1. Which of the following is the device that introduces foam concentrate into the water stream to make the foam solution?
   A. Foam
   B. Foam solution
   C. Foam concentrate
   D. Foam proportioner

2. Which of the following is the mixture of foam concentrate and water before the introduction of air?
   A. Foam
   B. Foam solution
   C. Foam concentrate
   D. Foam proportioner

3. The term “aerate” means to:
   A. Mix with air
   B. Mix with water
   C. Makes with foam solution
   D. Mix with foam concentrate

4. Which of the following is NOT needed to produce quality fire fighting foam?
   A. Air
   B. Water
   C. Vacuum pumps
   D. Mechanical aeration

5. Which of the following is NOT a way in which foam extinguishes and/or prevents fire?
   A. Cooling
   B. Blanketing
   C. Separating
   D. Suppressing

6. Which foams are not proportioned as other foams?
   A. Class A foams
   B. Class B foams
   C. Class D foams
   D. Class K foams
7. Which method of proportioning uses the pressure energy in the stream of water to draft foam concentrate into the fire stream?
   A. Induction
   B. Injection
   C. Pre mixing
   D. Batch mixing

8. Which method of proportioning uses an external pump or head pressure to force foam concentrate into the fire stream at the correct ratio in comparison to the flow?
   A. Induction
   B. Injection
   C. Pre mixing
   D. Batch mixing

9. Which of the following foams storage methods are found on municipal and industrial pumpers, foam tenders, and ARFF apparatus?
   A. Pails
   B. Totes
   C. Barrels
   D. Apparatus tanks

10. Which of the following foams storage methods are most common and industrial applications?
    A. Pails
    B. Totes
    C. Barrels
    D. Apparatus tanks

11. Which of the following foams storage methods are the most common containers used by the municipal fire service?
    A. Pails
    B. Totes
    C. Barrels
    D. Apparatus tanks

12. Which of the following would NOT be a typical use for class A foam?
    A. Structure fire
    B. Coal mine fire
    C. Flammable liquid fire
    D. Tire Storage fire
13. Class A foams should be proportioned at _______ for fire attack and overhaul with standard fog nozzles.
   A. 0.2% to 0.5% foam concentrate
   B. 0.3% to 0.7% foam concentrate
   C. 0.5% to 1.0% foam concentrate
   D. 0.7% to 1.5% foam concentrate

14. Class A foams should be proportioned at _______ for any application with air aspirating foam nozzles.
   A. 0.2% to 0.5% foam concentrate
   B. 0.3% to 0.7% foam concentrate
   C. 0.5% to 1.0% foam concentrate
   D. 0.7% to 1.5% foam concentrate

15. Areas requiring a balance of penetration and clinging ability require:
   A. Wet class A foam
   B. Dry class A foam
   C. Medium class A foam
   D. Maximum class A foam

16. Which of the following would be a typical use for class B foam?
   A. Structure fire
   B. Coal mine fire
   C. Wildland fire
   D. Combustible liquid fire

17. Which of the following are consider safer for the environment?
   A. All class A foams
   B. All class B foams
   C. Protein based class B foams
   D. Synthetic based class B foams

18. Which of the following is NOT a factor when determining the rate of application for fire fighting foam?
   A. Type of fuel involved
   B. Type of foam concentrate used
   C. Quality of the foam concentrate
   D. Whether or not the fuel is on fire
19. In order to determine the application rate of foam available from a nozzle:
   A. Add the nozzle flow rate to the area of the fire
   B. Subtract the nozzle flow rate from the area of fire
   C. Multiply the nozzle flow rate by the area of the fire
   D. Divide the nozzle flow rate by the area of the fire

20. Which of the following is based on fluoroprotein foam technology with ARFF capabilities?
   A. Fluoroprotein foam
   B. High expansion foam
   C. Aqueous film forming foam
   D. Film forming fluoroprotein foam

21. Which of the following has a low water content, which minimizes water damage?
   A. Fluoroprotein foam
   B. High expansion foam
   C. Aqueous film forming foam
   D. Film forming fluoroprotein foam

22. Which of the following is derived from protein foam concentrates to which fluorochemical surfactants are added?
   A. Fluoroprotein foam
   B. Regular protein foam
   C. High expansion foam
   D. Film forming fluoroprotein foam

23. Which of the following is completely synthetic?
   A. Fluoroprotein foam
   B. Regular protein foam
   C. High expansion foam
   D. Aqueous film forming foam

