

PRACTICE EXAM 11

1. The pressure at which the governor signals the compressor to stop building is called the:
 - A. Cut-in pressure
 - B. Relief pressure
 - C. Cut-out pressure
 - D. Warning pressure

2. The lower pressure at which the governor signals the compressor to resume building is the:
 - A. Cut-out pressure
 - B. Relief pressure
 - C. Cut-in pressure
 - D. Protection pressure

3. The component that mechanically holds the compressor's intake valves open so no air is compressed is the:
 - A. Governor
 - B. Unloader
 - C. Purge valve
 - D. Relay valve

4. A leak present when the system is charged and the brakes are released is termed a:
 - A. Applied leak
 - B. Static leak

- C. Modulated leak
- D. Compounded leak

5. A leak present only when the brakes are applied and held is termed an:

- A. Applied leak
- B. Static leak
- C. Inlet-seat leak
- D. Purge leak

6. The moisture-adsorbing material inside the air dryer is called the:

- A. Diaphragm
- B. Modulator
- C. Reservoir
- D. Desiccant

7. The first reservoir downstream of the air dryer is commonly called the:

- A. Supply (wet) reservoir
- B. Primary service reservoir
- C. Secondary service reservoir
- D. Spring reservoir

8. A valve with two inlets and one outlet that passes the higher-pressure source is a:

- A. Double check valve
- B. Quick-release valve

C. Relay valve

D. Pressure protection valve

9. The valve that provides a local exhaust port to speed brake release near the chambers is the:

A. Relay valve

B. Ratio valve

C. Foot valve

D. Quick-release valve

10. The driver-operated valve that meters stored air to the brake circuits is the:

A. Treadle (foot) valve

B. Governor

C. Quick-release valve

D. Pressure protection valve

11. The S-shaped lobe that spreads the brake shoes apart is called the:

A. Slack adjuster

B. S-cam

C. Camshaft bushing

D. Anchor pin

12. The lever that converts pushrod motion into camshaft rotation is the:

A. S-cam

B. Brake spider

- C. Return spring
- D. Slack adjuster

13. The distance the pushrod travels from released to fully applied is the:

- A. Running clearance
- B. Pushrod stroke
- C. Diaphragm area
- D. Cut-out differential

14. A hardened, glassy surface on a lining from excessive heat is called:

- A. Scoring
- B. Bell-mouthing
- C. Glazing
- D. Heat checking

15. A self-adjusting slack adjuster that compensates for lining wear is an:

- A. Anchor adjuster
- B. Inverted adjuster
- C. Automatic slack adjuster
- D. Air modulator

16. The chamber section that contains the large coil power spring is the:

- A. Service section
- B. Relay section

- C. Diaphragm section
- D. Spring (parking) section

17. The process of mechanically holding the power spring released for service is called:

- A. Purging
- B. Bleeding
- C. Caging
- D. Modulating

18. The feature that prevents spring and service forces from stacking on one foundation brake is:

- A. Pressure protection
- B. Anti-compounding
- C. Proportioning
- D. Caging

19. The toothed ring the wheel speed sensor reads is called the:

- A. Slack adjuster
- B. Caging bolt
- C. Modulator
- D. Tone (exciter) ring

20. The ABS component that rapidly reduces, holds, and reapplies brake pressure is the:

- A. Modulator valve
- B. Tone ring

- C. Wheel speed sensor
- D. Electronic control unit

21. The system that prevents drive-wheel spin during acceleration is:

- A. ABS
- B. ATC
- C. ESC
- D. The pressure protection valve

22. The sensor that measures how fast the vehicle rotates about its vertical axis is the:

- A. Yaw rate sensor
- B. Lateral acceleration sensor
- C. Steering angle sensor
- D. Wheel speed sensor

23. A stored fault identifying where the ABS detects a problem is called a:

- A. Diagnostic trouble code
- B. Cut-out reading
- C. Leak rate
- D. Purge cycle

24. Brake fluid that absorbs atmospheric moisture over time is described as:

- A. Synthetic
- B. Hygroscopic

- C. Incompressible
- D. Petroleum-based

25. A master cylinder with two pistons feeding two separate circuits is a:

- A. Single-bore cylinder
- B. Slave cylinder
- C. Wheel cylinder
- D. Tandem master cylinder

26. A system using compressed air to power an actuator that creates hydraulic pressure is:

- A. Pure hydraulic
- B. Air-over-hydraulic
- C. Full air brake
- D. Vacuum-assisted

27. The bearing type used in opposed pairs at transit wheel ends is the:

- A. Sealed ball bearing
- B. Needle bearing
- C. Tapered roller bearing
- D. Plain bushing

