PRACTICE EXAM 24

1. What does the acronym ADAS stand for?

A. Automated Driving Actuation System

B. Advanced Detection And Steering

C. Advanced Driver Assistance Systems

D. Automatic Distance Alert Sensor

2. Which definition best describes an actuator in an ADAS context?

A. A sensor that captures images of the road

B. A network that routes messages between modules

C. A device that converts a control module's command into physical action

D. A reference document used during the test

3. The acronym ACC refers to which feature?

A. Automatic Collision Control

B. Adaptive Cruise Control

C. Active Camera Calibration

D. Advanced Corner Coverage

4. What does the Doppler effect describe?

A. The change in frequency of a reflected wave caused by relative motion

B. The attenuation of sound pulses over distance

C. The bending of light through a windshield

D. The resistance of two parallel terminators

5. Which term names the angle between the vehicle's geometric centerline and the direction the rear axle steers the vehicle?

A. Camber angle

B. Caster angle

C. Thrust angle

D. Rake angle

6. The acronym AEB stands for:

A. Automatic Emergency Braking

B. Active Electronic Bus

C. Advanced Echo Bandwidth

D. Adaptive Edge Boundary

7. What does "calibration" establish or restore for an ADAS sensor?

A. The sensor's internal battery charge

B. The sensor's correct alignment and reference relative to the vehicle and road

C. The sensor's paint finish

D. The vehicle's fuel level

8. Which definition matches a "gateway module"?

A. A sensor that detects close-range objects

B. A module that routes and translates communication between vehicle networks

C. A patterned board used in static calibration

D. A device that measures windshield optical clarity

9. The acronym LiDAR is based on which sensing method?

A. Light Detection And Ranging

B. Low-Intensity Doppler And Radar

C. Linear Direction And Range

D. Lateral Distance Alert Radar

10. What is a "Technical Service Bulletin" (TSB)?

A. A mandatory safety recall ordered by a regulator

B. A customer-facing warranty contract

C. Manufacturer documentation describing a known condition and its recommended diagnosis or repair

D. A reference listing the vehicle's option codes

11. Which term describes a calibration performed with the vehicle stationary using manufacturer-specified targets?

A. Dynamic calibration

B. Static calibration

C. Initialization

D. Configuration

12. The acronym BSW refers to which feature?

A. Blind Spot Warning

B. Brake System Watchdog

C. Bus Signal Wire

D. Body Sensor Web

13. What does "dynamic calibration" require?

A. Fixed targets in a controlled bay

B. The vehicle to remain stationary

C. Driving the vehicle under specified road, speed, and environmental conditions

D. Removal of the forward camera

14. Which definition best matches "sensor fusion"?

A. Welding two sensors into one housing

B. Disabling redundant sensors to save power

C. Routing all sensor data through a single wire

D. Combining complementary sensors so each one's strengths cover another's weaknesses

15. The acronym RCTA refers to:

A. Radar Centerline Tracking Adjustment

B. Rear Camera Tilt Alignment

C. Road Condition Threshold Alert

D. Rear Cross-Traffic Alert

16. What does "initialization" mean for a replaced ADAS component?

A. Aligning the component's spatial reference to the road

B. Setting a new or reset component to a defined starting state so it is ready to operate

C. Repainting the sensor face

D. Bleeding the brake system

17. Which term describes the high-frequency sound-based sensing used for parking?

A. Radar

B. Ultrasonic (sonar)

C. Infrared

D. LiDAR

18. The acronym CAN, as in CAN bus, stands for:

A. Central Alert Network

B. Camera Alignment Node

C. Calibration Access Network

D. Controller Area Network

19. What is "voltage drop" as measured in ADAS diagnosis?

A. The total system voltage at the battery

B. The frequency of the CAN signal

C. The optical clarity of the windshield

D. The voltage lost across a component or connection as current flows through it

20. Which term names the manufacturer-specified patterned board positioned for a static calibration?

A. Gateway

B. Actuator

C. Calibration target

D. Composite vehicle

21. The acronym LDW refers to which feature?

A. Lane Departure Warning

B. Low Distance Watch

C. Lateral Drive Wheel

D. Light Detection Window

22. What is the "Composite Vehicle Type 1 Reference"?

A. A list of recall campaigns

B. A wiring harness part number guide

C. A standardized reference describing a fictional vehicle's ADAS architecture for the L4 test

D. A scan tool software update

23. Which definition matches "thrust line"?

A. The tilt of the windshield from vertical

B. The direction the rear axle actually steers the vehicle

C. The radar's frequency band

D. The camera's field-of-view boundary

24. The acronym LKA refers to:

A. Lane Keeping Assist

B. Low Key Alert

C. Lateral Kinetic Adjustment

D. Light Kelvin Analysis

25. What does a "pre-repair scan" accomplish?

A. It recalibrates the sensors

B. It updates the navigation maps

C. It sets the climate control

D. It documents existing fault codes and establishes a baseline before work begins

26. Which term describes loading correct software into a module?

A. Initialization

B. Calibration

C. Programming (or reprogramming)

D. Aiming

