PRACTICE EXAM 8

1. A combination brake chamber combines which two sections sharing a common pushrod?

A. A hydraulic section and a vacuum section

B. A service section and a spring section

C. Two identical service sections

D. A governor section and a relay section

2. The power spring inside a spring brake chamber is held compressed (released) by:

A. A mechanical caging bolt during normal driving

B. Air pressure delivered to the spring section

C. Hydraulic fluid in the chamber

D. The foot valve during braking

3. A driver pulls the yellow dash knob out. This action:

A. Delivers air to release the parking brakes

B. Increases the governor cut-out pressure

C. Cages the spring brakes mechanically

D. Exhausts air and applies the parking brakes

4. The parking control valve automatically applies the spring brakes when system pressure drops to approximately:

A. 90 to 110 psi

B. 20 to 45 psi

C. 120 to 135 psi

D. 60 to 75 psi

5. A bus's parking brake will not release with the knob pushed in and pressure at 35 psi. The most likely cause is:

A. System pressure too low to hold the springs released

B. A broken power spring

C. A failed steering angle sensor

D. A glazed front lining

6. Caging a spring brake chamber accomplishes which result?

A. Increases the spring's applied force

B. Permanently disables the parking brake

C. Mechanically holds the power spring released for service

D. Tests the chamber diaphragm for leaks

7. A technician encounters a corroded, seized spring brake chamber. The correct action is to:

A. Apply heat to free the mechanism

B. Replace it as a complete sealed unit

C. Pry off the clamp band to inspect

D. Disassemble and rebuild it

8. Anti-compounding prevents which dangerous condition?

A. The air dryer purging too often

B. The governor reaching cut-in too soon

C. The wheel bearings overheating

D. Spring and service forces stacking on one foundation brake

9. A spring brake serves as the emergency brake because it:

A. Uses hydraulic pressure to apply

B. Requires the foot valve to engage

C. Applies automatically when air pressure is lost

D. Is operated only by the ABS modulator

10. A combination chamber with a torn spring-section diaphragm will most likely cause:

A. Faster air dryer purging

B. A parking brake that drags or applies as air bleeds off

C. Higher governor cut-out pressure

D. Reduced rotor runout

11. A driver reports the parking knob popped out by itself at idle. The technician should FIRST check for:

A. A glazed brake lining

B. A cracked brake rotor

C. An air leak dropping system pressure

D. A failed wheel speed sensor

12. The anti-compounding function is most commonly achieved with a:

A. Wheel speed sensor

B. Compressor unloader

C. Brake drum micrometer

D. Double check valve

13. A transit wheel end uses opposed pairs of which bearing type?

A. Sealed ball bearings

B. Plain bushings

C. Tapered roller bearings

D. Needle roller bearings

14. Tapered roller wheel bearings are used in opposed pairs because they:

A. Handle both radial and thrust (cornering) loads

B. Require no lubrication

C. Eliminate the need for a wheel seal

D. Adjust themselves automatically

15. An oil-lubricated hub allows the technician to check lubrication by:

A. Removing the entire hub assembly

B. Disassembling the spring chamber

C. Measuring pushrod stroke

D. Viewing the level through the sight-glass cap

16. The wheel seal is critical to brake performance because its failure can:

A. Raise the governor cut-out pressure

B. Speed the air dryer purge cycle

C. Contaminate the brake and starve the bearing

D. Increase reservoir capacity

17. When a hub is disturbed for bearing service, the wheel seal should be:

A. Cleaned and reused

B. Reinstalled in the opposite direction

C. Replaced with a new seal

D. Left in place undisturbed

18. Heavy-vehicle wheel bearings are adjusted to a small end play rather than preloaded to:

A. Increase brake chamber force

B. Allow for lubrication and thermal expansion

C. Raise the governor cut-out

D. Speed the air dryer purge

19. The seating step in wheel bearing adjustment is accomplished by:

A. Backing off the nut before any torque

B. Filling the hub fully with grease first

C. Tapping the hub with a hammer

D. Torquing the adjusting nut while rotating the hub

20. Wheel bearing end play is verified with a dial indicator reading:

A. Axial in-and-out movement of the hub

B. Radial spin of the brake drum

C. Pushrod travel at the chamber

D. Rotor thickness variation

21. An over-tightened (preloaded) wheel bearing will most likely:

A. Develop excessive end play

B. Improve fuel economy

C. Cause the air dryer to purge constantly

D. Overheat and fail rapidly

22. A growling noise from a wheel end that rises with road speed and changes when cornering, with no change on braking, indicates:

A. A glazed brake lining

B. A leaking foot valve exhaust

C. A worn wheel bearing

D. A saturated air dryer

23. A wheel end overheats with minimal end play and no dragging brake. The most likely cause is:

A. An under-adjusted (loose) bearing

B. An over-tight (preloaded) bearing

C. A contaminated brake lining

D. A saturated air dryer

24. A hydraulically braked shuttle uses a tandem master cylinder specifically to:

A. Convert hydraulic pressure into compressed air

B. Provide two independent circuits for safety

C. Eliminate the power booster

D. Increase the air dryer purge frequency

25. Brake fluid is described as hygroscopic, meaning it:

A. Absorbs moisture from the atmosphere over time

B. Resists all temperature change

C. Is petroleum-based and lubricating

D. Cannot transmit pressure

26. A hydraulic pedal that slowly sinks under steady pressure with no external leak indicates:

A. Air trapped in the lines needing bleeding

B. Internal master-cylinder seal bypass

C. An over-tight wheel bearing

D. A saturated air dryer

27. A spongy hydraulic pedal that firms up after pumping indicates:

A. Internal master-cylinder bypass

B. A worn-out brake drum

C. Air trapped in the hydraulic lines

D. A seized caliper guide pin

28. Petroleum contamination of a hydraulic brake system requires:

A. Replacing affected components and flushing the system

B. Bleeding the system and returning to service

C. Adding fresh fluid to dilute it

D. Driving until the fluid clears

29. An air-over-hydraulic system uses compressed air to:

A. Cage the spring brakes at every wheel

B. Read wheel speed for the ABS

C. Apply the wheel cylinders directly with vacuum

D. Power an actuator that generates hydraulic pressure

30. Fluid fade (vapor lock) on a long downgrade is caused by:

A. An over-tight wheel bearing

B. Boiling of moisture-contaminated brake fluid

C. A saturated air dryer cartridge

D. A failed wheel speed sensor

31. ABS prevents wheel lockup primarily to:

A. Shorten stopping distance on every surface

B. Eliminate foundation brake adjustment

C. Increase application pressure

D. Maintain steering control and stability

32. During an ABS event, the modulator rapidly:

A. Reduces, holds, and reapplies brake pressure

B. Cages and releases the spring brakes

C. Builds and stores reserve air

D. Purges and regenerates the desiccant

33. When ABS detects a fault, the brake system:

A. Loses all braking immediately

B. Applies the spring brakes automatically

C. Doubles the application pressure

D. Reverts to normal braking and warns the driver

34. A wheel speed sensor generates its signal by reading a:

A. Brake-line pressure transducer

B. Toothed tone ring rotating with the wheel

C. Strain gauge on the slack adjuster

D. Brake pedal position switch

35. ATC uses the ABS wheel speed sensors to detect and prevent:

A. Drive-wheel spin during acceleration

B. Wheel lockup during braking

C. Air dryer freezing

D. Excessive pushrod stroke

36. ATC can intervene by:

A. Braking the spinning wheel and/or cutting engine torque

B. Caging the drive-axle spring brakes

C. Raising the governor cut-out

D. Purging the air dryer

37. ESC adds which sensors to the ABS platform?

A. Brake fluid level and temperature sensors

B. Compressor speed and oil-pressure sensors

C. Lining thickness and drum-diameter sensors

D. Steering angle, yaw rate, and lateral acceleration sensors

38. ESC compares the driver's intended path to the vehicle's actual motion to:

A. Raise the governor cut-out

B. Purge the air dryer

C. Counter skidding and reduce rollover risk

D. Cage the spring brakes

39. A wheel speed sensor code is stored. Before replacing the sensor, the technician should check the:

A. Air gap, tone ring, and wiring/connectors

B. Brake fluid moisture content

C. Governor cut-out pressure

D. Spring brake caging bolt torque

40. A diagnostic trouble code from the ABS ECU most accurately indicates:

A. The circuit or area where a problem is detected

B. The exact failed part to replace

C. That all braking is lost

D. The governor cut-out setting

41. An ABS lamp that flickers over bumps and clears on smooth roads most likely indicates:

A. A saturated air dryer

B. A corroded or loose sensor connector

C. An over-tight wheel bearing

D. A glazed brake lining

42. Because the spring chamber stores lethal energy, the technician must never:

A. Disassemble it or apply a torch to it

B. Cage it with the proper bolt

C. Inspect it for external leaks

D. Replace it as a sealed unit

43. A bus's parking brake drags during operation though system pressure is adequate and the foundation brake is free. The most likely cause is:

A. A leak or restriction in the spring-brake circuit

B. An over-tight wheel bearing

C. A saturated air dryer

D. A glazed brake lining

44. The spring brake's dual role is as the:

A. Service brake and accessory air supply

B. Hydraulic brake and vacuum booster

C. Parking brake and automatic emergency brake

D. Compressor unloader and governor

45. A failed inboard wheel seal allows lubricant to reach the brake, which causes:

A. Faster air dryer purging

B. Higher governor cut-out

C. Reduced rotor runout

D. Contaminated friction and possible pull

46. When verifying lubrication on a grease-packed bearing, the technician relies on:

A. The sight-glass oil cap

B. The governor cut-out reading

C. The brake fluid level

D. Scheduled repacking and inspection intervals

47. A hydraulic disc caliper piston seized on one side will cause the bus to:

A. Build air pressure more slowly

B. Purge the air dryer continuously

C. Pull toward the side with the working brake

D. Increase wheel bearing end play

48. A hydraulic drum brake uses a wheel cylinder to:

A. Cage the spring brakes

B. Convert air to hydraulic pressure

C. Push the brake shoes outward against the drum

D. Read wheel speed for the ABS

49. Fluid at the backing plate of a hydraulic drum brake is the signature of a:

A. Glazed brake lining

B. Saturated air dryer

C. Worn wheel bearing

D. Leaking wheel cylinder

50. ABS control logic is identical on air and hydraulic systems; the difference is:

A. Hydraulic ABS cages the spring brakes

B. Air ABS uses no wheel speed sensors

C. The medium modulated is air versus brake fluid

D. Hydraulic ABS has no electronic control unit

51. A driver reports the ABS lamp is on but the bus stops normally. The accurate explanation is:

A. ABS is disabled but full normal braking remains

B. All braking is degraded

C. The spring brakes have been disabled

D. The compressor will not build pressure

52. A wheel bearing adjusted too loose will exhibit:

A. Rapid overheating from preload

B. Excessive end play and a wandering brake

C. Constant air dryer purging

D. A higher governor cut-out

53. A combination chamber's service section is applied by:

A. Exhausting air from the spring section

B. Air pressure delivered from the foot valve

C. Caging the power spring

D. Pulling the parking knob out

54. Bleeding a hydraulic brake system removes:

A. Trapped air that causes a spongy pedal

B. Moisture from the air dryer

C. Oil from the compressor

D. Spring force from the chamber

55. A tapered roller bearing consists of an inner cone, rollers in a cage, and an:

A. Internal automatic adjuster

B. Air-actuated diaphragm

C. Outer race (cup) pressed into the hub

D. Hydraulic master piston

56. A wheel end runs hot and a brake is found dragging there. Before condemning the bearing, the technician should:

A. Replace the wheel seal

B. Increase the bearing preload

C. Replace the brake drum on the opposite side

D. Determine whether the heat is from the dragging brake or the bearing

57. A spring brake that will not apply when the knob is pulled, with adequate pressure, may have a:

A. Saturated air dryer

B. Higher-than-spec governor cut-out

C. Glazed front lining

D. Broken power spring or foundation problem

58. An air disc brake has no slack adjuster because clearance is maintained by:

A. The wheel speed sensor

B. An internal automatic adjuster in the caliper

C. The governor unloader

D. The foot valve

59. Uneven inboard/outboard pad wear on an air disc brake most likely indicates:

A. A saturated air dryer

B. An over-tight wheel bearing

C. A caliper not floating freely on its guide pins

D. A worn compressor ring

60. A bus with a hydraulic system shows a soft pedal only after repeated hard stops, recovering when cool. This indicates:

A. Fluid fade from moisture-contaminated brake fluid

B. An over-tight wheel bearing

C. A saturated air dryer

D. A failed wheel speed sensor

Answer Key & Full Answer Explanations

1. B — A combination chamber combines a service section (air-applied for normal braking) and a spring section (the parking/emergency portion) sharing a common pushrod. It does not combine hydraulic, vacuum, governor, or relay sections.

2. B — The power spring is held compressed and released by air pressure delivered to the spring section during normal driving. Caging is a service procedure, not normal operation; the spring section uses air, not hydraulic fluid or the foot valve.

3. D — Pulling the yellow dash knob out exhausts air from the spring section and applies the parking brakes through spring force. Pushing it in delivers air to release them; it does not raise cut-out or cage the springs.

4. B — The parking control valve auto-applies the spring brakes when system pressure drops to roughly 20 to 45 psi, preventing operation on dangerously low air. The higher ranges are normal operating pressures.

5. A — At 35 psi the system pressure is too low to hold the springs released, so the parking brake correctly stays applied. Restoring pressure is the fix; a broken spring, sensor, or lining is not indicated.

6. C — Caging mechanically holds the power spring released so the brake can be serviced without air. It does not increase applied force, permanently disable the brake, or test the diaphragm.

7. B — A corroded, seized spring chamber is replaced as a complete sealed unit because the power spring stores lethal energy. Applying heat, prying off the clamp band, or disassembling it can release the spring fatally.

8. D — Anti-compounding prevents the spring and service forces from stacking on the same foundation brake, which could damage the slack adjuster, cam, and hardware. It is unrelated to purging, cut-in timing, or bearing temperature.

9. C — The spring brake serves as the emergency brake because it applies automatically when air pressure is lost, the fail-safe behavior of air braking. It is not hydraulic, does not need the foot valve, and is not modulator-operated.

10. B — A torn spring-section diaphragm cannot hold the air that keeps the spring released, so as air bleeds off the parking brake drags or applies. It does not affect purge timing, cut-out, or rotor runout.

11. C — A parking knob popping out at idle signals low system pressure triggering auto-application, so the first check is for an air leak dropping pressure. A lining, rotor, or sensor fault is unrelated.

12. D — Anti-compounding is most commonly achieved with a double check valve that prevents the two forces from stacking. A sensor, unloader, or micrometer has no role in anti-compounding.

13. C — Transit wheel ends use opposed pairs of tapered roller bearings, which carry both the vehicle's weight and cornering loads. Sealed ball bearings, bushings, and needle bearings are not the standard heavy-vehicle wheel bearing.

14. A — Tapered roller bearings are used in opposed pairs because they handle both radial (weight) and axial thrust (cornering) loads, each taking thrust in one direction. They still require lubrication and a wheel seal and are not self-adjusting.

15. D — An oil-lubricated hub lets the technician check lubrication by viewing the oil level and condition through the sight-glass cap. Removing the hub, disassembling a chamber, or measuring stroke are not how lubrication is verified.

16. C — A failed wheel seal can contaminate the brake friction surface and starve the bearing of lubricant, harming both braking and bearing life. It does not raise cut-out, speed purging, or increase capacity.