28. The small specified axial free movement in an adjusted wheel bearing is called:

- A. Runout
- B. Backlash

- C. Preload
- D. End play

29. The seal that retains bearing lubricant and excludes contaminants is the:

- A. Diaphragm
- B. Caging seal
- C. Purge seal
- D. Wheel seal

30. A reduction in lining friction at high temperature, causing loss of stopping power, is called:

- A. Glazing
- B. Scoring
- C. Brake fade
- D. Compounding

31. The federal standard governing air brake systems on heavy vehicles is:

- A. FMVSS 105
- B. FMVSS 208
- C. FMVSS 301
- D. FMVSS 121

32. The inner race of a tapered roller bearing is called the:

- A. Cone
- B. Cup

- C. Cage
- D. Spider

33. The outer race of a tapered roller bearing pressed into the hub is the:

- A. Cone
- B. Spider
- C. Cage
- D. Cup

34. The valve that cuts off accessory air to preserve braking when pressure drops is the:

- A. Relay valve
- B. Quick-release valve
- C. Double check valve
- D. Pressure protection valve

35. The mechanical force-multiplication device at the end of the air system in a drum brake is the:

- A. Air dryer
- B. Governor
- C. S-cam foundation brake
- D. Master cylinder

36. The dash control that the driver pulls to apply the parking brakes is the:

- A. Push-pull parking control valve
- B. Treadle valve

- C. Relay valve
- D. Governor

37. Removing trapped air from a hydraulic system is called:

- A. Purging
- B. Bleeding
- C. Caging
- D. Modulating

38. The flat friction elements that clamp the rotor in an air disc brake are the:

- A. Brake shoes
- B. Brake pads
- C. Wheel cylinders
- D. Slack adjusters

39. The caliper design that slides on guide pins to apply both pads is a:

- A. Floating (sliding) caliper
- B. Fixed multi-piston caliper
- C. Drum-and-shoe caliper
- D. Master caliper

40. The sensor measuring sideways force during cornering is the:

- A. Steering angle sensor
- B. Yaw rate sensor

- C. Lateral acceleration sensor
- D. Wheel speed sensor

41. The internal mechanism that maintains pad-to-rotor clearance in an air disc brake is the:

- A. External slack adjuster
- B. Internal automatic adjuster
- C. Tone ring
- D. Modulator valve

42. The condition where moisture-laden brake fluid boils and produces a soft pedal is called:

- A. Glazing
- B. Fluid fade (vapor lock)
- C. Compounding
- D. Cavitation

43. The valve that balances application pressure between axles is the:

- A. Quick-release valve
- B. Double check valve
- C. Ratio (proportioning) valve
- D. Governor

44. The reservoir capacity requirement that ensures multiple brake applications with the compressor off comes from:

- A. FMVSS 121
- B. The wheel bearing manufacturer

- C. The brake fluid specification
- D. The air dryer service interval

45. The maximum diameter stamped on a drum represents its:

- A. Minimum lining thickness
- B. Wear limit for replacement
- C. Governor cut-out pressure
- D. Pushrod stroke limit

46. The component that creates compressed air for the entire system is the:

- A. Governor
- B. Air dryer
- C. Compressor
- D. Reservoir

47. The chamber type number corresponds to the chamber's:

- A. Effective diaphragm area
- B. Maximum air pressure
- C. Governor cut-in setting
- D. Wheel bearing end play

48. The dual-section valve that controls both the primary and secondary circuits is the:

- A. Relay valve
- B. Quick-release valve

- C. Governor
- D. Treadle (foot) valve

49. The audible burst of air when the bus reaches full pressure is the:

- A. Spring brake applying
- B. Air dryer purge
- C. Foot valve venting
- D. Master cylinder bypass

50. The system that maintains whole-vehicle directional stability using motion sensors is:

- A. ABS
- B. ATC
- C. ESC
- D. The pressure protection valve

51. Air pressure delivered to the spring section of a combination chamber causes the parking brake to:

- A. Release
- B. Apply
- C. Cage
- D. Compound

52. A wheel speed sensor signal corrupted by missing teeth points to a damaged:

- A. Modulator valve
- B. Caging bolt

- C. Tone ring
- D. Master cylinder

53. The dial indicator measures rotor lateral runout and wheel bearing:

- A. Diameter
- B. Lining thickness
- C. End play
- D. Cut-out pressure

54. A pedal that slowly sinks under steady pressure with no external leak indicates internal:

- A. Tone ring damage
- B. Wheel bearing preload
- C. Air dryer saturation
- D. Master-cylinder seal bypass

55. The condition in which a brake stays partially applied and generates heat is called:

- A. Glazing
- B. Fading
- C. Caging
- D. Dragging

56. Petroleum products entering a hydraulic system primarily cause:

- A. Swelling and destruction of rubber seals
- B. Improved pedal feel

- C. Higher fluid boiling point
- D. Faster air dryer purging

57. The intervention method ATC uses besides braking the spinning wheel is:

- A. Caging the spring brakes
- B. Reducing engine torque
- C. Purging the air dryer
- D. Raising the governor cut-out