27. The acronym HMI stands for:

A. High-voltage Module Interlock

B. Hybrid Motor Inverter

C. Harness Mounting Interface

D. Human–Machine Interface

28. What is a "passive" ADAS system?

A. One that warns the driver but does not control the vehicle

B. One that brakes and steers automatically

C. One that is permanently disabled

D. One that only works on hybrids

29. Which definition matches an "active" ADAS system?

A. One that intervenes in steering, braking, or acceleration

B. One that only illuminates a warning lamp

C. One that requires no sensors

D. One used only during parking

30. The acronym DMS refers to which system?

A. Distance Measuring Sonar

B. Dynamic Mapping Sensor

C. Data Management Switch

D. Driver Monitoring System

31. What does "coding" or "configuration" do for a module?

A. Aims the sensor at the road

B. Charges the module's capacitor

C. Cleans the sensor face

D. Sets the module to match the specific vehicle's options and equipment

32. Which term describes a sensor reporting it cannot see and safely disabling its feature?

A. A calibration completion

B. A configuration error

C. A blocked or obstructed condition

D. A thrust-angle fault

33. The acronym TSR refers to:

A. Tire Sensor Reset

B. Traffic Sign Recognition

C. Thrust System Reference

D. Target Squaring Routine

34. What is a "lost-communication code"?

A. A code set when a module stops receiving expected messages from another module

B. A code indicating low fuel

C. A code for incorrect tire pressure

D. A code for a burned-out headlight

35. Which definition matches "post-repair scan"?

A. A scan confirming, after repair and calibration, that no faults remain

B. A scan performed before any work begins

C. A scan that recalibrates sensors automatically

D. A scan that updates navigation maps

36. The acronym FCW refers to which feature?

A. Fuel Control Warning

B. Forward Collision Warning

C. Front Camera Window

D. Field Cancellation Width

37. What does "differential signaling" on a CAN bus mean?

A. Two wires carry mirror-image signals, and the receiver reads their difference to reject noise

B. The bus uses a single wire referenced to ground

C. The signals are converted to light pulses

D. The bus operates only when the engine is off

38. Which term names the document that identifies a known safety defect requiring correction, often at no cost to the owner?

A. A technical service bulletin

B. A composite vehicle reference

C. An option code list

D. A recall

39. The acronym SAE, as in SAE levels of automation, refers to:

A. Sensor Array Electronics

B. Static Alignment Equipment

C. SAE International (the standards organization)

D. Safety Actuator Encoder

40. What is a "terminating resistor" on a high-speed CAN bus?

A. A resistor that increases bus voltage

B. A device that aims the radar

C. A resistor (commonly 120 ohms) at each end that conditions the bus and prevents reflections

D. A sensor that detects obstacles

41. Which term describes the process of restoring a sensor's correct spatial reference, as distinct from loading its software?

A. Programming

B. Configuration

C. Initialization

D. Calibration

42. What does "optical distortion" refer to in camera-based systems?

A. An alteration of the light path through the glass that degrades the image reaching the camera

B. A short in the CAN bus

C. A misaimed radar beam

D. A painted ultrasonic sensor

43. The forward radar primarily measures which two quantities?

A. Color and temperature

B. Sound frequency and humidity

C. Tire pressure and ride height

D. Distance and closing speed

44. Which definition matches "field of view" for a sensor?

A. The sensor's internal software version

B. The sensor's supply voltage range

C. The sensor's mounting torque

D. The area or angular extent that the sensor can detect

45. What does a "static calibration" specifically require of the bay?

A. A sloped floor and bright glare

B. A level floor, clear space, controlled lighting, and a clean background

C. Highway driving conditions

D. A fully discharged battery

46. The term "composite vehicle" is used because the vehicle is:

A. Made of carbon-fiber composite materials

B. A fictional, manufacturer-neutral vehicle defined for the test

C. A specific production model year

D. A hybrid-only platform

47. Which definition matches "ride height"?

A. The radar's operating frequency

B. The camera's field-of-view angle

C. The thrust angle of the rear axle

D. The vehicle's height stance that affects body-mounted sensor aim

48. The acronym DMM stands for:

A. Dynamic Mapping Module

B. Driver Monitoring Mode

C. Digital Multimeter

D. Data Management Memory

49. What is "back-probing" a connector?

A. Replacing the connector terminals

B. Sealing the connector against moisture

C. Measuring a live circuit at the terminal without disconnecting it

D. Painting the connector housing

50. Which term describes combining a static and a dynamic procedure to fully calibrate a sensor?

A. A single static-only calibration

B. A static-plus-dynamic (combination) calibration

C. A bench calibration

D. An initialization sequence

Answer Key & Full Answer Explanations

1. C — ADAS stands for Advanced Driver Assistance Systems. These electronic systems assist the driver through warnings or interventions rather than replacing the driver. The name captures their assistive, not autonomous, purpose.

