Chapter 18 Test

Name: _____ **Date:** _____

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

_____ 1. Which extinguishment method involves foam creating a barrier between the fuel gases and any possible ignition sources? (871) *[5.3.1]*

A. Cooling
B. Separating
C. Smothering
D. Penetrating

_____ 2. Class B foams are especially effective on: (872) *[5.3.1]*

A. surfactants.
B. hydrocarbon fuels.
C. ordinary combustibles.
D. energized electrical equipment.

_____ 3. In order to create high-quality foam: (872) *[5.3.1]*

A. a fog nozzle must be used.
B. a foam nozzle must be used.
C. foam concentrate, water, and air must be mixed in the correct ratio.
D. foam solution and water must be premixed and allowed to rest before application.

_____ 4. High-quality foam bubbles are created through the process of: (872) *[5.3.1]*

A. aeration.
B. expansion.
C. separation.
D. saponification.

_____ 5. The amount that fire fighting foam expands depends on the type of foam concentrate used and: (873) *[5.3.1]*

A. the number of personnel working with the proportioner.
B. whether the water is from a static or pressurized source.
C. whether potable or nonpotable water is used in the solution.
D. accurate proportioning of the foam concentrate in the solution.

_____ 6. Class A foam acts as a surfactant, which means that it: (874) *[5.3.1]*

A. requires a special type of nozzle for application.
B. requires a special type of aeration tool to be formed.
C. lowers the surface tension of water, allowing better penetration into the fuel.
D. raises the surface tension of water, creating a more effective extinguishing agent.

_____ 7. Which is true of polar solvent fuels? (874) *[5.3.1]*

A. They are flammable liquids that mix readily with water.
B. Gasoline is the most common example of a polar solvent.
C. Fires involving polar solvents can be extinguished using Class B foams designed for hydrocarbon fires.
D. Fires involving polar solvents can be extinguished using Class A foams designed for ordinary combustible fires.

_____ 8. The rate of application for Class B foam depends on: (874) *[5.3.1]*

A. the location of the fuel spill.
B. whether or not the fuel is a surfactant.
C. the type of water used to proportion the foam.
D. whether the fuel is spilled or contained in a tank.

_____ 9. What is necessary when applying fire fighting foam? (874) *[5.3.1]*

A. A vapor protective suit and SCBA
B. A hazardous materials team standing by
C. Continued, uninterrupted application until extinguishment
D. Intermittent application breaks to allow the foam to settle

_____ 10. Which hazard is associated with fire fighting foam concentrate? *[5.3.1]* (875)

A. Frostbite if foam contacts unprotected skin
B. Nausea and fever if foam contacts the skin
C. Widespread negative environmental effects
D. Degradation of PPE if left on the garments for a long period of time

_____ 11. Because of environmental concerns about fire fighting foam, firefighters should: (876) *[5.3.1]*

A. use foam only as the last option for extinguishment.
B. try to prevent the foam from entering bodies of water.
C. not use foam near bodies of water or public water sources.
D. have a hazardous materials team on standby when using the foam.

_____ 12. Mixing water with foam concentrate to form a foam solution is referred to as: (876) *[5.3.1]*

A. aerating.
B. surfacting.
C. saponifying.
D. proportioning.

_____ 13. Most fire fighting foams are intended to be mixed with: (876) *[5.3.1]*

A. 30 to 60 percent water.
B. 50 to 75.9 percent water.
C. 80 to 90 percent water.
D. 94 to 99.9 percent water.

_____ 14. Which factor is important when selecting the appropriate foam proportioner to use? (876) *[5.3.1]*

A. Weather conditions
B. Terrain in the fire area
C. Available water pressure
D. Stage of fire development

_____ 15. Which method of foam proportioning involves using an external pump to force foam concentrate into the fire stream? (877) *[5.3.1]*

A. Eduction
B. Injection
C. Premixing
D. Batch mixing

_____ 16. The premixing method of foam proportioning is typically used with: (878) *[5.3.1]*

A. in-line eductors.
B. vehicle-mounted tank systems.
C. fog nozzles attached to a large hoseline.
D. a fixed fire protection system in a structure.

_____ 17. Which type of foam proportioner is directly attached to the pump panel outlet or connected at some point in the hose lay? (878) *[5.3.1]*

A. In-line eductor
B. Foam nozzle eductor
C. Apparatus-mounted proportioner
D. Compressed air foam system (CAFS)

_____ 18. Which type of foam proportioner can compromise firefighter safety by slowing firefighters down since it requires the concentrate to be available where the nozzle is being operated? (878-879) *[5.3.1]*

A. In-line eductor
B. Foam nozzle eductor
C. Apparatus-mounted proportioner
D. Compressed air foam system (CAFS)

_____ 19. A(an) _____ is mounted on an apparatus and uses a centrifugal pump to supply the water for the foam solution and an onboard air compressor to add air to the mixture before discharge. (879) *[5.3.1]*

A. in-line eductor
B. around-the-pump proportioner
C. balanced-pressure proportioner
D. compressed air foam system (CAFS)

_____ 20. Fog nozzles can be used with foam solution to produce: (880) *[5.3.1]*

A. low-expansion, long-lasting foam.
B. low-expansion, short-lasting foam.
C. high-expansion, long-lasting foam.
D. high-expansion, short-lasting foam.

_____ 21. An advantage of _____ is that they are widely available on most fire apparatus. (880) *[5.3.1]*

A. fog nozzles
B. foam nozzles
C. apparatus-mounted proportioners
D. compressed air foam systems (CAFS)

_____ 22. What is a disadvantage of using fog nozzles to apply fire fighting foam? (880) *[5.3.1]*

A. They are not as versatile as foam nozzles.
B. They provide a limited reach compared to other nozzles.
C. Operator error is more likely to produce lower quality foam.
D. They are specialty nozzles that are not widely available on most apparatus.

