Practice Test Brakes & Suspension.

True/False
Indicate whether the sentence or statement is true or false.

____ 1. Disc brake calipers move a fraction of an inch and drum brake cylinders move a few thousandths of an inch to force the friction surfaces against the drums or rotors.

____ 2. The development of disc brakes used today was due to vehicle racing.

____ 3. Disc brakes have a self-energizing action similar to that used by drum brakes.

____ 4. ABS brakes were first used on race cars in 1947.

____ 5. The term bypassing is referring to a master cylinder that may have an internal leak.

____ 6. The flared fittings should be installed on the master cylinder before the master cylinder mounting bolts are tightened.

____ 7. Testers are available that test for air in the brake fluid.

____ 8. When brakes are bled with a pressure bleeder, the proportioning valve must be disabled using a special tool.

____ 9. Air bubbles trapped within brake components may be dislodged by tapping on them lightly with a small hammer.

____ 10. Duo-servo brakes have a star adjuster that is part of the parking brake strut.

____ 11. On a primary/secondary drum brake design, the self adjuster may never self-adjust if the driver does not operate the vehicle in reverse.

____ 12. On some leading-trailing drum brake designs, the self-adjusting mechanism may never adjust if the driver never operates the parking brake.

____ 13. On a disc/drum brake vehicle, the larger reservoir in the master cylinder is for the drum brakes.

____ 14. The self-energizing effect of disc brakes make it an very effective parking brake.

____ 15. Fixed brake calipers normally have only one piston.

____ 16. Plastic pistons are used in some caliper applications.

____ 17. The wheel speed sensor and tone ring create a direct current signal and voltage.

____ 18. An integral system combines the power brake booster, ABS hydraulic circuitry, and the master cylinder in one assembly.

____ 19. The non-integral ABS system is also referred to as an add-on system.

____ 20. Non-integral ABS systems use the hydraulic pump for power assist during conventional braking.

____ 21. Automotive manufacturers began using tubeless tires on all of their vehicles in the 1940s.

____ 22. Wear bars that are cast into the tire tread indicate when the thread has become worn to its safe limit.

____ 23. A properly inflated radial tire may appear to be low on air when compared to a Bias-ply type tire.

____ 24. A speed rated tire has a stiffer sidewall than a non-speed rated tire.

____ 25. The highest speed rated tires available in the United States have the H rating.
26. Department of Transportation (DOT) standards require that the overall diameter of a replacement tire be within 4 percent plus or minus of what the tire was as original equipment.

27. Low tire pressure in a radial tire can change the normal deflection of its sidewall and result in the tire’s generating excessive heat.

28. Vehicle owners should be encouraged to check tire air pressure at least once every three months and prior to a long trip.

29. Four-wheel drive vehicles may use the same tire rotation pattern as rear drive vehicles.

30. An out-of-round condition of a tire may be caused by the improper seating of the tire’s bead.

31. Combined tire and wheel radial runout should be less than 0.045" (1.1 mm), and lateral runout should be less than 0.060".

32. Some puncture sealants are flammable and can result in an explosion from a spark caused during an external plug repair.

33. Cars are designed to be as light as possible to improve handling and fuel economy.

34. Almost all of the world’s automotive manufacturers used the ladder frame design until the early 1970s.

35. The coil spring is the most common type of spring used in the front and rear of passenger cars.

36. To restore the vehicle’s correct ride height prior to an alignment, the leaf spring tension can be adjusted by turning a screw against a bracket mounted on one of the leaf spring ends.

37. On a MacPherson strut suspension system, a ball joint is located at the end of the lower control arm and a pivot bearing on top of the strut, which allow the strut to rotate for steering.

38. Active suspension systems were first developed by the Italian car manufacturer Enzo Ferrari.

39. Shocks do not often fail at the same rate. Usually one shock has a problem, requiring the replacement of all four shocks.

40. During the reassembly of a MacPherson strut assembly, it is important to use an impact wrench to tighten the locknut on the shaft of the strut because using hand tools can damage the piston rod seal.

41. Any movement in a load-carrying ball joint that has been properly unloaded would require the ball joint to be replaced.

