PRACTICE EXAM 9

1. A bus reaches governor cut-out at 125 psi and the dryer purges. Seconds later the compressor reloads even though no air was used. The most likely cause is:

A. A worn brake drum on the drive axle

B. A glazed front brake lining

C. A cut-in set too close to cut-out

D. A failed wheel speed sensor

2. Technician A says the compressor builds air whenever system pressure is below cut-in. Technician B says the compressor builds air whenever the brakes are applied. Who is correct?

A. Technician A only

B. Technician B only

C. Both technicians

D. Neither technician

3. All of the following are removed or handled by the air dryer EXCEPT:

A. Water vapor

B. Oil aerosols

C. Moisture that would otherwise freeze

D. The system's stored pressure

4. A bus loses 12 psi per minute during the applied test but passes the released test. The leak is on the:

A. Supply reservoir

B. Governor signal line

C. Compressor intake

D. Application side

5. The relay valve speeds rear brake response by:

A. Raising the governor cut-out

B. Sourcing and venting reservoir air locally at the far chambers

C. Converting air to hydraulic pressure

D. Storing reserve air for the spring brakes

6. A foot valve leaking at the exhaust port only when the brakes are released indicates a fault in the:

A. Inlet/seat seal on the supply side

B. Application side of the valve

C. Relay valve delivery seal

D. Spring brake circuit

7. A drum brake's stamped maximum diameter represents:

A. The minimum lining thickness

B. The governor cut-out pressure

C. The pushrod stroke limit

D. The wear limit beyond which it must be replaced

8. Technician A says a longer slack adjuster on one side balances braking. Technician B says mismatched slack adjuster lengths cause pull. Who is correct?

A. Technician A only

B. Both technicians

C. Technician B only

D. Neither technician

9. The master indicator of foundation-brake adjustment is:

A. Pushrod stroke

B. Drum diameter

C. Lining coefficient of friction

D. Reservoir pressure

10. A brake chamber's type number corresponds to its:

A. Maximum allowable air pressure

B. Governor cut-in setting

C. Wheel bearing end play

D. Effective diaphragm area

11. All of the following are true of automatic slack adjusters EXCEPT:

A. They self-adjust for lining wear

B. They maintain consistent running clearance

C. They still require stroke inspection

D. They should be manually back-adjusted to mask long stroke

12. A glazed brake lining reduces braking because glazing:

A. Increases lining thickness

B. Lowers the coefficient of friction

C. Raises the brake fluid boiling point

D. Improves drum heat dissipation

13. The spring (parking) brake applies when:

A. Air is delivered to the spring section

B. Air is exhausted from the spring section

C. The foot valve is pressed

D. The compressor reaches cut-out

14. Technician A says caging increases the spring's applied force. Technician B says the parking knob auto-applies at low pressure. Who is correct?

