Name: _____ Class: _____ Date: _____ ID: A

Study Guide part 2

____ 1. A solid stream nozzle produces a fire stream that has a:
A. tight stream and little spray or shower effect.
B. variable stream with little spray or shower effect.
C. wide stream with intermittent spray or shower effect.
D. tight stream that has significant spray or shower effect.

____ 2. A solid stream nozzle is designed so that the volume of water flowing through the nozzle:
A. is intermittent and reaches the orifice in bursts.
B. is gradually reduced until just before the orifice.
C. is gradually increased until just before the orifice.
D. may either increase or decrease before the orifice.

____ 3. Which of the following BEST determines the flow and reach of a solid stream?
A. Water piping and connections
B. Age of nozzle and firefighter training
C. Ambient temperature and wind direction
D. Nozzle pressure and size of the discharge orifice

____ 4. Solid stream nozzles on handlines should generally be operated at a maximum of:
A. 20 psi (140 kPa) nozzle pressure.
B. 30 psi (210 kPa) nozzle pressure.
C. 50 psi (350 kPa) nozzle pressure.
D. 80 psi (560 kPa) nozzle pressure.

____ 5. Master stream appliances should be operated at a maximum of:
A. 50 psi (350 kPa).
B. 80 psi (560 kPa).
C. 100 psi (700 kPa).
D. 150 psi (1050 kPa).

____ 6. Which of the following is a reason that driver/operators may need to determine the amount of water discharged from a solid stream nozzle?
A. Determine cost of water per minute flowing
B. Verify that the nozzle discharges stamped amount
C. Calculate amount of foam solution to add to the nozzle
D. Test the water supply when a nozzle is attached to a hydrant

____ 7. Which of the following is the customary formula for discharge rate?
A. $GPM = 29.7 \times d^2 \times \sqrt{NP}$
B. $GPM = 14.7 \times d^2 \times \sqrt{NP}$
C. $GPM = d^2 \times \sqrt{NP} \times 1.7$
D. $GPM = d^2 \times \sqrt{NP} \times 2.5$

____ 8. Which of the following is a constant in the metric formula for discharge rate?
A. 0.03
B. 0.067
C. 0.096
D. 1.75

____ 9. Which manner of producing fog streams occurs by deflecting water around an inside circular stem in the nozzle?
A. Circular stream nozzles
B. Impinging stream nozzles
C. Pressure-deflected streams
D. Periphery-deflected streams

____ 10. Which pattern is MOST often provided by impinging stream nozzles?
A. Solid stream
B. Variable stream
C. Wide-angle fog pattern
D. Narrow-angle fog pattern

____ 11. Which of the following directly affects the reach of the fog stream?
A. Ambient temperature
B. Stage of fire growth
C. Number of personnel
D. Volume of water flowing

____ 12. Which of the following is designed to flow a specific volume of water on all stream patterns at a specific nozzle discharge pressure?
A. Automatic fog nozzle
B. Constant flow fog nozzle
C. High pressure fog nozzle
D. Selectable gallonage nozzle

____ 13. Which of the following is designed to allow the firefighter operating the handline to select a flow rate to suit the fire and operating conditions?
A. Automatic fog nozzle
B. Constant flow fog nozzle
C. High pressure fog nozzle
D. Selectable gallonage nozzle

____ 14. Which of the following is a type of variable flow nozzle with the ability to change patterns while maintaining the same nozzle pressure?
A. Automatic fog nozzle
B. Constant flow fog nozzle
C. High pressure fog nozzle
D. Selectable gallonage nozzle

____ 15. What happens to an automatic nozzle when the pump discharge pressure rises above the constant operating pressure?
A. Automatic nozzle stops functioning efficiently
B. Automatic nozzle increases its operating pressure to match that of the pump discharge
C. Automatic nozzle decreases its operating pressure to compensate for the pump discharge
D. Automatic nozzle maintains its constant operating pressure, within the limitation of its design

____ 16. High pressure fog nozzles are BEST suited for:
A. wildland fires.
B. structural fires.
C. multiple alarm fires.
D. hazardous materials fires.

____ 17. Which statement about high pressure fog nozzles is MOST accurate?
A. They have very little forward velocity.
B. They produce a stream of slow-moving large spray.
C. They have a relatively low volume of water delivery.
D. They have a relatively high volume of water delivery.

____ 18. Generally, the maximum flow for a handline is 350 gpm (1 400 L/min) because greater flows will:
A. cause the nozzle to malfunction.
B. require the nozzle to be replaced during fire fighting efforts.
C. place too much strain on the water supply system and nozzle itself.
D. produce a nozzle reaction that is difficult or dangerous for firefighters to handle.

____ 19. Master stream nozzles would MOST likely be used at an incident where:
A. handlines would be ineffective.
B. water flow can be relatively low.
C. extra personnel are available.
D. conditions require an offensive posture.

____ 20. Which of the following is a characteristic of master stream nozzles?
A. Designed to be used from a mobile position
B. Require considerable personnel for operation
C. Generate little nozzle reaction even at higher flow rates
D. Offer ability to operate at a greater distance from the fire

____ 21. Which of the following statements about master stream appliances is MOST accurate?
A. Only fixed monitors are able to change the stream direction or angle while water is being discharged.
B. Each type of monitor cannot change the stream direction or angle while water is being discharged.
C. Each type of monitor has ability to change the stream direction or angle while water is being discharged.
D. Only combination monitors are able to change the stream direction or angle while water is being discharged.

____ 22. Pre-piped waterways on elevated master streams generally feature a master stream that may be remotely controlled from the apparatus turntable, and is generally able to move.
A. only up and down.
B. only side to side up to 30 degrees.
C. both up and down and side to side.
D. ten degrees from initial position that was set.

____ 23. Which nozzle may also be referred to as a distributor?
A. Cellar nozzle
B. Broken nozzle
C. Piercing nozzle
D. Chimney nozzle

____ 24. Which nozzle may require insertion of an inline shut off valve at a location back from the nozzle to increase safety and ease of operation?
A. Cellar nozzle
B. Broken nozzle
C. Piercing nozzle
D. Chimney nozzle

____ 25. Which nozzle is commonly used in aircraft fire fighting or to apply water to voids, attics, or other areas inaccessible to standard fire streams?
A. Cellar nozzle
B. Broken nozzle
C. Piercing nozzle
D. Chimney nozzle

____ 26. Which nozzle consists of a solid piece of brass or steel with many small impinging holes that produce a very fine mist?
A. Cellar nozzle
B. Broken nozzle
C. Piercing nozzle
D. Chimney nozzle

____ 27. Nozzle reaction occurs as water is discharged from a nozzle at a given pressure and:
A. a forward pressure pulls firefighters operating the hoseline.
B. the resulting vibration of water against the nozzle damages the hose.
C. firefighters anticipating the water discharge hold the nozzle stationary.
D. a counterforce pushes back against firefighters operating the hoseline.

____ 28. Why are most fog nozzles designed to operate at or below 100 psi (700 kPa) nozzle pressure?
A. Above this pressure, handlines will produce erratic fire streams.
B. Above this pressure, nozzles will likely separate from the hose couplings.
C. Above this pressure, pump discharges will not keep up with needed supply.
D. Above this pressure, handlines become unwieldy for firefighters attempting fire suppression operations.

____ 29. Which of the following is the customary formula for determining nozzle reaction for solid stream nozzles?
A. $NR = d^2 \times NP$
B. $NR = 1.57 \times d^2 \times NP$
C. $NR = 0.057 \times d^2 \times NP$
D. $NR = 29.7 \times d^2 \times \sqrt{NP}$

____ 30. Which of the following is a simple guideline for the customary system of measurement that may be used to achieve approximate solid stream nozzle reaction on the fireground?
A. NR = Q/2
B. NR = Q/3
C. NR = Q × 1.5
D. NR = Q × 2.7

____ 31. Which of the following is the customary formula for nozzle reaction for a fog stream nozzle?
A. NR = Q × √NP
B. NR = 0.025 × Q × √NP
C. NR = 0.0505 × Q × √NP
D. NR = 0.50 × Q × √NP

____ 32. In the metric formula for nozzle reaction for a fog stream nozzle, what does Q stand for?
A. Nozzle reaction in Newtons (N)
B. Nozzle pressure in kilopascals (kPa)
C. The sum of nozzle reaction and nozzle pressure
D. Total flow through the nozzle in liters per minute (L/min)

____ 33. Which of the following is the primary consideration for friction loss?
A. Length of hose lay
B. Elevation differences
C. Experience of firefighters
D. Volume of water flowing per minute

____ 34. Total pressure loss includes friction loss and elevation pressure loss combined with the loss associated with:
A. appliances.
B. evaporation.
C. variation in temperatures.
D. improper use of equipment.