42. A vehicle that is not at the proper ride height cannot be aligned properly.

43. If the cotter pin hole does not line up with the ball joint stud after the proper tightening torque is reached back the nut off to align the hole.

44. Power steering fluid should be checked at normal ambient temperature with the engine not running.

45. When you check the steering wheel free play on a vehicle with power steering, the engine should not be running.

46. When replacing a worn tie-rod end, count the number of turns that it takes to remove it. Then turn the new tie-rod end onto its threads the same number of turns. This will provide an approximate toe-in adjustment.

47. Air bags systems may also be referred to as a supplemental inflatable restraints (SIR) or supplemental restraint system (SRS).
48. When diagnosing a power steering pressure concern, the first thing that you should check is the maximum system output pressure.

49. A power steering pressure hose is made of reinforced oil-resistant synthetic rubber that is able to withstand temperatures of 300°F and handle pressures up to 1,500 psi.

50. The alignment angle most responsible for tire wear is toe.

51. Camber is not a tire wearing angle.

52. Excessive positive camber can cause cupping tire wear if the resulting shimmy is allowed to continue.

53. In city driving, right-hand turns are made about 80 percent of the time.

54. Unusual tire wear can be caused by worn parts, incorrect inflation pressure, hard cornering, or incorrect wheel alignment.

55. On rear-wheel drive vehicles, the toe on the rear of the vehicle will equalize similarly to the front toe.

56. Sometimes a front-wheel drive vehicle will turn abruptly to the side during initial acceleration. The term for this is bump steer.

57. The included angle is the amount of SAI minus caster.

58. Changes in caster and camber will affect the toe setting, so toe should be adjusted last.

59. Individual toe is measured at each wheel and is in reference to the geometric centerline of the vehicle.

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

60. The computer in an ABS brake system can pulsate the brakes up to ____ times a second.
   a. 10  
   b. 15  
   c. 20  
   d. 25

61. As speed doubles from 30 to 60 mph, the required stopping distance increases by nearly ____ times.
   a. one  
   b. two  
   c. three  
   d. four

62. Brake systems operate by using friction to convert the energy of motion, called kinetic energy, to ____ energy.
   a. mechanical  
   b. heat  
   c. chemical  
   d. inertia

63. A water content of 3 percent lowers the boiling point of DOT 3 brake fluid by ____ percent.
   a. 15  
   b. 20  
   c. 25  
   d. 30

64. DOT 3 brake fluid has a wet boiling point of ____ degrees Fahrenheit.
   a. 212  
   b. 284  
   c. 365  
   d. 401

65. The brake pedal feels spongy; what is the condition or what needs to be done?
   a. Adjust the brakes.  
   b. Air in the brake lines.  
   c. Bleed the brakes.  
   d. Both b and c
66. After the master cylinder reservoir cover is removed, a swollen gasket is found. This could be a sign of:
   a. brake fluid too low in master cylinder.
   b. high humidity in the air.
   c. vent port is plugged.
   d. contaminated brake fluid.

67. Once brake fluid reaches its ____ point, it cannot absorb any more water.
   a. absorption  
   b. saturation  
   c. yield  
   d. reaction

68. A general rule of thumb is to change brake fluid every:
   a. one year or 15,000 miles.  
   b. two years or 30,000 miles.  
   c. three years or 40,000 miles.  
   d. four years or 50,000 miles.

69. Brake systems can be flushed by using:
   a. petroleum products.  
   b. aerosol brake cleaner.  
   c. air pressure.  
   d. alcohol.

70. During vacuum bleeding, ____ can be used on the bleeder screw threads to minimize air bubbles being observed in the clear fluid hose.
   a. chassis grease  
   b. silicone grease  
   c. petroleum jelly  
   d. anti-seize compound

71. A new brake bleeding method uses the Phoenix Injector. It is also called:
   a. Vacula or suction bleeding.  
   b. scan tool bleeding.  
   c. gravity bleeding.  
   d. reverse fluid injection.