2. C — An actuator converts a control module's command into physical action, such as the brakes or steering responding. Image capture, message routing, and reference documents are other roles. Identifying the actuator stage helps isolate where a fault lives in the chain.

3. B — ACC stands for Adaptive Cruise Control, which maintains a set speed and following distance. It relies primarily on the forward radar. The acronym ties directly to the distance-keeping feature.

4. A — The Doppler effect is the change in frequency of a reflected wave caused by relative motion between source and object. Radar uses it to measure closing speed directly. This is radar's signature capability for cruise and collision functions.

5. C — Thrust angle is the angle between the geometric centerline and the direction the rear axle steers the vehicle. Camber, caster, and rake describe other geometric relationships. Thrust angle defines the vehicle's true direction of travel for forward-sensor aim.

6. A — AEB stands for Automatic Emergency Braking, an active intervention that applies the brakes when a collision is imminent. The other expansions are not real ADAS terms. AEB is built on forward radar and camera inputs.

7. B — Calibration establishes or restores a sensor's correct alignment and reference relative to the vehicle and road. It is not about battery charge, paint, or fuel. A working sensor still needs a correct reference to be accurate.

8. B — A gateway module routes and translates communication between vehicle networks. It is not a sensor, a target, or a clarity meter. Its central role makes it key to multi-system diagnosis.

9. A — LiDAR stands for Light Detection And Ranging, using pulsed laser light to map surroundings. The other expansions are fabricated. LiDAR is recognized on the L4 but is uncommon on serviced light-duty vehicles.

10. C — A TSB is manufacturer documentation describing a known condition and its recommended diagnosis or repair. It is not a recall, a warranty contract, or an option-code list. TSBs often contain the exact fix or revised procedure.

11. B — Static calibration is performed with the vehicle stationary using manufacturer-specified targets. Dynamic calibration uses driving, while initialization and configuration are electronic setup steps. The stationary-plus-targets signature defines static calibration.

12. A — BSW stands for Blind Spot Warning, which alerts to vehicles in the adjacent-lane blind spot. The other expansions are not ADAS features. BSW relies on the rear corner radars.

13. C — Dynamic calibration requires driving the vehicle under specified road, speed, and environmental conditions so the sensor learns from the road. It does not use fixed targets, a stationary vehicle, or camera removal. Conditions must be met for it to complete.

14. D — Sensor fusion combines complementary sensors so each one's strengths cover another's weaknesses. It is not physical welding, disabling sensors, or single-wire routing. Fusion lets radar measure distance while a camera classifies.

15. D — RCTA stands for Rear Cross-Traffic Alert, warning of vehicles crossing while backing out. The other expansions are invented. RCTA uses the rear corner radars.

16. B — Initialization sets a new or reset component to a defined starting state so it is ready to operate. It is distinct from calibration, which aligns the spatial reference. A replaced component often needs initialization before calibration.

17. B — Ultrasonic (sonar) sensing uses high-frequency sound for short-range parking detection. Radar uses radio waves, infrared uses heat, and LiDAR uses laser light. Sound attenuates quickly, limiting ultrasonic to short range.

18. D — CAN stands for Controller Area Network, the most common automotive data bus. The other expansions are not the term. CAN is the noise-immune backbone of ADAS communication.

19. D — Voltage drop is the voltage lost across a component or connection as current flows through it. It is not battery voltage, signal frequency, or optical clarity. Measured under load, it reveals high-resistance connections.

20. C — A calibration target is the manufacturer-specified patterned board positioned for static calibration. A gateway, actuator, and composite vehicle are unrelated terms. Correct target placement is calibration accuracy.

21. A — LDW stands for Lane Departure Warning, a passive alert when the vehicle drifts from its lane. The other expansions are not features. LDW relies on the forward camera reading lane lines.

22. C — The Composite Vehicle Type 1 Reference is a standardized reference describing a fictional vehicle's ADAS architecture for the L4 test. It is not a recall list, a part guide, or a software update. It is the authoritative source for many exam questions.

23. B — The thrust line is the direction the rear axle actually steers the vehicle. It is not windshield tilt, radar frequency, or camera field of view. Forward sensors are often calibrated to the thrust line.