A. Technician A only

B. Both technicians

C. Technician B only

D. Neither technician

15. A spring brake chamber must never be:

A. Disassembled or cut open with a torch

B. Caged with the proper bolt

C. Inspected for external leaks

D. Replaced as a sealed unit

16. Anti-compounding prevents:

A. The air dryer from purging

B. Spring and service forces from stacking on one foundation brake

C. The governor from reaching cut-in

D. The wheel bearings from overheating

17. A wheel speed sensor reads its signal from a:

A. Brake-line pressure transducer

B. Toothed tone ring rotating with the wheel

C. Slack adjuster strain gauge

D. Brake pedal position switch

18. When ABS detects a fault, the system:

A. Reverts to normal braking and warns the driver

B. Loses all braking immediately

C. Applies the spring brakes automatically

D. Doubles the application pressure

19. ATC intervenes against drive-wheel spin by:

A. Caging the drive-axle spring brakes

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

C. Raising the governor cut-out

D. Purging the air dryer

20. ESC adds which sensors beyond standard ABS?

A. Brake fluid level and temperature sensors

B. Compressor speed and oil-pressure sensors

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

D. Lining thickness and drum-diameter sensors

21. A wheel speed sensor code is stored. The technician should FIRST:

A. Replace the sensor

B. Clear the code and release the bus

C. Check the air gap, tone ring, and wiring

D. Increase the governor cut-out

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

A. Internal master-cylinder seal bypass

B. Air trapped in the lines

C. An over-tight wheel bearing

D. A saturated air dryer

23. Brake fluid is hygroscopic, which means it:

A. Resists all temperature change

B. Is petroleum-based and lubricating

C. Absorbs moisture from the atmosphere

D. Cannot transmit pressure

24. All of the following cause a spongy hydraulic pedal EXCEPT:

A. Air trapped in the lines

B. An over-tight wheel bearing

C. Boiled, moisture-laden fluid

D. A recently opened, unbled circuit

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

A. Power an actuator that creates hydraulic pressure

B. Cage the spring brakes at every wheel

C. Read wheel speed for the ABS

D. Apply the wheel cylinders with vacuum

26. Petroleum contamination of brake fluid requires:

A. Bleeding and returning to service

B. Adding fresh fluid to dilute it

C. Replacing affected components and flushing

D. Driving until the fluid clears

27. A transit wheel end uses opposed pairs of:

A. Tapered roller bearings

B. Sealed ball bearings

C. Plain bushings

D. Needle roller bearings

28. 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

29. A failed wheel seal can cause all of the following EXCEPT:

A. Lubricant contaminating the brake

B. Starvation of the bearing lubricant

C. Pull during braking from contaminated friction

D. A higher governor cut-out pressure

30. A growling wheel-end noise that rises with road speed and changes when cornering indicates:

A. A glazed brake lining

B. A leaking foot valve exhaust

C. A worn wheel bearing

D. A saturated air dryer

31. During the air-brake pre-trip, the low-pressure warning should activate near:

A. 60 psi

B. 130 psi

C. 100 psi

D. 20 psi

32. Pushrod stroke is measured at full application and compared to:

A. The governor cut-in pressure

B. The brake fluid boiling point

C. The wheel bearing end play

D. The readjustment limit for the chamber type

33. A leakage test is performed in both released and applied conditions because:

A. The released test checks the hydraulic circuit

B. Only the applied test detects any leak

C. Each isolates a different half of the air system

D. Both measure wheel bearing play

34. The correct tool for measuring rotor lateral runout is a:

A. Dial indicator

B. Brake drum micrometer

C. Air pressure test gauge

D. Lining thickness gauge

35. Good brake-service documentation records:

A. Only the parts replaced

B. Only the vehicle's mileage

C. A subjective impression of brake feel

D. Actual readings against limits and corrective actions

36. Kinetic energy a brake must absorb rises with:

A. The cube of the vehicle's weight

B. The square root of the speed

C. The square of the vehicle's speed

D. The governor cut-out pressure

37. The dual-circuit brake system ensures that:

A. A single circuit failure leaves the other able to brake

B. The compressor never needs to unload

C. The air dryer purges twice per cycle

D. The wheel bearings require no adjustment

38. A constant air leak at the dryer exhaust after full charge most likely indicates a:

A. Worn compressor ring

B. Saturated supply reservoir

C. Failed wheel speed sensor

D. Purge valve stuck open

39. The pressure protection valve preserves braking by:

A. Raising the governor cut-out

B. Cutting off accessory air when pressure drops

C. Caging the spring brakes