72. What other options could the stop light switch control?
   a. Cruise control  
   b. Torque converter clutch  
   c. Antilock brake control  
   d. All of the above

73. Technician A says that the same tool can fabricate an ISO flare or a double flare. Technician B says that brake tubing should be routed so there are as few bends as possible. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

74. Technician A says that an ISO flare is a two-step process. Technician B says that the different types of flares are not interchangeable. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

75. Technician A says that the primary brake shoe is mounted toward the rear of the brake assembly. Technician B says that the secondary shoe is mounted toward the front of the brake assembly. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

76. Technician A says that the front shoe on a leading-trailing brake system wears the most. Technician B says that the rear shoe on a leading-trailing brake system wears the most. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

77. Technician A says that some self-adjusting mechanisms operate only when the vehicle is backing up. Technician B says that some self-adjusting mechanisms operate when the parking brake is applied. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

78. What is the most popular way of cleaning brake assemblies in preparation for service?
   a. High-pressure wet brake washers  
   b. Low-pressure wet brake washers  
   c. HEPA vacuum cleaners  
   d. Shop vacuum cleaners
79. Two different technicians are performing drum brake inspections. Technician A says that as he lifts the rubber boots away from the wheel cylinder, and brake fluid drips from the wheel cylinder, this is considered normal. Technician B says that a slight amount of brake fluid is normal in this location. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

80. Technician A says it is safe to clean and re-use contaminated brake linings if there is sufficient lining thickness present. Technician B says that after contaminated linings are cleaned, when the lining becomes hot, the chemicals present before cleaning may rise again to the top of the lining material. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

81. What is the other name that is used for the pins that go along with the holddown springs?
   a. Anchor plate  
   b. Cotter pin  
   c. Pushpin  
   d. Nail

82. A technician can use ____ on brake shoes to keep them clean before and after assembly.
   a. denatured alcohol  
   b. brake cleaner  
   c. carburetor cleaner  
   d. masking tape

83. Brake clearance adjustment is performed by using a brake adjusting ____.
   a. gauge  
   b. spoon  
   c. blade  
   d. both a and b

84. A (an) ____ is a type of disc brake pad wear indicator.
   a. audible wear sensor  
   b. visual sensor  
   c. tactile sensor  
   d. Any of the above

85. A vehicle pulls to one side during braking. Technician A says that the brakes on the side it is pulling to may be defective. Technician B says that the tire pressures may be unequal. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

86. A vehicle pulls to one side when it is not braking. Technician A says that the vehicle may have a collapsed brake hose and is not allowing the brake fluid to return to the master cylinder. Technician B says that the tire pressures may be unequal. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

87. Brake pads should be replaced when their thickness is:
   a. 1/8".  
   b. 3/16".  
   c. the same as the steel backing.  
   d. Any of the above

88. Technician A says that the drum-in-hat parking brake should last the life of the vehicle. Technician B says that this style of parking brake has minimal wear because it is only used to hold the vehicle when parked. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

89. Loaded brake calipers are being discussed. Technician A and Technician B both agree that they should have:
   a. new friction pads.  
   b. hardware and shims.  
   c. same friction codes on both boxes.  
   d. All of the above

90. Technician A says that you can use a special honing tool to clean the scratches on a caliper piston. Technician B says that you can use emery cloth to clean the scratches on a caliper piston. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B
___ 91. Technician A says that some floating calipers have tabs on the pads that must be adjusted to fit to reduce noise complaints. Technician B says that all brake manufacturers provide new hardware with replacement brake pads. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

___ 92. A typical break-in procedure involves braking the vehicle from ____ mph and allowing the brakes to cool a couple of minutes after a few stops. This procedure is continued for a total of ____ stops.
   a. 30 to 0 mph; 5 to 10 stops  
   b. 60 to 30 mph; 10 to 20 stops  
   c. 10 to 5 mph; 5 to 10 stops  
   d. 30 to 15 mph; 10 to 15 stops

___ 93. Technician A says that during normal operation, the ABS system works as a conventional brake system. Technician B says that ABS brakes are disabled below a certain speed. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

___ 94. Technician A says that during an ABS stop, the brake pedal feels the same as with conventional brakes. Technician B says that a pulsation in the brake pedal is normal during conventional braking. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

___ 95. The acronym EBTCM stands for:
   a. Electronic Braking Teves Control Module.  
   b. Efficient Braking Technology Control Module.  
   c. Electronic Brake Trunk Control Module.  
   d. Electronic Brake and Traction Control Module.