17. C — When the hub is disturbed for service, the wheel seal should be replaced with a new seal, since a reused seal often leaks once disturbed. Reusing, reversing, or leaving it are incorrect.

18. B — Heavy-vehicle bearings are set to a small end play rather than preloaded to allow clearance for lubrication and thermal expansion. Preloading tight causes overheating and rapid failure.

19. D — The bearing is seated by torquing the adjusting nut while rotating the hub, which fully seats the rollers and squeezes out excess lubricant before backing off. Backing off first, greasing, or hammering do not seat it correctly.

20. A — End play is verified with a dial indicator reading axial in-and-out movement of the hub against the spindle axis. Radial drum spin, pushrod travel, and rotor thickness variation are different measurements.

21. D — An over-tightened (preloaded) bearing has no clearance for lubrication and thermal growth, so it overheats and fails rapidly. Excessive play results from under-adjustment, not preload.

22. C — A growl that rises with road speed and changes when cornering, unaffected by braking, is the signature of a worn wheel bearing. Brake noise changes with application; a foot valve leak or dryer would not produce this.

23. B — A hot wheel end with minimal end play and no dragging brake points to an over-tight (preloaded) bearing with no lubrication clearance. A loose bearing would show excessive play, and a lining or dryer is unrelated.

24. B — A tandem master cylinder provides two independent hydraulic circuits for dual-circuit safety, so one leak does not disable all braking. It does not make air, replace the booster, or affect the dryer.

25. A — Hygroscopic means brake fluid absorbs moisture from the atmosphere over time, which lowers its boiling point. It is not temperature-immune, petroleum-based, or unable to transmit pressure.

26. B — A pedal that slowly sinks under steady pressure with no external leak indicates internal master-cylinder seal bypass, requiring replacement. Trapped air gives a spongy feel; a bearing or dryer is unrelated.

27. C — A spongy pedal that firms up after pumping indicates compressible air trapped in the lines, corrected by bleeding. Internal bypass, a worn drum, or a seized guide pin would not firm up with pumping.

28. A — Petroleum contamination swells and destroys rubber seals, so affected components must be replaced and the system flushed. Bleeding, diluting, or driving cannot reverse the damage.

29. D — An air-over-hydraulic system uses compressed air to power an actuator that generates hydraulic pressure for the wheel components. It does not cage springs, read wheel speed, or use vacuum at the wheel cylinders.

30. B — Fluid fade (vapor lock) results from boiling of moisture-contaminated brake fluid under sustained downgrade heat, producing compressible vapor and a soft pedal. A bearing, dryer, or sensor is unrelated.

31. D — ABS prevents wheel lockup primarily to maintain steering control and stability. It does not guarantee shorter stops on every surface, eliminate adjustment, or raise application pressure.

32. A — During an ABS event the modulator rapidly reduces, holds, and reapplies brake pressure to keep the wheel just short of lockup. The other sequences describe compressor or dryer functions.

33. D — When ABS detects a fault it reverts to normal braking and warns the driver, retaining full standard brakes. It does not lose all braking, apply the springs, or double pressure.

34. B — The wheel speed sensor generates its signal by reading a toothed tone ring rotating with the wheel. A pressure transducer, strain gauge, or pedal switch is not the source.

35. A — ATC uses the ABS wheel speed sensors to detect and prevent drive-wheel spin during acceleration. Lockup prevention is ABS; dryer freezing and stroke are unrelated.

36. A — ATC intervenes by braking the spinning wheel to transfer torque to the gripping wheel and/or signaling the engine to cut torque. Caging, raising cut-out, or purging do nothing for traction.

37. D — ESC adds steering angle, yaw rate, and lateral acceleration sensors to the ABS platform. The other listed sensors are not part of ESC.

38. C — ESC compares the driver's intended path to the vehicle's actual motion to counter skidding and reduce rollover risk through selective braking and torque reduction. It does not raise cut-out, purge, or cage springs.