____ 35. Which method of determining friction loss involves the use of in-line gauges to measure friction loss at various flows through specific hose layouts?
A. Performing tests
B. Using calculations
C. Historical information
D. Manufacturer guidelines

____ 36. Which method of determining friction loss relies on the use of mathematical equations or field application methods?
A. Performing tests
B. Using calculations
C. Historical information
D. Manufacturer guidelines

____ 37. The use of standard formulas and field applications for determining friction loss are generally:
A. the same as actual testing results.
B. very different than actual testing results.
C. relied upon for safe fireground operations.
D. not considered reliable for safe fireground operations.

____ 38. The current formula for friction loss accounts for the diameter of the hose, the volume of water flowing, and the:
A. expected time.
B. level of elevation.
C. distance of fire stream.
D. length of the hose layout.

____ 39. Which of the following is the formula for friction loss?
A. $FL = CQ^2L$
B. $FL = CL^2Q$
C. $FL = CQ^2L \times 2$
D. $FL = CQ^2 \div L$

____ 40. In the formula for friction loss, the "L" refers to:
A. flow rate.
B. hose length.
C. distance of fire stream.
D. friction loss coefficient.

____ 41. If a jurisdiction is performing tests using equipment they own in order to achieve more accurate results, the testing should be conducted:
A. using actual hose that will be used during firefighting operations.
B. using hose that is different than hose used during firefighting operations.
C. using both older and new hose and then taking an average of test results.
D. using different diameters of hose and then taking an average of the test results.

____ 42. Which of the following is a friction loss guideline in a hose assembly when flowing 350 gpm (1 400 L/min) or greater?
A. There is a loss of 25 psi (175 kPa) in all appliances.
B. Friction loss is generally considered to be insignificant.
C. Friction loss is generally considered to be one-half of rated loss.
D. There is a loss of 10 psi (70 kPa) for each appliance, other than master stream devices.

____ 43. Which of the following BEST describes friction loss for master stream appliances?
A. 25 psi (175kPa) for all appliances
B. 10 psi (70 kPa) loss for each appliance
C. Generally considered to be insignificant
D. Generally considered to be on-half of rated loss

____ 44. Which of the following BEST describes friction loss for handlline nozzles?
A. 25 psi (175kPa) for all appliances
B. 10 psi (70 kPa) loss for each appliance
C. Generally considered to be insignificant
D. Generally considered to be one-half of rated loss

____ 45. Which of the following customary formulas would be used to conduct elevation pressure loss calculations on the fireground?
A. 0.10 x Height in feet
B. 0.25 x Height in feet
C. 0.5 x Height in feet
D. 1.0 x Height in feet

____ 46. Which of the following metric formulas would be used to calculate elevation pressure loss on the fireground?
A. 1 x Height in meters
B. 5 x Height in meters
C. 10 x Height in meters
D. 12 x Height in meters

____ 47. Which of the following customary formulas would be used to determine elevation pressure in a multistory building?
A. 1 psi x (number of stories - 1)
B. 5 psi x (number of stories - 1)
C. 10 psi x (number of stories - 1)
D. 15 psi x (number of stories - 2)

____ 48. When using multiple hoselines of equal length and diameter, loss calculations:
A. can be estimated.
B. are too difficult to perform.
C. must be made for both lines.
D. need only be made for one line.

____ 49. When using multiple hoselines of equal length but different diameter, loss calculations:
A. can be estimated.
B. are too difficult to perform.
C. must be made for both lines.
D. need only be made for one line.

____ 50. When determining friction loss in a wyed hoseline in which the hoselines have the same nozzle pressure, hose length, and diameter:
A. calculations can be estimated.
B. calculations are too difficult to make.
C. both of the wyed hoselines need to be considered.
D. only one of the wyed hoselines need to be considered.

____ 51. When two hoselines of equal length are Siamesed to supply a fire stream, friction loss is approximately:
A. the same as that of a single hoseline at the same nozzle pressure.
B. 25 percent less than that of a single hoseline at the same nozzle pressure.
C. 10 percent more than that of a single hoseline at the same nozzle pressure.
D. 50 percent less than that of a single hoseline at the same nozzle pressure.

____ 52. Pressures for standpipe operations for fire departments may be:
A. kept with building maintenance.
B. listed on the building entrance information.
C. posted on entry and exit passageways in the building.
D. labeled on the faceplate of the fire department connection.

____ 53. To calculate friction loss when using multiple hoselines of unequal length, a driver/operator must:
A. use estimates because calculations are too complex.
B. calculate friction loss for only one hoseline and then estimate the other.
C. calculate friction loss for the longest hoseline and double that number for the total.
D. calculate friction loss for each hoseline supplied by separate discharges to individual nozzles.

____ 54. Which of the following statements about adding unequal lengths of hose to an established wyed hose layout is MOST accurate?
A. Friction loss must be determined for each attack line.
B. Friction loss can be assumed to be the same for all attack lines.
C. Friction loss only needs to be determined for the initial attack line.
D. Friction loss in a wyed hose layout does not need to be considered.

____ 55. When determining pressure loss for elevated waterways, the elevation of the master stream:
A. increases total pressure loss by 10 percent of height.
B. increases total pressure loss by 15 percent of height.
C. must be considered as part of the total pressure loss.
D. is not considered as it does not significantly affect pressure loss.

____ 56. Which of the following statements about pump discharge pressure is MOST accurate?
A. Pump discharge pressure must be sufficient to overcome all pressure loss.
B. Pump discharge pressure must be sufficient to overcome 50 percent of pressure loss.
C. Pump discharge pressure must be sufficient to overcome at least 75 percent of pressure loss.
D. Pump discharge pressure must be sufficient to overcome 125 percent of all pressure loss.

____ 57. Which of the following is the correct customary formula for determining pump discharge pressure?
A. Nozzle pressure plus total pressure loss
B. Nozzle pressure divided by total pressure loss
C. Elevation loss plus friction loss minus nozzle pressure
D. Friction loss plus elevation loss multiplied by total pressure loss

____ 58. The pump discharge pressure should be calculated and set based on:
A. average of all hoseline pressure requirements.
B. hoseline with the greatest pressure requirement.
C. median of lowest and highest pressure requirements.
D. hoseline most likely to be used more during operations.

____ 59. For which of the following is a nozzle pressure of 50 psi (350 kPa) a safe and efficient nozzle pressure?
A. Fog nozzle
B. Low pressure fog nozzle
C. Solid stream nozzle (handline)
D. Solid stream nozzle (master stream)

____ 60. For which of the following is a nozzle pressure of 80 psi (560 kPa) a safe and efficient nozzle pressure?
A. Fog nozzle
B. Low pressure fog nozzle
C. Solid stream nozzle (handline)
D. Solid stream nozzle (master stream)

____ 61. For which of the following is a nozzle pressure of 100 psi (700 kPa) a safe and efficient nozzle pressure?
A. Fog nozzle
B. Low pressure fog nozzle
C. Solid stream nozzle (handline)
D. Solid stream nozzle (master stream)

____ 62. For which of the following is a nozzle pressure of 50 or 75 psi (350 or 525 kPa) a safe and efficient nozzle pressure?
A. Fog nozzle
B. Low pressure fog nozzle
C. Solid stream nozzle (handline)
D. Solid stream nozzle (master stream)

____ 63. When a pumper is being supplied by another pumper, net pump discharge pressure is the difference between pump discharge pressure and:
A. outgoing pressure from supply source.
B. incoming pressure from supply source.
C. average total pressure of both pumpers.
D. combined total pressure of both pumpers.

____ 64. Which of the following is the correct formula for Net Pump Discharge Pressure?
A. Pump Discharge Pressure ÷ Total Pressure
B. Pump Discharge Pressure + Intake Reading
C. Pump Discharge Pressure - Intake Reading
D. Pump Discharge Pressure - Residual Pressure

____ 65. Which of the following statements about positive displacement pumps is MOST accurate?
A. They are the main pumping unit on fire apparatus.
B. The are no longer useful in the modern fire service.
C. They serve a vital role on modern apparatus because of their ability to pump air and foam.
D. They are used as the primary pump in special operations such as drafting operations and wildland fire attack.