___ 96. The rear sensor in the differential that is mounted to the outside of the differential ring gear often doubles as the:
   a. vehicle height sensor.  
   b. vehicle speed sensor.  
   c. brake proportioning valve.  
   d. dynamic proportioning modulator valve.

___ 97. On vehicles equipped with traction control, the computer can control the engine’s power by:
   a. disabling spark plugs.  
   b. advancing ignition timing.  
   c. downshifting the transmission.  
   d. All of the above  
   e. None of the above

___ 98. Technician A says that antilock brake systems have proven to be trouble-free. Technician B says that if there is a brake problem and the ABS light on the dash is not illuminated, the conventional brake system is most likely at fault. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

___ 99. Technician A says that a low fluid level or low pressure in half of the hydraulic system will light the amber warning light. Technician B says that problems in the ABS system will illuminate the red warning light. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

___ 100. Technician A says that ABS brakes must always be bled using a scan tool. Technician B says that when bleeding antilock brakes, the key must always be on so a false code will not be set. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B
101. Technician A says that the computer runs a self test every time the brake pedal is applied. Technician B says that the majority of ABS problems result from a failure of a wheel speed sensor. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

102. Technician A says looseness in the wheel bearing could change the air gap. Technician B says that all speed sensors have an adjustable air gap that should be within 0.005 to 0.050". Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

103. Uni-directional tires are being discussed. Technician A says that they must remain on the same side of the vehicle when a tire rotation is performed. Technician B says that they can be switched side to side. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

104. Modern tire cord material(s) for the tire’s casing include:
   a. nylon.  
   b. rayon.  
   c. polyester.  
   d. All of the above

105. Which is not a benefit of radial tire design?
   a. Improved fuel economy  
   b. Smoother ride at low speeds  
   c. Longer tread life  
   d. Better grip on the road surface

106. The U.S. Department of Transportation (DOT) requires that all of the following information be on the sidewall of a tire except:
   a. DOT manufacturing code.  
   b. the tire size.  
   c. minimum permissible cold air pressure.  
   d. load rating.

107. What information is required to be listed on a vehicle’s tire information placard?
   a. Original equipment tire size  
   b. Cold inflation pressure  
   c. Gross axle weight (for commercial vehicles)  
   d. All of the above

108. A typical run-flat tire has sidewalls that are _____ times thicker than a normal tire’s sidewalls.
   a. two  
   b. three  
   c. five  
   d. eight

109. Direct tire pressure monitors are being discussed. What is the normal tire pressure range that may not cause the low pressure warning lamp on the instrument panel to illuminate?
   a. Above 12 psi and below 37 psi  
   b. Above 18 psi and below 40 psi  
   c. Above 22 psi and below 42 psi  
   d. Above 24 psi and below 39 psi

110. Which tire and wheel combination would be considered a plus size for the replacement of a P205 75R15 tire?
   a. P215 70R15 with the stock wheel  
   b. P205 75R14 with a 14 inch wheel  
   c. P225 55R16 with a 16 inch wheel  
   d. None of the above

111. What material is not used for the construction of passenger vehicle wheels?
   a. Steel  
   b. Plastic  
   c. Aluminum  
   d. Aluminum alloy
112. How much pressure does the typical tire lose per month through permeation of the sidewall?
   a. 1/2 psi
   b. 1 psi
   c. 3 psi
   d. 4 psi

113. Technician A says that overinflation is the most common cause of radial tire failures. Technician B says that a vehicle will usually pull to the side that has a tire with low air pressure, especially when it is a front tire. Who is correct?
   a. Technician A
   b. Technician B
   c. Both A and B
   d. Neither A nor B

114. Technician A says that for each 10°F change in outside temperature, a tire’s pressure will change by 1 psi. Technician B says that tire inflation pressures should always be the same for both tires on one axle so that ride and handling are not affected. Who is correct?
   a. Technician A
   b. Technician B
   c. Both A and B
   d. Neither A nor B

115. Federal regulations require that vehicles in excess of 10,000 pounds GVW have a minimum of ____ tread depth on the front tires.
   a. 2/32" 
   b. 4/32"
   c. 6/32"
   d. 8/32"

