Chapter 12 Test

Name: _____ **Date:** _____

Directions: Write the correct letter on the blank before each question.

Objective 1:
Describe the components and basic operation of automatic sprinkler systems.

_____ 1. Fire loss data reveals that in buildings equipped with automatic sprinklers, about _____ percent of all fires were controlled or extinguished by the sprinkler system. (504)

A. fifty-five
B. sixty-two
C. ninety-four
D. ninety-nine

_____ 2. When a fire is not controlled in a sprinkler-equipped building, which of the following is MOST likely a cause? (504)

A. Inclement weather conditions
B. Blocked entrances or egresses
C. Inadequate or lack of water supply
D. Slow response time of the fire department

_____ 3. Thermally sensitive devices such as fusible links keep most sprinklers closed and when heat from a fire affects these devices: (504)

A. all sprinklers activate automatically.
B. sprinklers closest to the fire activate automatically.
C. sprinklers farthest from the fire activate automatically.
D. sprinklers activate in a cascade fashion one after the other.

_____ 4. Which type of sprinkler systems operate when an electronic detector or manual control device is activated? (504)

A. Deluge or dry-pipe sprinkler systems
B. Deluge or preaction sprinkler systems
C. Wet-pipe or dry-pipe sprinkler systems
D. Preaction or wet-pipe sprinkler systems

_____ 5. Which automatic sprinkler system is continually charged with water under pressure that discharges immediately when heat from a fire activates one or more sprinklers? (505)

A. Deluge sprinkler system
B. Preaction sprinkler system
C. Dry-pipe sprinkler system
D. Wet-pipe sprinkler system

_____ 6. Which automatic sprinkler system is continually charged with compressed air and when a sprinkler activates, the air is released, allowing the water-flow control valve to operate and charge the system with water? (505)

A. Deluge sprinkler system
B. Dry-pipe sprinkler system
C. Wet-pipe sprinkler system
D. Preaction sprinkler system

_____ 7. Which automatic sprinkler system consists of open sprinklers attached to unpressurized dry pipes? (506)

A. Deluge sprinkler system
B. Dry-pipe sprinkler system
C. Wet-pipe sprinkler system
D. Preaction sprinkler system

_____ 8. Which automatic sprinkler system is continually charged with air that may or may not be under pressure and operates when a sprinkler opens due to a thermally sensitive device and the activation of detection devices? (506)

A. Deluge sprinkler system
B. Preaction sprinkler system
C. Wet-pipe sprinkler system
D. Combination sprinkler system

_____ 9. Which automatic sprinkler system is continually charged with air under pressure combined with a detection system that controls the operation of the waterflow control valve? (507)

A. Looped sprinkler systems
B. Multicycle sprinkler systems
C. Combined dry pipe and deluge sprinkler system
D. Combined dry pipe and preaction sprinkler system

_____ 10. Which automatic sprinkler system is used in special circumstances where an additional level of protection against false activation is required, such as in data centers or museums? (507)

A. Looped sprinkler system
B. Multicycle sprinkler system
C. Combined dry pipe and deluge sprinkler system
D. Combined dry pipe and preaction sprinkler system

_____ 11. Which automatic sprinkler system is designed to be operated repeatedly in response to a detection device and shuts on and off based on the demand indicated by the detection device? (507)

A. Looped sprinkler system
B. Multicycle sprinkler system
C. Combined dry pipe and deluge sprinkler system
D. Combined dry pipe and preaction sprinkler system

_____ 12. Which automatic sprinkler system has the advantage of water flowing to the sprinklers from multiple directions? (507)

A. Gridded systems
B. Multicycle sprinkler systems
C. Combination sprinkler systems
D. Backup distribution sprinkler systems

_____ 13. While maintaining a minimum required residual pressure in the system, a water supply must be able to deliver the required volume of water to: (508)

A. immediately extinguish the fire.
B. at least 50% of all sprinklers in the system.
C. at least 75% of all sprinklers in the system.
D. the highest or most remote sprinkler in a structure.

_____ 14. Which of the following statements about sprinkler systems and a water supply is MOST accurate? (508)

A. The secondary water supply may be from a private source.
B. The primary water supply must come from a public source.
C. The primary water supply may come from a public or private source.
D. Both the primary and secondary water supply must come from a public source.