____ 66. Which type of positive displacement pump operates using a piston that moves back and forth in a cylinder?
A. Inline pump
B. Gated pump
C. Piston pump
D. Rotary pump

____ 67. Which type of positive displacement pump is the simplest of all fire apparatus pumps, from the standpoint of design?
A. Inline pump
B. Gated pump
C. Piston pump
D. Rotary pump

____ 68. In a modern apparatus, rotary pumps would MOST likely be used as which of the following types of pumps?
A. As large capacity pumps
B. As main apparatus pumps
C. As low volume, high-pressure pumps
D. As high volume, high-pressure pumps

____ 69. Which type of pump consists of two gears that rotate in a tightly meshed pattern inside a watertight case?
A. Rotary gate pump
B. Rotary gear pump
C. Rotary vane pump
D. Rotary inline pump

____ 70. Which type of pump is constructed with moveable elements that automatically compensate for wear, maintaining a tighter fit with closer clearances as the pump is used?
A. Rotary gate pump
B. Rotary gear pump
C. Rotary vane pump
D. Rotary inline pump

____ 71. Why is the rotary vane pump more efficient at pumping air than the rotary gear pump?
A. Newer design
B. Greater capacity
C. Fewer moving parts
D. Self-adjusting feature

____ 72. The operation of a centrifugal pump is based on the principle that a rapidly revolving disk tends to throw water introduced at its center:
A. toward the outer edges of the disk.
B. toward the inside edges of the disk.
C. in a very tight circle around the center of the disk.
D. intermittently toward the outer and inner edges of the disk.

____ 73. In a centrifugal pump, the speed of the impeller dictates the amount of pressure developed and the faster the disk is turned,:
A. the softer water is thrown, giving the water less velocity.
B. the harder water is thrown, giving the water more velocity.
C. the more likely the water will gravitate toward the center.
D. the more likely the water will build up in the pump causing a problem.

____ 74. Which part of a centrifugal pump transmits energy in the form of velocity to the water?
A. Impeller
B. Inline hose
C. Gated valves
D. Pump casing

____ 75. Which of the following is a main factor that influences a centrifugal fire pump's discharge pressure?
A. Ambient temperature
B. Age of the centrifugal fire pump
C. Experience of those operating the fire pump
D. Pressure of water when it enters pump from a pressurized source

____ 76. In a centrifugal pump, with all other factors remaining constant, doubling the speed of the impeller will result in:
A. no amount of pressure.
B. two times as much pressure.
C. four times as much pressure.
D. six times as much pressure.

____ 77. Which of the following statements about a centrifugal pump is MOST accurate?
A. A centrifugal pump can pump air and is self priming.
B. Priming is not necessary with the use of a centrifugal pump.
C. A centrifugal pump is unable to pump air and is not self priming.
D. Some models of centrifugal pumps can pump air and are self priming.

____ 78. Single-stage centrifugal fire pumps use a single intake impeller and a simple casing to provide flow capacities up to:
A. 500 gpm (2 000 L/min).
B. 1,000 gpm (4 000 L/min).
C. 2,250 gpm (9 000 L/min).
D. 3,500 gpm (14 000 L/min).

____ 79. In multistage centrifugal pumps, the impellers generally:
A. impede the flow of water.
B. have no effect on the pump.
C. are identical and have the same capacity.
D. are different and have varying capacities.

____ 80. When pumping in the parallel (volume) position:
A. each impeller must flow 100 percent of rated capacity.
B. only the first impeller takes water from a source and delivers it to the discharge.
C. each of the impellers takes water from a source and delivers it to the discharge.
D. all water from intake manifold is directed into the eye of the first impeller.

____ 81. When pumping in the series (pressure) position:
A. water is only directed into the second impeller.
B. only the first impeller takes water from a source and delivers it to the discharge.
C. each of the impellers takes water from a source and delivers it to the discharge.
D. all water from the intake manifold is directed into the eye of the first impeller.

____ 82. In a multistage pump, setting the transfer valve to series (pressure) results in:
A. a much lower pressure than would be achieved in parallel operation.
B. a much higher pressure than would be achieved in parallel operation.
C. approximately the same pressure that would be achieved in parallel operation.
D. pressure that is either slightly higher or slightly lower than achieved in parallel operation.

____ 83. For a multistage centrifugal fire pump, switching from volume to pressure:
A. has little immediate effect on the discharge pressure.
B. results in immediate lowering of the previous discharge pressure.
C. results in a slight interruption of the current discharge pressure.
D. can result in immediate doubling of previous discharge pressure.

____ 84. When referring to pump wear rings and packing, why must very close tolerances be maintained between pump casing and the hub of the impeller?
A. Any variation causes the pump to stop working.
B. Excessive openings require the rings to be replaced often.
C. Incorrect tolerances will cause metal parts to malfunction.
D. Any increase in opening lessens the effectiveness of the pump.

____ 85. Which BEST describes the function of a thermal relief valve in newer centrifugal pumps?
A. Closes so that water remains in the main water tank and does not circulate
B. Opens and closes intermittently so that water can circulate between the pump and main water tank
C. Opens to allow overheated water to circulate between the pump and main water tank or into the atmosphere
D. Opens and triggers a sensor to shut off the pump so damage will not occur to the pump or main water tank

____ 86. When operating a pump not equipped with a thermal relief valve, the best course of action to prevent overheating is to:
A. periodically turn the pump off and let it cool down.
B. ensure the pump is entirely full of water at all times.
C. ensure some water is moving through the pump at all times.
D. intermittently turn the pump on and off throughout operations.

____ 87. Which of the following statements about mechanical seals is MOST accurate?
A. They are not affected by temperature extremes.
B. They form a tight seal but require frequent adjustment.
C. It is important to operate the pump regularly to lubricate the seals.
D. It is acceptable for the seals to run waterless, as no damage will be incurred.

____ 88. Most manufacturers recommend that the centrifugal fire pump be drained:
A. between fire calls.
B. at least once a month.
C. at least twice a month.
D. after the pump is used for ten hours.

____ 89. Which type of seal offers superior resistance to warping, stretching, and corrosion?
A. Brass
B. Ceramic
C. Cast iron
D. Carbon fiber

____ 90. Which of the following is powered by gasoline or diesel engines independent of the vehicle-drive engine?
A. Midship pump
B. Front-mount pump
C. Power-take-off (PTO) drive
D. Auxiliary engine driven pump

____ 91. Which may be part of a skid-mount assembly or may be mounted on pickup trucks?
A. Midship pump
B. Front-mount pump
C. Power-take-off (PTO) drive
D. Auxiliary engine driven pump

____ 92. Which pump may be offered by some manufacturers in a rear-engine design driven off the engine's flywheel?
A. Midship pump
B. Front-mount pump
C. Power-take-off (PTO) drive
D. Auxiliary engine driven pump

____ 93. For which of the following pumps is pressure determined by changes in the vehicle's speed?
A. Midship pump
B. Front-mount pump
C. Power-take-off (PTO) drive
D. Auxiliary engine driven pump

____ 94. Which is typically driven through a gear box and a clutch connected by a drive shaft to the front of the crankshaft?
A. Midship pump
B. Front-mount pump
C. Power-take-off (PTO) drive
D. Auxiliary engine driven pump

____ 95. Which type of pump is MOST vulnerable to damage from exposure or a vehicle collision?
A. Midship pump
B. Front-mount pump
C. Power-take-off (PTO) drive
D. Auxiliary engine driven pump

____ 96. Which type of pump has power supplied through the use of a split shaft gear case (transfer case) located in the drive line between the transmission and rear axle?
A. Midship pump
B. Front-mount pump
C. Power-take-off (PTO) drive
D. Auxiliary engine driven pump

____ 97. How does the driver/operator know when pumping operations may begin for most apparatus equipped with midship pumps?
A. Indicator light in cab
B. Indicator valve on pump
C. Time since initial prepping
D. Hand signals from firefighter on the ground

____ 98. Which pump design offers advantages such as more even weight distribution on the chassis and more usable compartment space?
A. Midship pump
B. Front-mount pump
C. Power-take-off (PTO) drive
D. Auxiliary engine driven pump

____ 99. Which pump design has the disadvantage of the driver/operator being more directly exposed to oncoming traffic than in other pump-mounting positions?
A. Midship pump
B. Front-mount pump
C. Power-take-off (PTO) drive
D. Auxiliary engine driven pump

____ 100. NFPA® 1901 requires all components of piping system to be:
A. less than five years old.
B. less then seven years old.
C. made of corrosion resistant material.
D. composed of only one type of material.