58. The reservoir where residual moisture and oil first collect is the:

- A. Primary service reservoir
- B. Secondary service reservoir
- C. Spring reservoir
- D. Supply (wet) reservoir

59. The spring brake's dual role is parking brake and:

- A. Automatic emergency brake
- B. Service brake
- C. Accessory air supply
- D. Compressor unloader

60. The leak test condition that isolates supply-side leaks uses the brakes:

- A. Applied and held
- B. Pumped rapidly

C. Released

D. Partially applied

Answer Key & Full Answer Explanations

1. C — Cut-out pressure is the point at which the governor signals the compressor to stop building (unload). Cut-in is the lower reload point, and relief and warning pressures are unrelated protective thresholds.

2. C — Cut-in pressure is the lower point at which the governor signals the compressor to resume building. Cut-out is the higher unload point; relief and protection pressures are different functions.

3. B — The unloader mechanically holds the compressor's intake valves open so no air is compressed while the compressor spins. The governor signals it, but the unloader does the holding; the purge and relay valves are unrelated.

4. B — A static leak is present when the system is charged and the brakes are released, implicating supply-side components. An applied leak appears only when the brakes are applied.

5. A — An applied leak is present only when the brakes are applied and held, implicating application-side components. A static leak appears with the brakes released.

6. D — The desiccant is the moisture-adsorbing material inside the air dryer that delivers dry air to the reservoirs. A diaphragm, modulator, and reservoir are different components.

7. A — The supply (wet) reservoir is the first tank downstream of the air dryer, where residual moisture and oil collect. The primary, secondary, and spring reservoirs are downstream.

8. A — A double check valve has two inlets and one outlet and passes the higher-pressure source while blocking the lower. The other valves serve different functions.

9. D — The quick-release valve provides a local exhaust port to speed brake release near the chambers. The relay valve speeds both apply and release, the ratio valve balances pressure, and the foot valve is the driver control.

10. A — The treadle (foot) valve is the driver-operated valve that meters stored air to the brake circuits. The governor controls the compressor, and the other valves serve different roles.

11. B — The S-cam is the S-shaped lobe that spreads the brake shoes apart against the drum. The slack adjuster, bushing, and anchor pin are other foundation components.

12. D — The slack adjuster is the lever that converts pushrod linear motion into camshaft rotation. The S-cam, spider, and return spring do not perform this conversion.

13. B — Pushrod stroke is the distance the pushrod travels from released to fully applied, the master adjustment indicator. Running clearance, diaphragm area, and cut-out differential are different measures.

14. C — Glazing is the hardened, glassy surface from excessive heat that lowers friction. Scoring, bell-mouthing, and heat checking are other heat or wear conditions.

15. C — An automatic slack adjuster self-adjusts to compensate for lining wear, maintaining clearance. The other terms are not real slack-adjuster types.

16. D — The spring (parking) section contains the large coil power spring. The service section is air-applied for normal braking; the other terms are not chamber sections.

17. C — Caging is mechanically holding the power spring released for service using the caging bolt. Purging, bleeding, and modulating are unrelated processes.

18. B — Anti-compounding prevents the spring and service forces from stacking on one foundation brake. Pressure protection, proportioning, and caging serve other purposes.

19. D — The tone (exciter) ring is the toothed ring the wheel speed sensor reads. The slack adjuster, caging bolt, and modulator are unrelated.

20. A — The modulator valve rapidly reduces, holds, and reapplies brake pressure during an ABS event. The tone ring and sensor provide input, and the ECU commands the modulator.

21. B — ATC (Automatic Traction Control) prevents drive-wheel spin during acceleration. ABS prevents lockup, ESC maintains stability, and the protection valve guards accessory air.

22. A — The yaw rate sensor measures how fast the vehicle rotates about its vertical axis. The lateral acceleration sensor measures sideways force, the steering angle sensor reads driver input, and the wheel speed sensor reads wheel rotation.

23. A — A diagnostic trouble code identifies where the ABS detects a problem. Cut-out readings, leak rates, and purge cycles are unrelated to fault codes.

24. B — Hygroscopic describes brake fluid that absorbs atmospheric moisture over time, lowering its boiling point. Synthetic, incompressible, and petroleum-based are different descriptors.

25. D — A tandem master cylinder has two pistons feeding two separate circuits for dual-circuit safety. A single-bore, slave, or wheel cylinder does not.

26. B — Air-over-hydraulic uses compressed air to power an actuator that creates hydraulic pressure. Pure hydraulic, full air, and vacuum-assisted are different architectures.

27. C — Transit wheel ends use tapered roller bearings in opposed pairs to carry weight and cornering loads. Sealed ball, needle, and plain bushings are not the standard.