116. Front tire scalloped or cupped wear may be caused by ____
   a. bad shock absorbers.
   b. out-of-balance tires.
   c. worn ball joints or control arm bushings.
   d. All of the above

117. Technician A says that vehicles with tapered lug nuts should have the lug nuts installed with the tapered side facing the wheel. Technician B says that many Chrysler vehicles that were manufactured in the 1960s and 1970s had left-handed threads on the lug nuts on the right side of the vehicle. Who is correct?
   a. Technician A
   b. Technician B
   c. Both A and B
   d. Neither A nor B

118. What tool(s) would be most useful in checking a wheel for excessive runout?
   a. Dial caliper
   b. Micrometer
   c. Dial indicator
   d. Ruler and straightedge

119. The lateral runout limit on aluminum wheels is ____.
   a. 0.025"
   b. 0.030"
   c. 0.035"
   d. 0.040"

120. Technician A says that prior to repairing a leaking tire a thorough inspection of the inside and outside of the tire should be done. Technician B says that a tire that has been operated with very low air pressure may have been internally damaged and should be replaced. Who is correct?
   a. Technician A
   b. Technician B
   c. Both A and B
   d. Neither A nor B

121. Which of the following statement(s) is/are true of liquid puncture sealants?
   a. They are not recommended by tire manufacturers.
   b. They may contain flammable gas that can be dangerous during tire repair.
   c. They may cause tire/wheel balancing problems due to shifting weight.
   d. All of the above are true.

122. How fast is the part of the tire that is contacting the ground traveling when the vehicle is cruising on the highway at 55 mph?
   a. 0 mph
   b. 55 mph
   c. 110 mph
   d. None of the above
123. The purpose(s) of the suspension system on a vehicle include:
   a. Cushions the ride.
   b. Supports the vehicle.
   c. Holds the tire in the correct position in relation to the road.
   d. All of the above

124. Examples of sprung weight include all of the following except:
   a. wheel and tire assemblies.
   b. engine and transmission.
   c. driver and passengers.
   d. fuel tank.

125. Technician A says that a unitized body design incorporates a good part of the body into the frame. Technician B says that cab-forward is an example of a unitized body design. Who is correct?
   a. Technician A
   b. Technician B
   c. Both A and B
   d. Neither A nor B

126. The first North American car manufacturer to use the cab-forward design was:
   a. General Motors
   b. Chrysler
   c. Ford
   d. None of the above

127. What is the term that is used to describe the event when a tire and wheel assembly drops into a pothole?
   a. Bounce
   b. Jounce
   c. Compression
   d. Rebound

128. Technician A says that coil springs are painted or coated with vinyl or epoxy to reduce noise and prevent rust or nicks that could raise stress in the spring and result in breakage. Technician B says that a coil spring is constructed of a spring steel rod that is wound into a coil. Who is correct?
   a. Technician A
   b. Technician B
   c. Both A and B
   d. Neither A nor B

129. Leaf springs can be manufactured out of all of the following materials except:
   a. steel.
   b. aluminum alloy.
   c. graphite reinforced plastic.
   d. reinforced fiberglass.

130. What is the name of the component that attaches the control arm to the spindle?
   a. Control arm bushing
   b. Tie-rod end
   c. Ball joint
   d. None of the above

131. Which of the following is not a modern front suspension design?
   a. MacPherson strut suspension
   b. Double wishbone suspension
   c. Modified strut suspension
   d. All are modern front suspension designs.

132. Which best describes the function of a shock absorber?
   a. Absorbs shock as a vehicle hits a bump.
   b. Dampens spring oscillations.
   c. Supports the weight of the vehicle.
   d. Maintains wheel alignment with the road.