24. A — LKA stands for Lane Keeping Assist, an active feature that steers to keep the vehicle in its lane. The other expansions are invented. LKA uses the forward camera with steering as the actuator.

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

26. C — Programming (or reprogramming) loads correct software into a module. Initialization, calibration, and aiming are different operations. A new module often needs programming with current software.

27. D — HMI stands for Human–Machine Interface, the displays, sounds, switches, and controls through which the system and driver communicate. The other expansions are unrelated. Many "fault" complaints trace to HMI state or configuration.

28. A — A passive ADAS system warns the driver but does not control the vehicle. Active systems brake or steer; passive ones only alert. Blind spot warning is a classic passive system.

29. A — An active ADAS system intervenes in steering, braking, or acceleration. It does more than illuminate a lamp, does require sensors, and is not parking-only. Automatic emergency braking is a classic active system.

30. D — DMS stands for Driver Monitoring System, which watches the driver for drowsiness or inattention. The other expansions are not the term. DMS often uses an in-cabin camera, sometimes with infrared.

31. D — Coding or configuration sets the module to match the specific vehicle's options and equipment. It does not aim the sensor, charge a capacitor, or clean a face. Configuration is part of the electronic setup a replaced module needs.

32. C — A blocked or obstructed condition is when a sensor reports it cannot see and safely disables its feature. It is not a completion, a configuration error, or a thrust-angle fault. Blockage is often a normal, correctable protective response.

33. B — TSR stands for Traffic Sign Recognition, which reads and displays road signs. The other expansions are invented. TSR relies on the forward camera.

34. A — A lost-communication code is set when a module stops receiving expected messages from another module. It is not about fuel, tire pressure, or headlights. These codes name relationships that help localize faults.

35. A — A post-repair scan confirms, after repair and calibration, that no faults remain. It is not a pre-work scan, an automatic recalibration, or a map update. It is necessary but not sufficient without functional verification.

36. B — FCW stands for Forward Collision Warning, a passive alert of an impending front-end collision. The other expansions are not features. FCW relies on forward radar and camera.

37. A — Differential signaling means the two wires carry mirror-image signals and the receiver reads their difference to reject noise. It is not single-wire, light-based, or engine-off operation. This is the source of CAN's noise immunity.

38. D — A recall identifies a known safety defect requiring correction, often at no cost to the owner. A TSB, composite reference, and option list are different. An open recall may itself be the cause of a complaint.

39. C — SAE refers to SAE International, the standards organization that publishes the levels of driving automation. The other expansions are fabricated. The SAE 0–5 scale classifies automation levels.

40. C — A terminating resistor (commonly 120 ohms) sits at each end of a high-speed CAN bus to condition it and prevent reflections. It does not raise voltage, aim radar, or detect obstacles. Two in parallel yield the ~60-ohm bus reading.

41. D — Calibration restores a sensor's correct spatial reference, distinct from loading software. Programming and configuration are electronic setup, and initialization sets a ready state. Calibration and electronic setup are different required jobs.

42. A — Optical distortion is an alteration of the light path through the glass that degrades the image reaching the camera. It is not a bus short, a misaimed radar, or a painted sensor. Incorrect glass can distort the view even with a healthy camera.

43. D — The forward radar primarily measures distance and closing speed. It does not measure color, temperature, humidity, tire pressure, or ride height. These two quantities are exactly what cruise and collision functions need.

44. D — Field of view is the area or angular extent a sensor can detect. It is not the software version, supply voltage, or mounting torque. Beam shape and field of view determine which features a sensor serves.

45. B — Static calibration requires a level floor, clear space, controlled lighting, and a clean background. A sloped, glaring, driving, or discharged condition would violate the requirements. The bay environment is part of the procedure.

46. B — The vehicle is called "composite" because it is a fictional, manufacturer-neutral vehicle defined for the test. It is not about composite materials, a production model year, or a hybrid platform. The neutral design keeps the exam fair.

47. D — Ride height is the vehicle's height stance that affects body-mounted sensor aim. It is not radar frequency, camera field of view, or thrust angle. Incorrect ride height misaims forward sensors and must be corrected before calibration.

48. C — DMM stands for Digital Multimeter, the technician's measurement tool for voltage, voltage drop, and resistance. The other expansions are unrelated. The DMM reveals what is actually true at a circuit point.

49. C — Back-probing measures a live circuit at the terminal without disconnecting it, preserving operating conditions. It is not terminal replacement, sealing, or painting. Careful back-probing avoids damaging sensitive ADAS terminals.

50. B — A static-plus-dynamic (combination) calibration combines both procedures to fully calibrate a sensor. A static-only, bench, or initialization sequence is not the same. Some sensors require both portions in sequence.