39. A — A wheel speed sensor code indicates a circuit problem, so the air gap, tone ring, and wiring/connectors must be checked before replacing the sensor. Fluid moisture, cut-out, and caging bolt torque are unrelated.

40. A — A diagnostic trouble code indicates the circuit or area where a problem is detected, not always the exact failed part. It does not mean total loss of braking or report the cut-out setting.

41. B — An ABS lamp that flickers over bumps and clears on smooth roads points to a corroded or loose sensor connector disturbed by vibration. A dryer, bearing, or lining would not cause an intermittent electronic fault.

42. A — Because the spring chamber stores lethal energy, the technician must never disassemble it or apply a torch to it. Caging, inspecting for leaks, and replacing it as a sealed unit are acceptable.

43. A — A parking brake that drags with adequate pressure and a free foundation brake points to a leak or restriction in the spring-brake circuit preventing full release. A bearing, dryer, or lining is unrelated.

44. C — The spring brake's dual role is as the parking brake and the automatic emergency brake. It is not a service brake, hydraulic brake, compressor unloader, or governor.

45. D — A failed inboard wheel seal lets lubricant reach the brake, contaminating the friction material and reducing braking, which can cause pull. It does not speed purging, raise cut-out, or reduce runout.

46. D — Lubrication on a grease-packed bearing is verified by scheduled repacking and inspection intervals, since there is no sight glass. The oil cap, cut-out reading, and fluid level do not apply to a packed bearing.

47. C — A seized hydraulic caliper piston means that side does little braking, so the bus pulls toward the side with the working brake. It does not slow air build, purge the dryer, or increase end play.

48. C — A hydraulic drum brake's wheel cylinder pushes the brake shoes outward against the drum when fluid pressure is applied. It does not cage springs, convert air, or read wheel speed.

49. D — Fluid at the backing plate of a hydraulic drum brake is the signature of a leaking wheel cylinder, which also contaminates the linings. A glazed lining, dryer, or bearing would not leak fluid there.

50. C — ABS control logic is identical on both systems; only the modulated medium differs — air versus brake fluid. Hydraulic ABS does not cage springs, air ABS does have sensors, and both use an electronic control unit.

51. A — An ABS lamp on with normal stopping means ABS is disabled but full normal braking remains. An ABS fault does not degrade all braking, disable the springs, or stop the compressor.

52. B — A bearing adjusted too loose exhibits excessive end play and a wandering brake, hammering the bearing and seal. Rapid overheating comes from preload, not looseness, and the dryer/cut-out are unrelated.

53. B — The service section is applied by air pressure delivered from the foot valve, exactly as on a standard service chamber. Exhausting the spring section or pulling the knob applies the parking brake instead.

54. A — Bleeding removes trapped air that causes a spongy pedal, because air is compressible. It does not remove dryer moisture, compressor oil, or spring force.

55. C — A tapered roller bearing consists of an inner cone, tapered rollers in a cage, and an outer race (cup) pressed into the hub. The other options describe disc-brake or hydraulic components.

56. D — When a wheel end is hot and a brake is dragging there, the technician must determine whether the heat is from the dragging brake or the bearing, since symptoms overlap. Replacing the seal, preloading, or replacing a drum prematurely wastes effort.

57. D — A spring brake that won't apply with adequate pressure when the knob is pulled may have a broken power spring or a foundation problem preventing application. A dryer, cut-out, or lining would not stop the spring from applying.

58. B — An air disc brake has no slack adjuster because running clearance is maintained by an internal automatic adjuster in the caliper. The sensor, governor unloader, and foot valve do not set pad clearance.

59. C — Uneven inboard/outboard pad wear indicates a caliper not floating freely on its guide pins, so only one pad applies fully. A dryer, bearing, or compressor ring would not cause uneven pad wear.

60. A — A soft pedal only after repeated hard stops that recovers when cool is fluid fade from moisture-contaminated brake fluid boiling under heat. A bearing, dryer, or sensor fault is unrelated.