28. D — End play is the small specified axial free movement in an adjusted wheel bearing. Runout, backlash, and preload are different conditions.

29. D — The wheel seal retains bearing lubricant and excludes contaminants. The diaphragm, caging seal, and purge seal serve other functions.

30. C — Brake fade is the reduction in lining friction at high temperature that causes loss of stopping power. Glazing is a surface condition, scoring is wear, and compounding is force stacking.

31. D — FMVSS 121 governs air brake systems on heavy vehicles. The other standards cover unrelated systems.

32. A — The cone is the inner race of a tapered roller bearing. The cup is the outer race, the cage holds the rollers, and the spider supports the shoes.

33. D — The cup is the outer race pressed into the hub. The cone is the inner race, the cage holds the rollers, and the spider is a brake component.

34. D — The pressure protection valve cuts off accessory air to preserve braking when pressure drops. The relay, quick-release, and double check valves serve other functions.

35. C — The S-cam foundation brake is the mechanical force-multiplication device at the end of the air system in a drum brake. The dryer, governor, and master cylinder are not.

36. A — The push-pull parking control valve is pulled to apply the parking brakes. The treadle valve, relay valve, and governor serve other roles.

37. B — Bleeding removes trapped air from a hydraulic system. Purging, caging, and modulating are unrelated processes.

38. B — Brake pads are the flat friction elements that clamp the rotor in an air disc brake. Shoes belong to drum brakes; wheel cylinders and slack adjusters are other components.

39. A — A floating (sliding) caliper slides on guide pins to apply both pads. A fixed multi-piston caliper, drum-and-shoe caliper, and master caliper do not.

40. C — The lateral acceleration sensor measures sideways force during cornering. The steering angle, yaw rate, and wheel speed sensors measure other quantities.
41. B — The internal automatic adjuster maintains pad-to-rotor clearance in an air disc brake; there is no external slack adjuster. The tone ring and modulator are unrelated.
42. B — Fluid fade (vapor lock) is the condition where moisture-laden brake fluid boils and produces a soft pedal. Glazing, compounding, and cavitation are different phenomena.
43. C — The ratio (proportioning) valve balances application pressure between axles. The quick-release, double check valve, and governor serve other functions.
44. A — The reservoir capacity requirement ensuring multiple applications with the compressor off comes from FMVSS 121. The bearing manufacturer, fluid spec, and dryer interval do not set it.
45. B — The stamped maximum diameter is the drum's wear limit for replacement. It is not lining thickness, cut-out pressure, or stroke limit.
46. C — The compressor creates compressed air for the entire system. The governor controls it, the dryer cleans the air, and the reservoir stores it.
47. A — The chamber type number corresponds to the chamber's effective diaphragm area, which determines pushrod force. It is not maximum pressure, cut-in, or bearing end play.
48. D — The treadle (foot) valve is the dual-section valve controlling both the primary and secondary circuits. The relay, quick-release, and governor serve other roles.
49. B — The audible burst at full pressure is the air dryer purge, venting and regenerating the desiccant. It is not the spring brake applying, foot valve venting, or master-cylinder bypass.
50. C — ESC maintains whole-vehicle directional stability using motion sensors. ABS prevents lockup, ATC prevents spin, and the protection valve guards accessory air.

51. A — Air pressure delivered to the spring section compresses and holds the power spring back, causing the parking brake to release. Exhausting air applies it; caging and compounding are unrelated.

52. C — A wheel speed sensor signal corrupted by missing teeth points to a damaged tone ring. The modulator, caging bolt, and master cylinder are unrelated.

53. C — The dial indicator measures rotor lateral runout and wheel bearing end play. It does not measure diameter, lining thickness, or cut-out pressure.

54. D — A pedal that slowly sinks under steady pressure with no external leak indicates internal master-cylinder seal bypass. Tone ring damage, bearing preload, and dryer saturation are unrelated.

55. D — Dragging is the condition in which a brake stays partially applied and generates heat. Glazing, fading, and caging are different phenomena.

56. A — Petroleum products in a hydraulic system cause swelling and destruction of rubber seals, requiring component replacement and flushing. They do not improve pedal feel, raise boiling point, or speed purging.

57. B — Besides braking the spinning wheel, ATC reduces engine torque to restore traction. Caging, purging, and raising cut-out do nothing for traction.

58. D — The supply (wet) reservoir is where residual moisture and oil first collect. The primary, secondary, and spring reservoirs are downstream.

59. A — The spring brake's dual role is parking brake and automatic emergency brake. It is not a service brake, accessory supply, or compressor unloader.

60. C — The leak test that isolates supply-side leaks uses the brakes released (static), since only the supply side is pressurized at rest. Applied, pumped, or partially applied conditions test the application side.