133. Technician A says that electronically controlled suspension systems may be used to maintain vehicle ride height as occupant load changes. Technician B says that advanced electronically controlled suspension systems can vary the damping capability of the shock absorbers. Who is correct?
   a. Technician A
   b. Technician B
   c. Both A and B
   d. Neither A nor B

134. Technician A says that sagging springs can result in excessive tire wear. Technician B says that damaged or distorted control arm bushings can result in excessive tire wear. Who is correct?
   a. Technician A
   b. Technician B
   c. Both A and B
   d. Neither A nor B
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135. Technician A says that a defective shock absorber can cause a tire to “hop.” Technician B says that defective shocks can cause scalloped or gouged wear pattern to develop on a tire. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

136. How many cycles should the vehicle bounce before settling when a preliminary shock test is performed with the car on the ground.
   a. 1 cycle  
   b. 1.5 cycle  
   c. 2 cycles  
   d. 2.5 cycles

137. Which of the following is not part of the air bleeding/purging process of a shock absorber?
   a. Extend the shock while it is in its normal vertical position.  
   b. Rapidly shake the shock to dislodge trapped air.  
   c. Turn the shock over so that the top is down and fully collapse the shock.  
   d. Repeat the process 4 to 5 times while working out any skips that are caused by air.

138. What type of lubricant should never be used on rubber control arm bushings?
   a. Rubber lubricant  
   b. Engine oil  
   c. Brake fluid  
   d. Soapy water

139. All of the following are types of ball joints except:
   a. load carrying.  
   b. tension loaded.  
   c. compression loaded.  
   d. upper strut mounted.

140. Some ball joints have a wear indicator built into them. The most common type of wear indicator has a shoulder that sticks out of the bottom of the joint about ____ when it is new.
   a. 0.030"  
   b. 0.040"  
   c. 0.050"  
   d. 0.080"

141. Ball joints are fastened to the control arms with all of the following methods except:
   a. rivets.  
   b. castle nuts and cotter pins.  
   c. press-fit.  
   d. nuts and bolts.

142. Technician A says that when a vehicle’s ride height is low on the right front corner of a car, both front springs should be replaced. Technician B says that it is acceptable to replace only one coil spring if one spring breaks and the vehicle has low mileage. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

143. What parts of the power steering system could be damaged if the wrong type of fluid is used?
   a. Bearings  
   b. Bushing  
   c. Valves  
   d. Seals

144. What type of power steering system noise would be considered normal as the front wheels are turned fully to the lock position?
   a. Growl sound  
   b. Whirring sound  
   c. Groaning sound  
   d. Squeaking sound

145. Excessive up and down movement of the idler arm can result in ____.
   a. binding in the steering linkage  
   b. a vehicle pulling to the left  
   c. a vehicle pulling to the right  
   d. tire wear

146. If the idler arm and pitman arm are not level and parallel to one another, ____ will result.
   a. bump steer  
   b. tire wear  
   c. Both answer a and b are correct.  
   d. Neither answer a nor b is correct.

147. Which of the following methods can be used to secure an inner tie rod to the rack gear?
   a. Roll pin  
   b. Claw washer retainer  
   c. Jam nut and thread adhesive  
   d. All of the above
148. Technician A says that after disconnecting the battery, a quick method to discharge the back-up capacitor in the airbag module is to step on the brake pedal. Technician B says that simply unhooking the battery will remove the power supply and prevent the air bags from accidental deployment. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

149. Technician A says that when replacing a rack and pinion steering unit, the system must be thoroughly flushed. Technician B says that some manufacturers recommend the installation of a filter when the rack and pinion steering unit is replaced. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

150. Technician A says that when replacing a power steering pump, the system may need to be bled of air. Technician B says that sometimes an external vacuum source is needed to remove air from the fluid. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

151. When using a power steering pressure tester, what is the maximum time that the valve on the pressure gauge can safely be closed for?
   a. 1 minute  
   b. 30 seconds  
   c. 20 seconds  
   d. 10 seconds

152. Technician A says that a power steering drive belt should be periodically inspected for wear, cracks, or damage. Technician B says that a power steering belt that is overtightened may slip and squeal loudly when the steering wheel is held against a steering lock. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

153. What method(s) can be used to control or provide tension for V-ribbed belts?
   a. Hydraulic actuators  
   b. Fixed idler pulleys  
   c. Constantly spring-loaded idler pulleys  
   d. All of the above

154. Technician A says that a failed pressure hose can leak and spray oil onto an exhaust manifold, where it can cause a fire. Technician B says if replacement power steering hose is no longer available, a business that deals with heavy truck, industrial, or farm implement accounts may be able to make the required replacement hose. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