_____ 15. What is the purpose of fire department connections as part of automatic sprinkler systems? (508)

A. Protect firefighters in the structure
B. Allow for use of any secondary water supply
C. Boost the pressure of the primary water supply
D. Serve as a backup protection if sprinkler system fails

_____ 16. Which of the following are used to turn off or isolate the water supply to the system when it is necessary to perform maintenance, change sprinklers, or interrupt operation? (508-509)

A. Key locks
B. Remote sensing valves
C. Waterflow control valves
D. Main system control panels

_____ 17. Which type of valve is a gate valve that has a yoke on the outside with a threaded stem or screw? (509)

A. Post indicator valve
B. Outside stem and yoke
C. Wall post indicator valve
D. Post indicator valve assembly

_____ 18. Which type of valve is an underground gate valve that has a hollow metal post attached to the valve housing? (509)

A. Post indicator valve
B. Outside stem and yoke
C. Wall post indicator valve
D. Post indicator valve assembly

_____ 19. Which operating valve is located on the riser and used to flow water for testing the waterflow alarm? (510)

A. Drain valves
B. Check valves
C. Alarm-test valves
D. Drip check or drip ball valves

_____ 20. Which valve is used to drain water from piping when pressure is relieved in the pipe? (510)

A. Drain valves
B. Check valves
C. Alarm-test valves
D. Drip check or drip ball valves

_____ 21. Which valve is usually a globe valve and may sometimes be found at a remote location within a sprinkler system? (510)

A. Secondary valve
B. Main check valve
C. Firefighter's valve
D. Inspector's test valve

_____ 22. Which are vertical sections of pipe that connect the underground supply to the rest of the piping in the system? (510)

A. Hangers
B. Main loops
C. Branch lines
D. System risers

_____ 23. The pipe schedule table method is limited to: (511)

A. all known hazards.
B. light and ordinary hazards.
C. occupancies under a certain size.
D. occupancies with no known risks.

_____ 24. Which method allows for calculations to be made to protect all types of hazards, including extra hazards, with any type of piping and any type of sprinkler discharge device? (511)

A. Previous usage
B. Pipe schedule tables
C. Hydraulic calculations
D. Correlation of hazards

_____ 25. Which type of sprinkler is recessed and covered with a removable decorative cover plate that releases when exposed to a specific level of heat? (512)

A. Flush
B. Pendent
C. Recessed
D. Concealed

_____ 26. Which type of sprinkler is mounted in a ceiling with the body of the sprinkler, including the threaded shank, above the plane of the ceiling? (512)

A. Flush
B. Pendent
C. Recessed
D. Concealed

_____ 27. Which type of sprinkler is installed downward from the branch line so that water flowing from the sprinkler strikes the deflector and is distributed over the protected area? (512)

A. Flush
B. Pendent
C. Recessed
D. Concealed

_____ 28. Which type of sprinkler is installed upward from a line so that water is discharged up against the deflector? (512)

A. Upright
B. Sidewall
C. Recessed
D. Concealed

_____ 29. Which type of sprinkler is a type of spray sprinkler capable of producing characteristic large water droplets and is listed for its capability of providing fire control of specific high-challenge fire hazards? (513)

A. Extended coverage
B. Early suppression fast-response
C. Control mode specific application
D. Quick-response early suppression

_____ 30. Which type of sprinkler is designed to rapidly suppress fires in high-challenge hazards such as warehouses? (514)

A. Extended coverage
B. Early suppression fast-response
C. Control mode specific application
D. Quick-response early suppression

_____ 31. Which type of sprinkler is normally provided in a deluge sprinkler system? (515)

A. Open
B. Early suppression fast-response
C. Control mode specific application
D. Quick-response early suppression

_____ 32. Which type of sprinkler is designed to provide increased life safety in hotels, motels, and similar residential occupancies? (515)

A. Open
B. Residential
C. Control mode specific application
D. Quick-response early suppression

_____ 33. Which type of sprinkler is designed for fast response in residential occupancies where life safety in the room of origin is the primary concern? (515)

A. Open
B. Residential
C. Control mode specific application
D. Quick-response early suppression

_____ 34. Which type of sprinkler is usually installed in areas containing acids or caustic materials or processes? (515)

A. Dry
B. Institutional
C. Corrosion-resistant
D. Intermediate level or rack storage

_____ 35. Which type of sprinkler is designed to be damage resistant with no removable parts? (515)

A. Dry
B. Institutional
C. Corrosion-resistant
D. Intermediate level or rack storage

_____ 36. Which detection and activation device occurs when thermocouples reach a preset temperature, releasing the sprinkler plug? (516)

A. Waterflow alarm
B. Sprinkler activation
C. Electronic heat detector
D. Manually activated system

_____ 37. Which sprinkler system device activates preaction and deluge systems by smoke, heat, or rate-of-rise detectors in the protected area? (517)

A. Waterflow alarm
B. Sprinkler activation
C. Electronic heat detector
D. Manually activated system

_____ 38. Which detection and activation device sounds a warning when a sprinkler activates and water begins to flow? (517)

A. Waterflow alarm
B. Sprinkler activation
C. Electronic heat detector
D. Manually activated system

_____ 39. The water supply requirements for residential sprinklers are: (519)

A. based on available water supply.
B. less than those for standard sprinkler systems.
C. the same as those for standard sprinkler systems.
D. greater than those for standard sprinkler systems.