____ 101. Before being placed into service, the piping system and the fire pump itself must be capable of withstanding a hydrostatic test of:
A. 150 psi (1 050 kPa).
B. 300 psi (2 100 kPa).
C. 500 psi (3 500 kPa).
D. 750 psi (5 250 kPa).

____ 102. Which BEST describes why it is essential that piping from the tank on board the apparatus be large enough to allow for adequate streams for fire attack?
A. The primary water supply from a hydrant may fail.
B. Initial fire attack must be made as close to the fire as physically possible.
C. Initially, many fires are fought with water from the tank on board apparatus.
D. Water from the tank on board apparatus is used as a last resort for exposure protection.

____ 103. According to NFPA® 1901, pumpers with a capacity greater than 500 gpm (2 000 L/min) should be able to flow:
A. at least 150 gpm (600 L/min).
B. at least 250 gpm (1 000 L/min).
C. at least 500 gpm (2 000 L/min).
D. at least 700 gpm (2 800 L/min).

____ 104. When using a static water source, prime the pump by:
A. turning a valve a quarter-turn clockwise.
B. removing all or most of the air from the pump.
C. inserting a small amount of air into the pump.
D. turning a valve a quarter-turn counterclockwise.

____ 105. Based on NFPA® 1901, as a minimum, all fire apparatus with a rated pump capacity of 750 gpm (3 000 L/min) or greater must be equipped with at least:
A. one $2\frac{1}{2}$-inch (65-mm) discharge.
B. two $2\frac{1}{2}$-inch (65-mm) discharges.
C. three $2\frac{1}{2}$-inch (65-mm) discharges.
D. four $2\frac{1}{2}$-inch (65-mm) discharges.

____ 106. What is the function of a booster line cooling valve?
A. Allows water to remain in the tank
B. Receives water from two directions
C. Circulates tank water through a heat exchanger
D. Diverts a portion of discharge water into the tank

____ 107. Which of the following must be a characteristic of valves that control most of the intake and discharge lines from the pump?
A. Must be less than five years old
B. Must allow for slight intake of air
C. Must be constructed to be airtight
D. Must be made of only one material

____ 108. Which of the following is the most common type of valve and permits the full flow of water through a line with a minimum friction loss?
A. Ball-type valve
B. Slot-type valve
C. Flap-over valve
D. Retracting valve

____ 109. Modern versions of quarter-turn handles lock by:
A. clipping the handle.
B. pushing downward.
C. rotating the handle in a clockwise direction.
D. rotating the handle in a counterclockwise direction.

____ 110. Gate valves are most commonly operated by:
A. a handwheel.
B. bar handles.
C. retracting handles.
D. quarter-turn handles.

____ 111. What is the purpose of slow-acting valve controls?
A. Allow personnel time to preposition hoses
B. Minimize chances of water being inadvertently discharged
C. Maximize the amount of water that can be moved at one time
D. Minimize risk of damage caused by water hammer when large volumes of water are being moved

____ 112. Drain valves provide a way to drain the hose side of the valve after the discharge valve and nozzle are both closed on:
A. gated intakes.
B. intake fittings.
C. discharge fittings.
D. all intakes and discharges.

____ 113. Which of the following is a reason pump and suction drains are used on pumper apparatus?
A. Remove and replenish contaminated water quickly
B. Allow the introduction of small amounts of cleaning solution
C. Allow the introduction of a small amount of air into the system
D. Remove all water from the system in climates where freezing may occur

____ 114. Pressure control devices that are a part of a fire apparatus pumping system must operate within:
A. two to seven seconds after the discharge pressure rises.
B. three to ten seconds after the discharge pressure rises.
C. ten to twenty seconds after the discharge pressure rises.
D. twenty to thirty seconds after the discharge pressure rises.

____ 115. Pressure control devices that are a part of a fire apparatus pumping system must restrict the pressure from exceeding:
A. 10 psi (70 kPa) above the set level.
B. 20 psi (140 kPa) above the set level.
C. 30 psi (210 kPa) above the set level.
D. 70 psi (490 kPa) above the set level.

____ 116. Which of the following BEST describes the main feature of relief valves?
A. Ability to regulate amount of water flowing
B. Ability to allow pump to handle excessive pressures
C. Ability to warn firefighters when supply is at capacity
D. Ability to relieve excessive pressure within the pump discharge

____ 117. It is generally recommended that intake relief valves be set to open when intake pressure rises more than:
A. 5 psi (35 kPa) above the necessary operating pressure.
B. 10 psi (70 kPa) above the necessary operating pressure.
C. 20 psi (140 kPa) above the necessary operating pressure.
D. 30 psi (210 kPa) above the necessary operating pressure.

____ 118. Which of the following BEST describes the function of a pressure governor?
A. Regulates engine speed to best use available fuel supply
B. Regulates engine speed to match load carrying requirements
C. Regulates water flow to match pump discharge requirements
D. Regulates engine speed to match pump discharge requirements

____ 119. When pressure drops below a specified setting, the electronic pressure governor will:
A. shut the engine down.
B. increase engine speed.
C. return the engine to idle speed.
D. intermittently increase and decrease engine speed.

____ 120. The ability to initiate a successful drafting operation depends on creating:
A. a pressure within the pump and intake hose that is similar to the atmosphere.
B. a lower pressure within the pump and intake hose than exists in the atmosphere.
C. a higher pressure within the pump and intake hose than exists in the atmosphere.
D. twice the pressure within the pump and intake hose than exists in the atmosphere.

____ 121. Which category of primer includes both the rotary vane primer and the rotary gear primer?
A. Air primers
B. Exhaust primers
C. Vacuum primers
D. Positive displacement primers

____ 122. Which of the following is a purpose of using an oil supply or other type of fluid with conventional primers?
A. Seals the gaps between gears and case
B. Enables primer to shut off automatically
C. Creates spaces between gears and case
D. Stops dirt and debris from getting in the housing

____ 123. Which of the following are generally found on skid-mounted pumps or older fire apparatus and require a great deal of maintenance to remove carbon deposits?
A. Air primers
B. Exhaust primers
C. Vacuum primers
D. Positive displacement primers

____ 124. Which of the following are simple devices that make use of the vacuum already present in the intake manifold of any gasoline-driven engine?
A. Air primers
B. Exhaust primers
C. Vacuum primers
D. Positive displacement primers

____ 125. Which of the following uses a compressor to supply an airline to a jet pump creating a Venturi Effect that primes the pump using no moving parts or lubricants?
A. Air primers
B. Exhaust primers
C. Vacuum primers
D. Positive displacement primers

____ 126. Which of the following provides a reading of residual pressure when the pump is operating from a hydrant or is receiving water through a supply line from another pumper?
A. Tachometer
B. Master intake gauge
C. Pumping engine throttle
D. Master discharge pressure gauge

____ 127. Which of the following registers pressure as it leaves the pump, but before it reaches gauges for each individual discharge line?
A. Tachometer
B. Master intake gauge
C. Pumping engine throttle
D. Master discharge pressure gauge

____ 128. Which of the following displays engine speed in revolutions per minute?
A. Ammeter
B. Voltmeter
C. Tachometer
D. Pumping engine throttle

____ 129. Any significant deviation from normal oil pressure reading is MOST likely to indicate:
A. an equipment malfunction.
B. a decrease in available fuel supply.
C. a decrease in revolutions per minute.
D. an increase in revolutions per minute.