D. Purging the air dryer more often

40. A bus pulls toward the side with the working brake when one caliper piston seizes because:

A. The seized side grips harder

B. The working side produces braking while the seized side does little

C. Both sides apply equally

D. The pull is unrelated to which caliper is seized

41. The treadle valve meters air in proportion to:

A. The governor cut-out pressure

B. The wheel speed signal

C. How far the driver presses the pedal

D. The air dryer purge timing

42. A modern air-braked transit bus must have ABS because:

A. It eliminates foundation brake adjustment

B. FMVSS 121 requires it on air-braked vehicles

C. It replaces the spring brake system

D. It increases reservoir capacity

43. A drum brake dragging continuously is hazardous because it:

A. Improves braking efficiency

B. Lowers the air dryer purge frequency

C. Raises the governor cut-out

D. Generates heat causing fade, glazing, and possible fire

44. The air dryer purges at the moment the:

A. Compressor unloads at governor cut-out

B. Brakes are applied

C. Spring brakes apply automatically

D. Master cylinder bypasses internally

45. A relay valve sticking closed on apply will cause:

A. Slow or weak application at the far chambers

B. Faster air dryer purging

C. Higher governor cut-out

D. Reduced wheel bearing end play

46. Technician A says ABS shortens stopping distance on every surface. Technician B says ABS mainly maintains steering control. Who is correct?

A. Technician A only

B. Both technicians

C. Technician B only

D. Neither technician

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

A. Exhausting air from the spring section

B. Caging the power spring

C. Air pressure delivered from the foot valve

D. Pulling the parking knob out

48. All of the following are inspected on an air disc brake EXCEPT:

A. Rotor thickness and runout

B. Pad thickness and even wear

C. Caliper guide pins and boots

D. External slack adjuster length

49. A parking brake that pops out by itself at idle most likely indicates:

A. A glazed front lining

B. A cracked brake rotor

C. A failed wheel speed sensor

D. An air leak dropping system pressure

50. A bus loses the primary circuit due to a ruptured line. The driver still has:

A. No service braking at all

B. Service braking from the intact secondary circuit

C. Only the parking brake by pumping

D. Braking only through the ABS modulator

51. A spring brake chamber with a torn spring-section diaphragm will most likely:

A. Purge the dryer faster

B. Drag or apply the parking brake as air bleeds off

C. Raise the governor cut-out

D. Reduce rotor runout

52. A compressor that never unloads and over-pressurizes the system most likely has a fault in the:

A. Brake chamber diaphragm

B. Wheel speed sensor

C. Quick-release valve

D. Governor or unloader mechanism

53. A wheel bearing adjusted too tight (preloaded) will most likely:

A. Develop excessive end play

B. Overheat and fail rapidly

C. Improve fuel economy

D. Cause constant dryer purging

54. The reduce-hold-reapply logic of ABS 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

55. A bus with adequate pressure has a parking brake that drags during operation; 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

56. One-way check valves between reservoirs serve to:

A. Increase compressor output

B. Convert air to spring force

C. Prevent a leak in one circuit from draining another

D. Measure the leak rate per minute

57. A bus builds air slowly with good compressor output and no leaks, and the dryer never "pops." The most likely cause is a:

A. Worn brake drum

B. Restricted air dryer or failed purge

C. Glazed brake lining

D. Failed wheel speed sensor

58. A combination chamber's spring section is held released during driving by:

A. Mechanically caging the power spring

B. Exhausting all air from the chamber

C. Pressing the foot valve continuously

D. Air pressure compressing and holding the spring back

59. Brake pulsation felt rhythmically with wheel rotation on an air disc brake points first to:

A. Pushrod stroke

B. Governor cut-out pressure

C. Brake fluid moisture

D. Rotor runout and thickness variation

60. Clearing ABS codes and confirming the self-test passes after a repair is important because it:

A. Verifies the repair corrected the fault and the system is functional

B. Raises the governor cut-out pressure

C. Repacks the wheel bearings

D. Increases reservoir capacity

Answer Key & Full Answer Explanations

1. C — Reloading immediately after cut-out with no air used indicates a cut-in set too close to cut-out, giving too small a differential. A worn drum, glazed lining, or failed sensor would not cause rapid recycling.

2. A — Technician A is correct: the compressor builds whenever system pressure is below cut-in, governed by the pressure setpoints. Technician B is wrong; brake application draws air but does not directly command the compressor to build.