_____ 40. Unless otherwise approved, spacing for sprinklers in residential systems is a: (519)

A. minimum of 64 square feet (5.9 m^2) per sprinkler.
B. maximum of 64 square feet (5.9 m^2) per sprinkler.
C. minimum of 144 square feet (13 m^2) per sprinkler.
D. maximum of 144 square feet (13 m^2) per sprinkler.

_____ 41. The maximum spacing between sprinklers in residential systems is: (519)

A. 6 feet (2 m).
B. 12 feet (3.5 m).
C. 20 feet (6 m).
D. 30 feet (9 m).

Objective 2:
Explain the operation of fixed fire suppression systems.

_____ 42. Which fire suppression system provides protection to specific hazards by applying water droplets of a predetermined pattern, particle size, velocity, and density through specially designed nozzles? (520)

A. Water-mist system
B. Foam-water system
C. Combination system
D. Water-spray fixed system

_____ 43. Which fire suppression system uses a very fine spray that controls or extinguishes fire by displacing oxygen and blocking radiant heat production? (521)

A. Water-mist system
B. Foam-water system
C. Combination system
D. Water-spray fixed system

_____ 44. Water-mist fire suppression systems are designed to be operated at: (522)

A. intermittent high and low pressures.
B. the same pressures as standard sprinkler systems.
C. considerably lower pressures than standard sprinkler systems.
D. considerably higher pressures than standard sprinkler systems.

_____ 45. Water-mist fire suppression systems utilize air cylinders that must be hydrostatically tested before recharging if it has been more than: (523)

A. three years since their last tests.
B. five years since their last tests.
C. seven years since their last tests.
D. ten years since their last tests.

_____ 46. Water-mist fire suppression systems that utilize air cylinders that have not been discharged should be emptied and tested: (523)

A. annually.
B. every five years.
C. every seven years.
D. every twelve years.

_____ 47. Which fire suppression system is commonly used to protect Class B fire hazards and can be a wet-pipe, dry-pipe, preaction, or deluge system? (523)

A. Water-mist system
B. Foam-water system
C. Combination system
D. Water-spray fixed system

Objective 3:
Describe types of standpipe and hose systems.

_____ 48. As part of the maintenance requirements of NFPA® 25, standpipe and hose fire suppression systems must be flow and hydrostatic tested: (525)

A. annually.
B. every three years.
C. every five years.
D. every ten years.

_____ 49. Which of the following is a component of standpipe and hose fire suppression systems? (526)

A. Control panel
B. Water purifying filter
C. Pressure-regulating device
D. Emergency backflow indicator

_____ 50. Which classification of standpipe and hose fire suppression systems must be capable of supplying effective fire streams during the more advanced stages of fire within a structure? (526)

A. Class I
B. Class II
C. Class III
D. Class IV

_____ 51. Which classification of standpipe and hose fire suppression systems is primarily designed for use by building occupants trained in its use or by fire department personnel? (526)

A. Class I
B. Class II
C. Class III
D. Class IV

_____ 52. Which classification of standpipe and hose fire suppression systems has both 2½-inch (65 mm) hose connections and 1½-inch (38 mm) hose connections? (526)

A. Class I
B. Class II
C. Class III
D. Class IV

_____ 53. Which type of standpipe fire suppression system contains water in the system at all times and is attached to a water supply capable of supplying the system demand at all times? (527)

A. Manual-dry
B. Manual-wet
C. Automatic-wet
D. Automatic-dry

_____ 54. Which type of standpipe fire suppression system contains air or nitrogen under pressure and is permanently attached to a water supply? (527)

A. Manual-dry
B. Manual-wet
C. Automatic-wet
D. Automatic-dry

_____ 55. Which type of standpipe fire suppression system contains an empty pipe that is connected to a permanent water supply? (529)

A. Manual-dry
B. Manual-wet
C. Automatic-wet
D. Semiautomatic-dry

_____ 56. Which type of standpipe fire suppression system contains water in the system from a domestic supply but relies on the fire department to provide water through the FDC to meet system demand? (529)