____ 130. Which of the following provides a relative indication of battery condition?
A. Ammeter
B. Voltmeter
C. Tachometer
D. Pumping engine throttle

____ 131. Which of the following indicates the status of the vehicle's alternator?
A. Ammeter
B. Voltmeter
C. Tachometer
D. Pumping engine throttle

____ 132. Which of the following is used to operate the priming device when the pump will draft from a static water supply?
A. Tachometer
B. Primer control
C. Master intake gauge
D. Water tank level indicator

____ 133. Which type of auxiliary cooling device is inserted into one of the hoses used in the engine cooling system so the engine coolant must travel through it as it circulates through the system?
A. Marine cooler
B. Outboard cooler
C. Inline front-mounted cooler
D. Immersion type auxiliary cooler

____ 134. Which type of auxiliary cooling device works when water supplied by the fire pump passes through a coil or tubing mounted inside the cooler?
A. Marine cooler
B. Outboard cooler
C. Inline front-mounted cooler
D. Immersion type auxiliary cooler

____ 135. The process of making a fire pump operational begins:
A. when initiating parking maneuvers.
B. after the incident action plan has been put into place.
C. approximately five minutes before arriving at the incident scene.
D. after the apparatus is properly positioned and the parking brake is set.

____ 136. Most apparatus are designed so that the procedure for making the pump operational is performed:
A. entirely from the cab of the vehicle.
B. entirely from the outside of the vehicle.
C. both from the cab of the vehicle and outside of the vehicle.
D. with remote control switches that can be located virtually anywhere.

____ 137. Which of the following BEST describes when it is recommended that wheels be chocked?
A. When parked on a slope
B. If parked more than ten minutes
C. Every time the driver/operator exits the cab
D. When the driver/operator will leave the parked apparatus

____ 138. The water supply from an onboard water tank is:
A. used only for incipient fires.
B. a backup supply in case of emergencies.
C. the sole source of supply for many incidents.
D. not significant enough to be the sole source of supply.

____ 139. Which of the following BEST describes when the driver/operator is ready to operate the pump to generate sufficient pressure to create an effective fire stream?
A. When the fire passes the incipient stage
B. When the water source has been identified
C. When all personnel have exited the apparatus
D. When the fire pump has been made operational

____ 140. When the pump is in operation, which of the following is a responsibility of the driver/operator?
A. Ensure the incident action plan is being followed by all team members.
B. Monitor the cost involved in running the pump as well as possible water costs.
C. Ensure all team members are wearing appropriate personal protective equipment.
D. Monitor all gauges associated with the engine as well as with the operation of the fire pump.

____ 141. If water is not flowing for an extended period of time during fire attack, why might a circulator, bypass, or booster cooling valve be opened on a pump?
A. To bleed off excess air
B. To increase water pressure
C. To decrease water pressure
D. To prevent the pump from overheating

____ 142. Which of the following is a step the driver/operator takes when transitioning to an external water supply?
A. Completely close intake gate valve
B. Shut off all operations involving the pump
C. Connect supply line into an appropriate intake of the fire pump
D. Close bleeder valve on the gated intake so air will not escape

____ 143. The two basic pressurized water supply sources are a fire hydrant and:
A. a water tower.
B. a portable water tank.
C. a supply hose from another pumper.
D. an onboard water tank or trailered water tank.

____ 144. If discharge flow volume is increased too much when operating from a pressurized water source:
A. the area may become flooded.
B. it may lead to cavitation of the pump.
C. the supply hose may collapse, interrupting the water supply.
D. intake pressure from the supply source may be reduced to a point that may damage the pump.

____ 145. Which of the following can occur when pumping at a low residual pressure while being supplied by other apparatus?
A. Cavitation of the pump
B. Friction loss becomes too significant to overcome
C. Firefighters may be unable to handle the supply hose
D. Intake pressure from the supply source may be reduced to a point that may damage the pump

____ 146. During pumping operations, driver/operators should maintain a residual pressure on the master intake gauge:
A. of at least 10 psi (70 kPa).
B. of at least 20 psi (140 kPa).
C. that is exactly 40 psi (280 kPa).
D. between 20 psi (140 kPa) and 40 psi (20 kPa).

____ 147. Which of the following statements about hydrant selection is MOST accurate?
A. Any hydrant that is near the incident scene is a good choice.
B. Hydrants that appear older than ten years should not be used.
C. The closest hydrants are always the best choice because of their location.
D. The closest hydrants may not be the most prudent choice because of safety or fire fighting needs.

____ 148. Which of the following is a characteristic of "dead end main" when referring to hydrants?
A. Have greater water pressure
B. Receive supply from several directions
C. Have smaller amounts of sedimentation, deterioration
D. Contain higher amounts of sediment and deterioration

____ 149. Which of the following consists of making a lay from the hydrant to the fire location?
A. Simple lay
B. Source lay
C. Forward lay
D. Reverse lay

____ 150. Which of the following is the purpose of a four-way hydrant valve in making a lay?
A. Allows for as many supply lines as necessary
B. Enables firefighters to more easily turn on/off the main control valve
C. Allows the driver/operator to configure multiple types of lays easily and efficiently
D. Allows a second arriving pumper to be connected without interrupting the flow of water to the original supply line

____ 151. Which of the following consists of laying hose from the fire to the water source?
A. Simple lay
B. Source lay
C. Reverse lay
D. Forward lay

____ 152. Which of the following would be used when the driver/operator first reports to an incident location in order to size up the scene before laying a supply line?
A. Simple lay
B. Source lay
C. Reverse lay
D. Forward lay

____ 153. After transitioning to an external water supply, the driver/operator should:
A. open the tank-to-pump valve.
B. close the tank-to-pump valve.
C. open the four-way hydrant valve.
D. close the four-way hydrant valve.

____ 154. In general, pumps supplying a relay operation or master stream are used to supply large amounts of water, and therefore require:
A. multiple settings of the transfer valve.
B. use of a series (pressure) setting of the transfer valve.
C. use of a parallel (volume) setting of the transfer valve.
D. the transfer valve to switch between series and parallel.

____ 155. When a pumper is connected to a hydrant and not discharging water, pressure shown on intake gauge is:
A. static pressure.
B. residual pressure.
C. atmospheric pressure.
D. the pressure from previous operations.

____ 156. When a pumper is discharging water, the intake gauge displays:
A. static pressure.
B. residual pressure.
C. atmospheric pressure.
D. average or median pressure.

____ 157. Which of the following determines the additional water available from a hydrant?
A. Difference between static pressure and residual pressure
B. Difference between friction loss and current water pressure
C. Difference between static pressure and atmospheric pressure
D. Sum of static pressure, residual pressure, and atmospheric pressure

____ 158. Which of the following is a method used to determine additional water available from a hydrant?
A. Division method
B. Addition method
C. Second-digit method
D. Squaring-the-lines method

____ 159. When shutting down the hydrant, why should all changes in flow be made smoothly?
A. To limit the amount of water that is likely to be wasted
B. To ensure that attack lines don't suddenly lose pressure
C. To avoid surprising handline crews with sudden changes
D. To avoid water hammer and pressure surges on water systems

____ 160. In drafting operations, the amount of friction in the intake hose is MOST affected by:
A. the ambient temperature.
B. the size of the static water source.
C. the size of the onboard water tank.
D. the diameter and length of the hose.

____ 161. During drafting operations, the ability to overcome losses in pressure is:
A. not limited by any factors.
B. limited only by available equipment.
C. limited to previous atmospheric pressures.
D. limited to atmospheric pressure at sea level.

____ 162. During drafting operations, what can occur when water is being discharged faster than it is coming into the pump?
A. Cavitation
B. Pressure loss
C. Water hammer
D. Pressure surge

____ 163. Which is an indication that a pump is cavitating?
A. Pump does not make any working noises
B. A decrease in the throttle will decrease discharge pressure
C. An increase in the throttle will increase discharge pressure
D. Lack of reaction on the pressure gauge to increases in the throttle

____ 164. Which is the first consideration in establishing a drafting operation?
A. Pumper size
B. Site selection
C. Available personnel
D. Potential growth of the fire

____ 165. Which of the following is the MOST important factor in choosing a draft site?
A. Weather conditions
B. Accessibility of water
C. Type or quality of water
D. Amount of water available

____ 166. In order for a pumper to approach its rated capacity using a traditional strainer, there must be:
A. at least 12 inches (300 mm) of water over the strainer.
B. at least 24 inches (600 mm) of water over the strainer.
C. at least 36 inches (900 mm) of water over the strainer.
D. at least 42 inches (1 050 mm) of water over the strainer.

____ 167. Which of the following statements about water temperatures affecting drafting is MOST accurate?
A. Hot water affects drafting; cold water has no impact.
B. Cold water affects drafting; hot water has no impact.
C. Water temperatures have no adverse impact on drafting.
D. Water temperatures may adversely impact the ability of the pump to reach capacity.

