator reads about 120, and an open reads very high. Near-zero specifically signals a short.

46. C — Some sensors need both calibrations because the manufacturer procedure specifies the combination for that sensor. Neither static nor dynamic is universally insufficient, and neither calibrates radar frequency. The procedure governs which method or combination applies.

47. D — An ultrasonic sensor false-alerts after a repaint because excessive paint on the sensor face muffles or distorts the sound pulses. A forward radar, windshield, or thrust angle are unrelated. Bumper refinishing is a classic ultrasonic fault source.

48. B — A completion message alone is insufficient because a misaimed sensor can complete and pass while still being wrong. Completion is not hybrid-only, does not recalibrate, and does not clear codes. Confirmed function, not completion, is the standard.

49. A — Correcting a shared ground resolves several symptoms because the shared ground was the common root cause of all of them. The symptoms did not have independent causes, and the ground does not reprogram or recalibrate modules. The outcome validates the shared-cause approach.

50. B — A repair is confirmed only after both checks because a clean scan can pass a misaimed sensor, so function must also be confirmed. A completion message, cleared codes, or a normal start are not sufficient. Verification closes the loop on every ADAS repair.