A. Manual-dry
B. Manual-wet
C. Automatic-wet
D. Automatic-dry

_____ 57. Which of the following is MOST likely to reduce water supply requirements for a standpipe fire suppression system? (529)

A. Low value fire load
B. Mutual aid agreements
C. No past history of fires
D. Installed automatic sprinklers

_____ 58. Current practice is to locate fire hose valves so that any part of a floor is within: (530)

A. 60 feet (18 m) of the standpipe hose connection.
B. 100 feet (30 m) of the standpipe hose connection.
C. 130 feet (40 m) of the standpipe hose connection.
D. 200 feet (61 m) of the standpipe hose connection.

_____ 59. The actual hose connections of a standpipe hose valve can be located no more than: (530)

A. 2 feet (.6 m) from floor level.
B. 3 feet (.9 m) from floor level.
C. 5 feet (1.5 m) from floor level.
D. 6 feet (1.8 m) from floor level.

_____ 60. Which pressure-regulating device at a hose outlet is preferred for managing excessive pressure and is considered to be the most reliable method of pressure control? (531)

A. Pressure-control devices
B. Pressure-reducing devices
C. Pressure-stabilizing devices
D. Pressure-restricting devices

_____ 61. Which pressure-regulating device at a hose outlet uses a spring mechanism that compensates for variations in pressure? (531)

A. Pressure-control devices
B. Pressure-reducing devices
C. Pressure-stabilizing devices
D. Pressure-restricting devices

_____ 62. Large buildings having two or more zones require a fire department connection (FDC): (531)

A. for each zone.
B. for every two zones.
C. on every other floor.
D. on each floor that is occupied.

Objective 4:
Explain the components and operation of stationary fire pumps.

_____ 63. Which of the following is the main function of a stationary fire pump? (532)

A. Monitor water flow
B. Ensure there is an excess supply of water
C. Decrease the pressure of the water that flows through it
D. Increase the pressure of the water that flows through it

_____ 64. The most common type of fire pump found in stationary fire suppression systems is referred to as a(an: (532)

A. end suction.
B. vertical inline.
C. vertical turbine.
D. horizontal split-case.

_____ 65. Which stationary fire pump is almost always driven by an electric motor that sits on top of the pump? (533)

A. End suction
B. Vertical inline
C. Vertical split-case
D. Horizontal split-case

_____ 66. Which of the following is a single-stage fire pump designed to fit into the intake/discharge line with the driver located above the inline impeller? (534)

A. End suction
B. Vertical inline
C. Vertical split-case
D. Horizontal split-case

_____ 67. Which fire pump includes advantages such as the ease of installation as a replacement pump, the compact space required for the pump, and the ease of maintenance of the pump and driver? (534)

A. End suction
B. Vertical inline
C. Vertical split-case
D. Horizontal split-case

_____ 68. For which fire pump are the impellers actually located within the water supply source? (534)

A. End suction
B. Vertical turbine
C. Vertical split-case
D. Horizontal split-case

_____ 69. Which fire pump includes advantages such as ease of installation, simplified piping arrangement, and reduced pipe strain? (534)

A. End suction
B. Vertical turbine
C. Vertical split-case
D. Horizontal split-case

_____ 70. Which of the following is the most common method for driving a fire pump? (535)

A. Electric motor
B. Diesel engine
C. Steam turbine
D. Liquefied petroleum

_____ 71. Which of the following drivers is MOST likely to be used where a driver independent of the local electrical power supply is needed? (536)

A. Electric motor
B. Diesel engine
C. Steam turbine
D. Liquefied petroleum

_____ 72. Which of the following drivers provides steam pressure to drive both horizontal and vertical split-case pumps directly? (536)

A. Electric motor
B. Diesel engine
C. Steam turbine
D. Liquefied petroleum

_____ 73. Which of the following allows a stationary fire pump to start automatically whenever the fire suppression system it supplies operates, and to stop automatically? (536)

A. Lock switch
B. Pump differential
C. Fire pump gauge
D. Fire pump controller

_____ 74. When the pump driver is an electric motor, the pressure at which the pressure switch is set to start the fire pump must be: (537)

A. a constant that never changes.
B. lower than the pressure in the system.
C. higher than the pressure in the system.
D. the same as the pressure in the system.

_____ 75. Which controller monitors and contains alarms for conditions such as low engine oil pressure and high engine coolant temperature? (537)

A. Diesel engine controller
B. Electric motor controller
C. Steam turbine controller
D. Liquefied petroleum controller