____ 168. What should be done each time nonpotable water is pumped through an apparatus?
A. Nothing needs to be done to the pump and piping system.
B. Pump and piping should be thoroughly flushed with fresh water soon afterwards.
C. Pump and piping should be drained and allowed to totally dry out before the next use.
D. Pump and piping should be thoroughly flushed with special cleaning solution soon afterwards.

____ 169. To create an effective fire stream during drafting operations, a lift of no greater than ____ is recommended.
A. 10 feet (3 m)
B. 20 feet (6 m)
C. 30 feet (9 m)
D. 40 feet (12 m)

____ 170. After a drafting site has been selected, which of the following is a step in connecting to the pump?
A. Connect the intake hose while on the ground.
B. Reposition apparatus once all connections are made.
C. Engage pump as soon as initial connections are made.
D. Couple strainer and required lengths of intake hose and make them airtight.

____ 171. When drafting, which of the following should be done when positioning the intake hose if the bottom slopes steeply from the water's edge?
A. Place a roof ladder in the water and lay intake hose on it.
B. Suspend strainer off the bottom by tying it to an anchor point.
C. Place salvage covers in the water and lay intake hose on top of the covers.
D. Place a shovel or other flat metal object on the top to protect the strainer.

____ 172. When priming the pump and beginning drafting operations, a two-stage pump:
A. must have the transfer valve in the series (pressure) position.
B. must have the transfer valve in the parallel (volume) position.
C. can have the transfer valve in either the series (pressure) or parallel (volume) position.
D. must initially have the transfer valve in the series (pressure) position but then switch to the parallel (volume) position.

____ 173. If an apparatus features a vacuum-type primer, the engine rpm should be kept:
A. below 800 rpm.
B. between 1000 and 2000 rpm.
C. as high as possible without overtaxing the engine.
D. as low as possible without causing the engine to stall.

____ 174. Which of the following is the most common cause of an inability to prime?
A. Engine speed (rpm) is too high
B. Inexperience of personnel using the equipment
C. Equipment used for priming is incompatible or outdated
D. An air leak that prevents primer from developing enough vacuum to successfully draft water

____ 175. Which of the following is MOST likely to cause an inability to prime?
A. Lift is too low
B. Engine speed (rpm) is too low
C. Engine speed (rpm) is too high
D. Excess fluid in the priming reservoir

____ 176. After successfully priming the pump, the throttle setting should:
A. slowly be decreased before attempting to open any discharges.
B. quickly be decreased before attempting to open any discharges.
C. slowly be increased before attempting to open any discharges.
D. quickly be increased before attempting to open any discharges.

____ 177. Which is the MOST likely problem during drafting if the discharge pressure gauge begins to fluctuate with a corresponding loss of vacuum on the intake gauge?
A. Blockage in the pump itself
B. Gauge readings are incorrect
C. Attempting to exceed capacity of the pump
D. Air is coming into the pump along with water

____ 178. Which of the following should be done first when preparing to shut down a drafting operation?
A. Completely shut down engine
B. Slowly decrease engine speed to idle
C. Leave engine in the highest gear possible
D. Increase engine speed then quickly decrease engine speed

____ 179. When shutting down a drafting operation, why should the positive displacement primer be operated for several seconds until primer oil or fluid comes out of discharge from the priming pump?
A. Ensures primer works efficiently
B. Aids in lubrication of priming pump
C. Avoids contamination of priming pump
D. Ensures fluid is removed from the priming pump

____ 180. The automatic water supply for a sprinkler system is designed to supply:
A. only one fire sprinkler at any given time.
B. all of the fire sprinklers at any given time.
C. a majority of the fire sprinklers at any given time.
D. only a fraction of total fire sprinklers at any given time.

____ 181. Which of the following BEST describes when occupancies with automatic sprinkler systems should be identified?
A. After initial incident call
B. During preincident planning
C. During initial size-up of the scene
D. After incident action plan has been put into action

____ 182. If a sprinkler system is to be supplied at the fire department connection and no specific information is available, the general guideline is to discharge:
A. 50 psi (350 kPa) into the FDC.
B. 75 psi (525 kPa) into the FDC.
C. 150 psi (1 050 kPa) into the FDC.
D. 250 psi (1 750 kPa) into the FDC.

____ 183. When supporting standpipe operations, fire attack crews should:
A. use both house hose and attack lines.
B. avoid using the standpipe unless fire is growing.
C. bring attack lines to initiate standpipe operations.
D. use the house hose installed at the standpipe connection.

____ 184. Which of the following statements about wet standpipe systems that contain water under pressure is MOST accurate?
A. It will take at least 3-5 minutes before water flows freely.
B. They still must be charged with water from the fire department pumper.
C. They may be used as soon as the hoseline is stretched and the valve closed.
D. They may be used as soon as the hoseline is stretched and the valve opened.

____ 185. Which of the following statements about dry pipe systems is MOST accurate?
A. It will take at least 5-10 minutes before water flows freely.
B. They may be used as soon as the hoseline is stretched and the valve opened.
C. They may be used as soon as the hoseline is stretched and the valve closed.
D. They must be charged with water from a source such as the fire department pumper.

____ 186. Which of the following statements about friction loss in standpipes is MOST accurate?
A. Generally, friction loss in a standpipe is small regardless of flow.
B. Generally, friction loss in a standpipe is large regardless of flow.
C. Generally, friction loss in a standpipe is small unless flow is very large.
D. Generally, friction loss is a standpipe is so variable that it cannot be correctly accounted for.

____ 187. When a dry standpipe system is charged, water will be discharged:
A. only in the area of the fire itself.
B. at all points regardless of position of valves.
C. at all points where caps are off and valve is open.
D. at all points where caps are on and valve is closed.

____ 188. What should a driver/operator do immediately upon indication that the water supply or pumping ability may be unattainable or interrupted?
A. Notify officer or Incident Commander
B. Call for backup pumpers to arrive at the scene
C. Wait several minutes and see if the problem corrects itself
D. Attempt to correct the problem before notifying anyone

____ 189. Which is the MOST likely scenario if a supply line that was charged suddenly loses water?
A. The supply line has burst.
B. Vandals have turned off the water supply.
C. The personnel operating the supply line are inexperienced.
D. It is just a momentary pressure change and water will return.

____ 190. Which is the MOST likely scenario if a supply line loses water but the supply line is intact?
A. Vandals have turned off the water supply.
B. The hydrant or water main has failed.
C. The personnel operating the supply line are inexperienced.
D. It is just a momentary pressure change and water will return.

Study Guide part 2
Answer Section

1. ANS: A PTS: 1 REF: 194
   OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
2. ANS: B PTS: 1 REF: 194
   OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
3. ANS: D PTS: 1 REF: 194
   OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
4. ANS: C PTS: 1 REF: 194
   OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
5. ANS: B PTS: 1 REF: 194
   OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
6. ANS: D PTS: 1 REF: 194-195
   OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
7. ANS: A PTS: 1 REF: 195
   OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
8. ANS: B PTS: 1 REF: 195
   OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
9. ANS: D PTS: 1 REF: 196
   OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
10. ANS: C PTS: 1 REF: 196
    OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
11. ANS: D PTS: 1 REF: 197
    OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
12. ANS: B PTS: 1 REF: 197
    OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
13. ANS: D PTS: 1 REF: 197
    OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
14. ANS: A PTS: 1 REF: 198
    OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
15. ANS: D PTS: 1 REF: 199
    OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
16. ANS: A PTS: 1 REF: 199
    OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
17. ANS: C PTS: 1 REF: 199
    OBJ: 6.1 Distinguish among types of fire hose nozzles. NAT: NFPA® 1002 5.2.1
18. ANS: D PTS: 1 REF: 199
    OBJ: 6.2 Identify considerations for selecting nozzles. NAT: NFPA® 1002 5.2.1
19. ANS: A PTS: 1 REF: 199
    OBJ: 6.2 Identify considerations for selecting nozzles. NAT: NFPA® 1002 5.2.1
20. ANS: D PTS: 1 REF: 199
    OBJ: 6.2 Identify considerations for selecting nozzles. NAT: NFPA® 1002 5.2.1
21. ANS: C PTS: 1 REF: 200
    OBJ: 6.2 Identify considerations for selecting nozzles. NAT: NFPA® 1002 5.2.1
22. ANS: C PTS: 1 REF: 200
    OBJ: 6.2 Identify considerations for selecting nozzles. NAT: NFPA® 1002 5.2.1