155. A customer brings his vehicle to an alignment shop after hitting a curb. Technician A says that if the vehicle’s steering wheel is no longer centered while the vehicle is being driven straight down the road, the steering linkage could be bent. Technician B says that any suspension damage that would result in a camber change could cause the steering wheel to be off center. Who is correct?
   a. Technician A  
   b. Technician B  
   c. Both A and B  
   d. Neither A nor B

156. A vehicle that has unequal side-to-side camber will pull to the side with the_____.
   a. most negative camber.  
   b. most positive camber.  
   c. most neutral camber.  
   d. None of the above

157. What type of tire wear is caused by a zero caster setting?
   a. Inside shoulder wear  
   b. Outside shoulder wear  
   c. Feather wear  
   d. None of the above
158. When the front wheels on a car have different caster settings, the car will pull ____.
   a. to the side with the most negative caster.
   b. to the side with the least negative caster.
   c. to the side with the most positive caster.
   d. Both answers a and b

159. Caster is actually a measurement of the ____ angle as it changes during a turn.
   a. toe
   b. camber
   c. steering axis inclination (SAI)
   d. thrust

160. Which angle is most responsible for helping the vehicle steer in a straight-ahead direction?
   a. Toe
   b. Camber
   c. Ackerman
   d. steering axis inclination (SAI)

161. What would best describe the included angle?
   a. The angle created by combining the caster and SAI angles
   b. The angle created by combining the toe and the SAI angles
   c. The angle created by combining the camber and SAI angles
   d. None of the above

162. Technician A says that less scrub radius makes a vehicle harder to steer. Technician B says that installing lower-profile tires and wheels with offset different from the factory wheels will result in a change in scrub radius. Who is correct?
   a. Technician A
   b. Technician B
   c. Both A and B
   d. Neither A nor B

163. The distance between the front and rear tires is called the ____, while the side-to-side distance between an axle’s tires is called the ____.
   a. wheel base; track
   b. track; wheel base
   c. setback; track
   d. track; setback

164. All of the following are preconditions that are required in order to perform a successful alignment except:
   a. Inflate tires to specifications.
   b. Steering gear and linkage must not have excessive clearance.
   c. Pivot points must not allow excessive movement of suspension components.
   d. New tires need to be installed and must be the same size and original equipment.

165. What could cause a vehicle to have its camber setting outside specified limits?
   a. Vehicle ride height too high
   b. Vehicle ride height too low
   c. Both a and b
   d. Neither a nor b

166. What can occur if excessive toe change is confined to one side of the vehicle?
   a. Orbital steer
   b. Bump steer
   c. Toe steer
   d. Both a and b

167. A vehicle owner is complaining of a rough ride. Technician A says that a bent or frozen shock absorber could be the cause. Technician B says that underinflated tires could be the cause. Who is correct?
   a. Technician A
   b. Technician B
   c. Both A and B
   d. Neither A nor B

168. When discussing front wheel alignment settings, which of the adjustable angles will not cause a vehicle to pull?
   a. Unequal front camber
   b. Unequal front caster
   c. Improper front toe
   d. None of the above

169. Which can be used as a measurement of toe?
   a. Inches
   b. Degrees
   c. Millimeters
   d. All of the above
170. To compensate for road crown which of the following is true?
   a. Camber can be set slightly more positive on the passenger’s side.
   b. Camber can be set slightly more positive on the driver’s side.
   c. Caster can be set so that it is slightly more positive on the driver’s side of the vehicle.
   d. None of the above

171. Which method(s) can be used to make a caster and/or camber adjustment to a vehicle with control arms?
   a. Eccentric cam adjustment       c. Shim adjustments
   b. Slotted hole adjustment        d. All of the above

172. Incorrect steering axis inclination (SAI) on a vehicle with a MacPherson strut is being discussed. Technician A says that a bent strut tower could be the cause. Technician B says that a bent spindle could be the cause. Who is correct?
   a. Technician A               c. Both A and B
   b. Technician B              d. Neither A nor B

173. Which statement about front wheel toe adjustment is correct?
   a. Rear-wheel drive vehicles are usually set slightly toed-in.
   b. Front-wheel drive vehicles are usually set slightly toed-in.
   c. Rear-wheel drive vehicles are usually set slightly toed-out.
   d. None of the above