3. D — The air dryer removes water vapor and oil and prevents freeze-up, but it does not remove the system's stored pressure; it passes dried air on to the reservoirs. Removing pressure is the exception.

4. D — A leak during the applied test that passes the released test is on the application side, pressurized only when the brakes are applied. The supply reservoir, governor signal line, and intake would not behave this way.

5. B — The relay valve speeds rear response by sourcing and venting reservoir air locally at the far chambers off a fast signal. It does not raise cut-out, make hydraulic pressure, or store spring-brake air.

6. A — A foot valve leaking at the exhaust port only when released points to the inlet/seat seal on the supply side, pressurized at rest. An applied leak would implicate the application side.

7. D — The drum's stamped maximum diameter is the wear limit beyond which it is too thin to handle heat and must be replaced. It is unrelated to lining thickness, cut-out, or stroke.

8. C — Technician B is correct: mismatched slack adjuster lengths create unequal leverage and braking force, causing pull. Technician A is wrong; a longer slack adjuster does not balance braking, it unbalances it.

9. A — Pushrod stroke is the master indicator of foundation-brake adjustment; excessive stroke means late, weak braking. Drum diameter, friction coefficient, and reservoir pressure are not the adjustment indicator.

10. D — A brake chamber's type number corresponds to its effective diaphragm area, which determines pushrod force at a given pressure. It does not denote maximum pressure, cut-in, or bearing end play.

11. D — Automatic slack adjusters self-adjust, maintain clearance, and still require stroke inspection, but they must never be manually back-adjusted to mask long stroke. The manual back-adjustment claim is the exception.

12. B — Glazing lowers the lining's coefficient of friction, weakening braking even with thickness remaining. It does not increase thickness, raise fluid boiling point, or improve heat dissipation.

13. B — The spring (parking) brake applies when air is exhausted from the spring section, letting the power spring extend. Delivering air releases it; the foot valve and cut-out are unrelated to spring application.

14. C — Technician B is correct: the parking knob auto-applies at low pressure. Technician A is wrong; caging holds the spring released, it does not increase applied force.

15. A — A spring brake chamber must never be disassembled or cut open with a torch because the power spring stores lethal energy. Caging, inspecting for leaks, and replacing it as a sealed unit are acceptable.

16. B — Anti-compounding prevents the spring and service forces from stacking on the same foundation brake. It is unrelated to purging, cut-in, or bearing temperature.

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

18. A — 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.

19. B — ATC intervenes against drive-wheel spin by braking the spinning wheel to transfer torque to the gripping wheel and/or cutting engine torque. Caging, raising cut-out, or purging do nothing for traction.

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

21. C — A wheel speed sensor code indicates a circuit problem, so the air gap, tone ring, and wiring must be checked first before replacing the sensor. Replacing it first or clearing the code without correction leaves the fault.

22. A — 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.

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

24. B — An over-tight wheel bearing causes overheating and play problems, not a spongy pedal. Trapped air, boiled fluid, and an unbled circuit all cause sponginess, so the bearing is the exception.

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

26. C — 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.

27. A — Transit wheel ends use opposed pairs of tapered roller bearings, which carry weight and cornering loads. Sealed ball bearings, bushings, and needle bearings are not the standard.

28. 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.

29. D — A failed wheel seal contaminates the brake, starves the bearing, and causes pull, but it does not raise the governor cut-out pressure. The cut-out claim is the exception.

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

31. A — The low-pressure warning should activate near 60 psi, well before pressure becomes dangerously low. The higher and lower values are not the warning threshold.

32. D — Pushrod stroke is measured at full application and compared to the readjustment limit for the chamber type. It is not compared to cut-in, fluid boiling point, or bearing end play.

33. C — Both leak tests are needed because each isolates a different half of the system: released for supply-side, applied for application-side. Neither checks the hydraulic circuit or measures bearing play.