23. ANS: A PTS: 1 REF: 200
OBJ: 6.2 Identify considerations for selecting nozzles. NAT: NFPA® 1002 5.2.1
24. ANS: A PTS: 1 REF: 201
OBJ: 6.2 Identify considerations for selecting nozzles. NAT: NFPA® 1002 5.2.1
25. ANS: C PTS: 1 REF: 201
OBJ: 6.2 Identify considerations for selecting nozzles. NAT: NFPA® 1002 5.2.1
26. ANS: D PTS: 1 REF: 201
OBJ: 6.2 Identify considerations for selecting nozzles. NAT: NFPA® 1002 5.2.1
27. ANS: D PTS: 1 REF: 202
OBJ: 6.4 Summarize facts about nozzle pressure and reaction. NAT: NFPA® 1002 5.2.1
28. ANS: D PTS: 1 REF: 202
OBJ: 6.4 Summarize facts about nozzle pressure and reaction. NAT: NFPA® 1002 5.2.1
29. ANS: B PTS: 1 REF: 203
OBJ: 6.4 Summarize facts about nozzle pressure and reaction. NAT: NFPA® 1002 5.2.1
30. ANS: B PTS: 1 REF: 203
OBJ: 6.4 Summarize facts about nozzle pressure and reaction. NAT: NFPA® 1002 5.2.1
31. ANS: C PTS: 1 REF: 204
OBJ: 6.4 Summarize facts about nozzle pressure and reaction. NAT: NFPA® 1002 5.2.1
32. ANS: D PTS: 1 REF: 204
OBJ: 6.4 Summarize facts about nozzle pressure and reaction. NAT: NFPA® 1002 5.2.1
33. ANS: D PTS: 1 REF: 210
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
34. ANS: A PTS: 1 REF: 210
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
35. ANS: A PTS: 1 REF: 211
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
36. ANS: B PTS: 1 REF: 211
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
37. ANS: C PTS: 1 REF: 211
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
38. ANS: D PTS: 1 REF: 212
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
39. ANS: A PTS: 1 REF: 212
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
40. ANS: B PTS: 1 REF: 212
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
41. ANS: A PTS: 1 REF: 212
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2

42. ANS: D PTS: 1 REF: 213
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
43. ANS: A PTS: 1 REF: 213
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
44. ANS: C PTS: 1 REF: 213
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
45. ANS: C PTS: 1 REF: 214
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
46. ANS: C PTS: 1 REF: 214
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
47. ANS: B PTS: 1 REF: 214
OBJ: 7.1 Summarize facts about total pressure loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
48. ANS: D PTS: 1 REF: 215
OBJ: 7.2 Identify how various hose layouts affect total pressure loss.
NAT: NFPA® 1002 5.2.4
49. ANS: C PTS: 1 REF: 215
OBJ: 7.2 Identify how various hose layouts affect total pressure loss.
NAT: NFPA® 1002 5.2.4
50. ANS: D PTS: 1 REF: 215
OBJ: 7.2 Identify how various hose layouts affect total pressure loss.
NAT: NFPA® 1002 5.2.4
51. ANS: B PTS: 1 REF: 216
OBJ: 7.2 Identify how various hose layouts affect total pressure loss.
NAT: NFPA® 1002 5.2.4
52. ANS: D PTS: 1 REF: 216
OBJ: 7.2 Identify how various hose layouts affect total pressure loss.
NAT: NFPA® 1002 5.2.4
53. ANS: D PTS: 1 REF: 216
OBJ: 7.2 Identify how various hose layouts affect total pressure loss.
NAT: NFPA® 1002 5.2.4
54. ANS: A PTS: 1 REF: 217
OBJ: 7.2 Identify how various hose layouts affect total pressure loss.
NAT: NFPA® 1002 5.2.4
55. ANS: C PTS: 1 REF: 218
OBJ: 7.2 Identify how various hose layouts affect total pressure loss.
NAT: NFPA® 1002 5.2.4
56. ANS: A PTS: 1 REF: 218
OBJ: 7.3 Test hose carried on fire department apparatus to determine friction loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
57. ANS: A PTS: 1 REF: 218
OBJ: 7.3 Test hose carried on fire department apparatus to determine friction loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2

58. ANS: B PTS: 1 REF: 219
OBJ: 7.3 Test hose carried on fire department apparatus to determine friction loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
59. ANS: C PTS: 1 REF: 219
OBJ: 7.3 Test hose carried on fire department apparatus to determine friction loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
60. ANS: D PTS: 1 REF: 219
OBJ: 7.3 Test hose carried on fire department apparatus to determine friction loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
61. ANS: A PTS: 1 REF: 219
OBJ: 7.3 Test hose carried on fire department apparatus to determine friction loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
62. ANS: B PTS: 1 REF: 219
OBJ: 7.3 Test hose carried on fire department apparatus to determine friction loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
63. ANS: B PTS: 1 REF: 219
OBJ: 7.3 Test hose carried on fire department apparatus to determine friction loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
64. ANS: C PTS: 1 REF: 219
OBJ: 7.3 Test hose carried on fire department apparatus to determine friction loss.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
65. ANS: C PTS: 1 REF: 296
OBJ: 9.1 Distinguish among types of positive displacement pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
66. ANS: C PTS: 1 REF: 296
OBJ: 9.1 Distinguish among types of positive displacement pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
67. ANS: D PTS: 1 REF: 296
OBJ: 9.1 Distinguish among types of positive displacement pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
68. ANS: C PTS: 1 REF: 296
OBJ: 9.1 Distinguish among types of positive displacement pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
69. ANS: B PTS: 1 REF: 296
OBJ: 9.1 Distinguish among types of positive displacement pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
70. ANS: C PTS: 1 REF: 298
OBJ: 9.1 Distinguish among types of positive displacement pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
71. ANS: D PTS: 1 REF: 298
OBJ: 9.1 Distinguish among types of positive displacement pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
72. ANS: A PTS: 1 REF: 299
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
73. ANS: B PTS: 1 REF: 299
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2

74. ANS: A PTS: 1 REF: 299
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
75. ANS: D PTS: 1 REF: 300
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
76. ANS: C PTS: 1 REF: 300
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
77. ANS: C PTS: 1 REF: 300
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
78. ANS: C PTS: 1 REF: 300
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
79. ANS: C PTS: 1 REF: 301
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
80. ANS: C PTS: 1 REF: 301
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
81. ANS: D PTS: 1 REF: 302
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
82. ANS: B PTS: 1 REF: 302
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
83. ANS: D PTS: 1 REF: 302
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
84. ANS: D PTS: 1 REF: 304
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
85. ANS: C PTS: 1 REF: 306
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
86. ANS: C PTS: 1 REF: 306
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
87. ANS: C PTS: 1 REF: 306
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
88. ANS: A PTS: 1 REF: 306
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
89. ANS: B PTS: 1 REF: 307
OBJ: 9.2 Summarize facts about the operation of centrifugal pumps.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2

90. ANS: D PTS: 1 REF: 307
OBJ: 9.3 Distinguish among various pump mounting and drive arrangements.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
91. ANS: D PTS: 1 REF: 307
OBJ: 9.3 Distinguish among various pump mounting and drive arrangements.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
92. ANS: C PTS: 1 REF: 307
OBJ: 9.3 Distinguish among various pump mounting and drive arrangements.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
93. ANS: C PTS: 1 REF: 308
OBJ: 9.3 Distinguish among various pump mounting and drive arrangements.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
94. ANS: B PTS: 1 REF: 308
OBJ: 9.3 Distinguish among various pump mounting and drive arrangements.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
95. ANS: B PTS: 1 REF: 309
OBJ: 9.3 Distinguish among various pump mounting and drive arrangements.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
96. ANS: A PTS: 1 REF: 309
OBJ: 9.3 Distinguish among various pump mounting and drive arrangements.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
97. ANS: A PTS: 1 REF: 310
OBJ: 9.3 Distinguish among various pump mounting and drive arrangements.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
98. ANS: B PTS: 1 REF: 312
OBJ: 9.3 Distinguish among various pump mounting and drive arrangements.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
99. ANS: B PTS: 1 REF: 312
OBJ: 9.3 Distinguish among various pump mounting and drive arrangements.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
100. ANS: C PTS: 1 REF: 312
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
101. ANS: C PTS: 1 REF: 312
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
102. ANS: C PTS: 1 REF: 312
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
103. ANS: C PTS: 1 REF: 312
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
104. ANS: B PTS: 1 REF: 313
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
105. ANS: B PTS: 1 REF: 314
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2