_____ 23. Which is a characteristic of foam nozzles? (881) *[5.3.1]*

A. Lower quality foam than fog nozzles
B. Longer stream reach than fog nozzles
C. More versatile overall than fog nozzles
D. Shorter stream reach than fog nozzles

_____ 24. What is an advantage of using a foam nozzle to apply fire fighting foam? (881) *[5.3.1]*

A. More versatile than a fog nozzle
B. Longer reach than other nozzles
C. More widely available than a fog nozzle
D. Produces higher quality foam than a fog nozzle

_____ 25. If the foam being produced is poor quality, the firefighter should: (881) *[5.3.1]*

A. use a longer hose lay to provide less friction loss.
B. close the nozzle slightly to reduce the amount of water flow.
C. check to make sure there are no air leaks in the proportioning device.

D. move the nozzle farther above the eductor to reduce elevation pressure.

_____ 26. What is likely to cause poor quality fire fighting foam to be produced? (882) *[5.3.1]*

A. Nozzle is fully opened
B. Nozzle is too far below the eductor
C. Hose lay on the eductor side is not long enough
D. Mixing different types of foam concentrates in the same tank

_____ 27. Which method of foam application is only suitable for use on a pool of liquid fuel on open ground? (882) *[5.3.1]*

A. Roll-on method
B. Rain-down method
C. Bank-down method
D. Spread-over method

_____ 28. Which method of foam application would be well suited for a flammable liquid spill near the exterior wall of a building? (882) *[5.3.1]*

A. Roll-on method
B. Rain-down method
C. Bank-down method
D. Spread-over method

_____ 29. If a large pool of flammable liquid is burning in an open area, the _____ method of foam application may be the most effective method to use. (883) *[5.3.1]*

A. roll-on
B. rain-down
C. bank-down
D. spread-across

_____ 30. What should firefighters do if the fire begins to spread uncontrollably when they are applying foam? (883) *[5.3.1]*

A. Apply a greater quantity of foam
B. Switch to a different extinguishing agent
C. Retreat to a safe location while using handlines for protection
D. Move to a different location around the fire while using portable fire extinguisher for protection

_____ 31. Which type of substances have a flash point less than 100°F (38°C)? (883) *[5.3.1]*

A. Surfactants
B. Flammable liquids
C. Combustible gases
D. Combustible liquids

_____ 32. Which statement accurately describes pressurized vessels? (884) *[5.3.3]*

A. They are color-coded so responders can easily identify the contents.
B. They should be marked with placards or stickers identifying the contents.
C. They must have relief hatches or manholes for easy access to the contents.
D. They will look the same as vessels used to transport or contain flammable solids.

_____ 33. Propane is odorless and flammable, so at a response to a reported leak, firefighters should: (884) *[5.3.3]*

A. repair the propane leak.
B. notify the propane company.
C. isolate the pressure vessel systems.
D. test the stability of the leaking vessel.

_____ 34. Any valve operation must be performed in coordination with: (885) *[5.3.3]*

A. ventilation efforts.
B. salvage and overhaul.
C. facility personnel supervision.
D. a hazardous materials team leader.

_____ 35. What happens when a BLEVE occurs? (886) *[5.3.3]*

A. Contaminated water supply
B. Failure of a post indicator valve
C. Fire involving combustible gases
D. Violent rupture of a pressurized container

_____ 36. Which is an appropriate safe action to take at an incident involving a BLEVE? (886) *[5.3.3]*

A. Apply fire fighting foam at a close range
B. Approach the vessel at the ends of the tank

C. Fight fire from the maximum distance possible
D. Attempt to open the vessel's pressure relief valve

_____ 37. Which action should be avoided during an incident involving a tanker carrying flammable fuels? (887) *[5.3.3]*

A. Using road flares
B. Using fire fighting foam
C. Applying water for victim protection
D. Allowing a lane of traffic to remain open

_____ 38. At a bulk transport incident, firefighters must: (887) *[5.3.3]*

A. identify the material involved.
B. retreat until a hazmat team arrives.
C. shut down all lanes of traffic around the incident.
D. continually apply water to the vessel to keep it cool.

_____ 39. What action should be taken if a pressurized vessel containing flammable gas is exposed to flames? (888) *[5.3.3]*

A. Apply a fog stream of water
B. Apply a solid stream of water
C. Apply foam using the roll-on method
D. Apply foam using the bank-down method

_____ 40. At an incident involving a gas distribution system, if the gas is burning: (889) *[5.3.3]*

A. the flame should not be extinguished.
B. firefighters should approach from downwind.
C. water should be applied to the leak until a hazmat response team arrives.
D. foam should be applied in copious amounts in order to reach extinguishment as quickly as possible.

_____ 41. In order to prevent reignition of a liquid fuel fire after foam has been applied, do NOT: (889) *[5.3.1]*

A. apply more foam than necessary for extinguishment.
B. apply a solid or straight stream of water to the foam blanket.
C. add any more foam after the surface has been covered once.
D. let the foam sit for more than 5-10 minutes without replenishing it.

_____ 42. At an incident involving flammable liquids or gases, firefighters should immediately retreat to a safe location uphill and upwind of the incident: (889) *[5.3.3]*

A. once the haz mat team arrives.
B. if the sound of escaping gas starts to get louder.
C. once a foam blanket completely covers the burning material.
D. if they realize that the leak is coming from the distribution system.