34. A — Rotor lateral runout is measured with a dial indicator reading the disc's wobble. A drum micrometer, air gauge, or lining gauge cannot make this measurement.

35. D — Good documentation records actual readings against limits and corrective actions, creating a usable maintenance history. Recording only parts, only mileage, or a subjective impression is inadequate.

36. C — Kinetic energy a brake must absorb rises with the square of the vehicle's speed, so doubling speed quadruples the energy. It is not tied to the cube of weight, the square root of speed, or cut-out.

37. A — The dual-circuit system ensures a single circuit failure leaves the other able to brake the bus. It does not affect compressor unloading, dryer purging, or bearing adjustment.

38. D — A constant leak at the dryer exhaust after full charge indicates a purge valve stuck open, venting continuously. A worn ring, saturated tank, or failed sensor would not produce a steady exhaust leak.

39. B — The pressure protection valve preserves braking by cutting off accessory air when pressure drops. It does not raise cut-out, cage springs, or change purge frequency.

40. B — A seized caliper piston means that side does little braking, so the working side's force pulls the bus toward it. Pull always reflects unequal force, never increased braking on the seized side.

41. C — The treadle valve meters stored air in proportion to how far the driver presses the pedal. It is not proportional to cut-out, wheel speed, or purge timing.

42. B — Modern air-braked transit buses must have ABS because FMVSS 121 requires it. ABS does not eliminate adjustment, replace the spring brakes, or add reservoir capacity.

43. D — A continuously dragging drum brake generates extreme heat causing fade, glazing, and possible fire. It does not improve efficiency, lower purge frequency, or raise cut-out.

44. A — The air dryer purges at the moment the compressor unloads at governor cut-out, venting and regenerating the desiccant. It is not tied to brake application, spring-brake apply, or master-cylinder bypass.

45. A — A relay valve sticking closed on apply cannot deliver local air, causing slow or weak application at the far chambers. It does not affect purging, cut-out, or bearing end play.

46. C — Technician B is correct: ABS mainly maintains steering control by preventing lockup. Technician A is wrong; ABS does not guarantee shorter stops on every surface and can lengthen them on some loose surfaces.

47. C — The service section is applied by air pressure delivered from the foot valve. Exhausting the spring section, caging, or pulling the knob applies the parking brake instead.

48. D — An air disc brake has no external slack adjuster; clearance is maintained by an internal automatic adjuster. Rotor thickness/runout, pad thickness/wear, and caliper guide pins/boots are all inspected, so the slack adjuster is the exception.

49. D — A parking knob popping out at idle indicates an air leak dropping system pressure to the auto-apply point. A lining, rotor, or sensor fault is unrelated.

50. B — Losing the primary circuit still leaves service braking from the intact secondary circuit, the purpose of the dual-circuit design. The driver is not left with no braking or only a pumped parking brake.

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

52. D — A compressor that never unloads and over-pressurizes the system most often has a governor or unloader fault failing to command unloading. The diaphragm, sensor, and quick-release valve are unrelated.

53. B — 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.

54. 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 has sensors, and both use an electronic control unit.

55. 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.

56. C — One-way check valves between reservoirs prevent a leak in one circuit from draining another, preserving braking air. They do not increase output, convert to spring force, or measure leak rate.

57. B — Slow build with good compressor output, no leaks, and a dryer that never "pops" points to a restricted air dryer or failed purge. A worn drum, glazed lining, or failed sensor would not affect build.

58. D — The spring section is held released during driving by air pressure compressing and holding the power spring back. Caging is a service procedure, exhausting air applies the brake, and the foot valve operates the service section.

59. D — Pulsation felt rhythmically with wheel rotation on an air disc brake points first to rotor runout and thickness variation. It is not a stroke, governor, or fluid issue.

60. A — Clearing codes and confirming the self-test passes verifies the repair corrected the fault and the system is functional. It does not change cut-out, repack bearings, or add reservoir capacity.