106. ANS: D PTS: 1 REF: 316
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
107. ANS: C PTS: 1 REF: 316
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
108. ANS: A PTS: 1 REF: 316
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
109. ANS: C PTS: 1 REF: 316
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
110. ANS: A PTS: 1 REF: 317
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
111. ANS: D PTS: 1 REF: 317
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
112. ANS: C PTS: 1 REF: 317
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
113. ANS: D PTS: 1 REF: 318
OBJ: 9.4 Describe intake and discharge piping.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
114. ANS: B PTS: 1 REF: 318
OBJ: 9.6 Explain the operation of automatic pressure control devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
115. ANS: C PTS: 1 REF: 318-319
OBJ: 9.6 Explain the operation of automatic pressure control devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
116. ANS: D PTS: 1 REF: 319
OBJ: 9.6 Explain the operation of automatic pressure control devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
117. ANS: B PTS: 1 REF: 320
OBJ: 9.6 Explain the operation of automatic pressure control devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
118. ANS: D PTS: 1 REF: 321
OBJ: 9.6 Explain the operation of automatic pressure control devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
119. ANS: C PTS: 1 REF: 321
OBJ: 9.6 Explain the operation of automatic pressure control devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
120. ANS: B PTS: 1 REF: 322
OBJ: 9.7 Summarize facts about priming methods and devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
121. ANS: D PTS: 1 REF: 322
OBJ: 9.7 Summarize facts about priming methods and devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2

122. ANS: A PTS: 1 REF: 322
OBJ: 9.7 Summarize facts about priming methods and devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
123. ANS: B PTS: 1 REF: 323
OBJ: 9.7 Summarize facts about priming methods and devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
124. ANS: C PTS: 1 REF: 323
OBJ: 9.7 Summarize facts about priming methods and devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
125. ANS: A PTS: 1 REF: 324
OBJ: 9.7 Summarize facts about priming methods and devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
126. ANS: B PTS: 1 REF: 325
OBJ: 9.8 Identify characteristics of pump panel instrumentation.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
127. ANS: D PTS: 1 REF: 325-326
OBJ: 9.8 Identify characteristics of pump panel instrumentation.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
128. ANS: C PTS: 1 REF: 326
OBJ: 9.8 Identify characteristics of pump panel instrumentation.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
129. ANS: A PTS: 1 REF: 326
OBJ: 9.8 Identify characteristics of pump panel instrumentation.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
130. ANS: B PTS: 1 REF: 326
OBJ: 9.8 Identify characteristics of pump panel instrumentation.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
131. ANS: A PTS: 1 REF: 326
OBJ: 9.8 Identify characteristics of pump panel instrumentation.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
132. ANS: B PTS: 1 REF: 328
OBJ: 9.8 Identify characteristics of pump panel instrumentation.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
133. ANS: A PTS: 1 REF: 329
OBJ: 9.9 Describe types of auxiliary cooling devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
134. ANS: D PTS: 1 REF: 329
OBJ: 9.9 Describe types of auxiliary cooling devices.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
135. ANS: D PTS: 1 REF: 336
OBJ: 10.1 Explain making the pump operational.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
136. ANS: A PTS: 1 REF: 336
OBJ: 10.1 Explain making the pump operational.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
137. ANS: C PTS: 1 REF: 336
OBJ: 10.1 Explain making the pump operational.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2

138. ANS: C PTS: 1 REF: 336
OBJ: 10.2 Summarize facts about operating from the water tank.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
139. ANS: D PTS: 1 REF: 337
OBJ: 10.2 Summarize facts about operating from the water tank.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
140. ANS: D PTS: 1 REF: 337
OBJ: 10.2 Summarize facts about operating from the water tank.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
141. ANS: D PTS: 1 REF: 337-338
OBJ: 10.2 Summarize facts about operating from the water tank.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
142. ANS: C PTS: 1 REF: 338
OBJ: 10.2 Summarize facts about operating from the water tank.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
143. ANS: C PTS: 1 REF: 339
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
144. ANS: D PTS: 1 REF: 339
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
145. ANS: A PTS: 1 REF: 339
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
146. ANS: B PTS: 1 REF: 340
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
147. ANS: D PTS: 1 REF: 340
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
148. ANS: D PTS: 1 REF: 340
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
149. ANS: C PTS: 1 REF: 341
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
150. ANS: D PTS: 1 REF: 341
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
151. ANS: C PTS: 1 REF: 344
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
152. ANS: C PTS: 1 REF: 344
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
153. ANS: B PTS: 1 REF: 345
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2

154. ANS: C PTS: 1 REF: 346
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
155. ANS: A PTS: 1 REF: 347
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
156. ANS: B PTS: 1 REF: 347
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
157. ANS: A PTS: 1 REF: 347
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
158. ANS: D PTS: 1 REF: 350
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
159. ANS: D PTS: 1 REF: 351
OBJ: 10.3 Explain considerations when operating from a pressurized supply source.
NAT: NFPA® 1002 5.1.1 | NFPA® 1002 10.2.2
160. ANS: D PTS: 1 REF: 352
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
161. ANS: D PTS: 1 REF: 352
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
162. ANS: A PTS: 1 REF: 354
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
163. ANS: D PTS: 1 REF: 354
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
164. ANS: B PTS: 1 REF: 354
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
165. ANS: D PTS: 1 REF: 355
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
166. ANS: B PTS: 1 REF: 355
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
167. ANS: D PTS: 1 REF: 356
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
168. ANS: B PTS: 1 REF: 356
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
169. ANS: B PTS: 1 REF: 357
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2

170. ANS: D PTS: 1 REF: 358
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
171. ANS: A PTS: 1 REF: 358
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
172. ANS: B PTS: 1 REF: 358
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
173. ANS: D PTS: 1 REF: 359
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
174. ANS: D PTS: 1 REF: 359
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
175. ANS: B PTS: 1 REF: 359
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
176. ANS: C PTS: 1 REF: 360
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
177. ANS: D PTS: 1 REF: 360
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
178. ANS: B PTS: 1 REF: 362
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
179. ANS: B PTS: 1 REF: 362
OBJ: 10.4 Summarize facts about operating from a static water supply source.
NAT: NFPA® 1002 5.2.1 | NFPA® 1002 5.2.2
180. ANS: D PTS: 1 REF: 362
OBJ: 10.5 Describe actions taken for sprinkler and standpipe support.
NAT: NFPA® 1002 5.2.4
181. ANS: B PTS: 1 REF: 362
OBJ: 10.5 Describe actions taken for sprinkler and standpipe support.
NAT: NFPA® 1002 5.2.4
182. ANS: C PTS: 1 REF: 363
OBJ: 10.5 Describe actions taken for sprinkler and standpipe support.
NAT: NFPA® 1002 5.2.4
183. ANS: C PTS: 1 REF: 364
OBJ: 10.5 Describe actions taken for sprinkler and standpipe support.
NAT: NFPA® 1002 5.2.4
184. ANS: D PTS: 1 REF: 364
OBJ: 10.5 Describe actions taken for sprinkler and standpipe support.
NAT: NFPA® 1002 5.2.4
185. ANS: D PTS: 1 REF: 364
OBJ: 10.5 Describe actions taken for sprinkler and standpipe support.
NAT: NFPA® 1002 5.2.4

186. ANS: C PTS: 1 REF: 365
OBJ: 10.5 Describe actions taken for sprinkler and standpipe support.
NAT: NFPA® 1002 5.2.4
187. ANS: C PTS: 1 REF: 365
OBJ: 10.5 Describe actions taken for sprinkler and standpipe support.
NAT: NFPA® 1002 5.2.4
188. ANS: A PTS: 1 REF: 366
OBJ: 10.6 Explain actions taken when troubleshooting pumping operations.
NAT: NFPA® 1002 5.1.1
189. ANS: A PTS: 1 REF: 366
OBJ: 10.6 Explain actions taken when troubleshooting pumping operations.
NAT: NFPA® 1002 5.1.1
190. ANS: B PTS: 1 REF: 366
OBJ: 10.6 Explain actions taken when troubleshooting pumping operations.
NAT: NFPA® 1002 5.1.1