174. When measuring turning radius, as the wheels are turned from side to side, the outer wheel should make a turn that is ___ than the inside wheel.
   a. 2 to 3 degrees less           c. 4 to 5 degrees more
   b. 2 to 3 degrees more           d. 4 to 5 degrees less

175. Technician A says that caster for both wheels should be set either positive or negative, not one positive and one negative. Technician B says that cross caster between the front wheel settings should not be more than 1/2 a degree. Who is correct?
   a. Technician A               c. Both A and B
   b. Technician B              d. Neither A nor B
Practice Test Brakes & Suspension.
Answer Section

TRUE/FALSE

1. ANS: F
2. ANS: F
3. ANS: F
4. ANS: F
5. ANS: T
6. ANS: T
7. ANS: F
8. ANS: F
9. ANS: T
10. ANS: F
11. ANS: T
12. ANS: T
13. ANS: F
14. ANS: F
15. ANS: F
16. ANS: T
17. ANS: F
18. ANS: T
19. ANS: T
20. ANS: F
21. ANS: F
22. ANS: T
23. ANS: T
24. ANS: T
25. ANS: F
26. ANS: F
27. ANS: T
28. ANS: F
29. ANS: T
30. ANS: T
31. ANS: F
32. ANS: T
33. ANS: T
34. ANS: F
35. ANS: T
36. ANS: F
37. ANS: T
38. ANS: F
39. ANS: F
40. ANS: F
41. ANS: F
42. ANS: T
43. ANS: F
44. ANS: F
45. ANS: F
46. ANS: T
47. ANS: T
48. ANS: F
49. ANS: T
50. ANS: T
51. ANS: F
52. ANS: F
53. ANS: T
54. ANS: T
55. ANS: F
56. ANS: F
57. ANS: F
58. ANS: T
59. ANS: T

MULTIPLE CHOICE

60. ANS: B
61. ANS: D
62. ANS: B
63. ANS: C
64. ANS: B
65. ANS: D
66. ANS: D
67. ANS: B
68. ANS: B
69. ANS: D
70. ANS: B
71. ANS: D
72. ANS: D
73. ANS: D
74. ANS: B
75. ANS: D
76. ANS: A
77. ANS: C
78. ANS: B
79. ANS: B
80. ANS: B
81. ANS: D
82. ANS: D
83. ANS: D
84. ANS: D
85. ANS: B
86. ANS: C
87. ANS: D
88. ANS: C
89. ANS: D
90. ANS: D
91. ANS: A
92. ANS: D
93. ANS: C
94. ANS: D
95. ANS: D
96. ANS: B
97. ANS: E
98. ANS: C
99. ANS: D
100. ANS: D
101. ANS: B
102. ANS: A
103. ANS: A
104. ANS: D
105. ANS: B
106. ANS: C
107. ANS: D
108. ANS: C
109. ANS: D
110. ANS: C
111. ANS: B
112. ANS: B
113. ANS: B
114. ANS: C
115. ANS: B
116. ANS: D
117. ANS: A
118. ANS: C
119. ANS: C
120. ANS: C
121. ANS: D
122. ANS: A
123. ANS: D
124. ANS: A
125. ANS: C
126. ANS: B
127. ANS: D
128. ANS: C
129. ANS: B
130. ANS: C
131. ANS: D
132. ANS: B
133. ANS: C
134. ANS: C
135. ANS: C
136. ANS: B
137. ANS: B
138. ANS: B
139. ANS: D
140. ANS: C
141. ANS: B
142. ANS: A
143. ANS: D
144. ANS: B
145. ANS: D
146. ANS: C
147. ANS: D
148. ANS: A
149. ANS: C
150. ANS: C
151. ANS: D
152. ANS: A
153. ANS: C
154. ANS: C
155. ANS: C
156. ANS: B
157. ANS: D
158. ANS: A
159. ANS: B
160. ANS: D
161. ANS: C
162. ANS: B
163. ANS: A
164. ANS: D
165. ANS: C
166. ANS: D
167. ANS: A
168. ANS: C
169. ANS: D
170. ANS: B
171. ANS: D
172. ANS: C
173. ANS: A
174. ANS: A
175. ANS: C