24. Low energy foam systems in part pressure on the foam solution solely by the use of:
   A. A fire pump
   B. A fog nozzle
   C. Compressed-air
   D. A solid-stream nozzle
25. Which of the following are used where flows in excess of 350 gpm are required?
   A. Jet ratio controllers
   B. Inline foam educators
   C. Foam nozzle educators
   D. Self–educating master stream foam nozzles

26. Which of the following operate on the same principle as the inline educator, but the educator is built into the nozzle rather than into the hoseline?
   A. Jet ratio controllers
   B. Inline foam educators
   C. Foam nozzle educators
   D. Self–educating master stream foam nozzles

27. Which of the following are a type of inline eductor that allow of the foam concentrate supply to be as far away as 3000 feet from the self-educator master stream foam nozzle?
   A. Jet ratio controllers
   B. Inline foam educators
   C. Foam nozzle educators
   D. Self–educating master stream foam nozzles

28. Which of the following are designed to be either directly attached to the pump panel discharge or connected at some point in the hose lay?
   A. Jet ratio controllers
   B. Inline foam educators
   C. Foam nozzle educators
   D. Self–educating master stream foam nozzles

29. Which of the following is the simplest means of proportioning foam?
   A. Batch mixing
   B. Around the pump proportioners
   C. Bypass type balanced pressure proportioners
   D. Variable flow variable rate direct injection systems

30. Which of the following are controlled by monitoring the water flow and controlling the speed of a positive displacement foam concentrate pump?
   A. Batch mixing
   B. Installed in line eductor systems
   C. Bypassed type balanced pressure proportioners
   D. Variable flow variable rate direct injection systems
31. Which of the following consists of a small return (bypass) water line connected from the discharge side of the pump back to the intake side of the pump?
   A. Batch mixing
   B. Around-the-pump proportioners
   C. Bypass-type balanced pressure proportioners
   D. Variable-flow variable-rate direct injection systems

32. Which of the following are most commonly used in large scale mobile apparatus applications such as Airport crash vehicles and refinery fire fighting apparatus?
   A. Around the pump proportioners
   B. Bypassed type balanced pressure proportioners
   C. Variable flow variable rate direct injection systems
   D. Variable flow demand type balanced pressure proportioners

33. Which of the following use the same principles of operation as do portable inline eductors, but are attached to the apparatus pumping system?
   A. Batch mixing
   B. Installed in line eductor systems
   C. Variable flow variable rate direct injection systems
   D. Variable flow demand type balanced pressure proportioners

34. Which of the following have a variable speed mechanism that drives a foam concentrate pump?
   A. Batch mixing
   B. Installed in line eductor systems
   C. Variable flow variable rate direct injection systems
   D. Variable flow demand type balanced pressure proportioners

35. Installed in line eductor systems are most commonly used to proportion:
   A. Class A foams
   B. Class B foams
   C. Both class A and class B foams
   D. Class A, class B, and class D foams

36. A limitation of the bypassed type balanced pressure proportioning is:
   A. The orifice of the foam concentrate line is adjustable
   B. Its need for a foam pump with PTO or other power source
   C. Water still circulates through the eductor when lines are shut down
   D. Pressure drops across the discharge are higher than those on standard pumpers
37. High energy foam systems differ from low energy foam systems in that they:
   A. Introduce water into the foam solution after discharge into the hoseline
   B. Introduce water into the foam solution prior to discharge into the hoseline
   C. Introduce compressed-air into the foam solution after discharge into the hoseline and
   D. Introduce compressed air into the foam solution prior to discharge into the hoseline

38. Which of the following is an advantage of CAFS?
   A. A CAFS produces large air bubbles
   B. A CAFS does not an expense to a vehicle
   C. A CAFS provides a safer fire suppression action
   D. A CAFS does not require additional training for personnel

39. Which of the following is a limitation of CAFS?
   A. Hose reaction can be erratic with a CAFS
   B. A CAFS produce foam resists heat last time than low energy foam
   C. The reach of the fire stream is considerably shorter then streams from low Energy Systems
   D. High energy foam hoselines weigh more than hoselines containing low energy foam solution

40. Which of the following is “any nozzle that one to three firefighters can safely handle and that flows less than 350 gpm”?
   A. Handline nozzle
   B. Smooth bore nozzle
   C. Master stream foam nozzle
   D. Hi expansion foam generator

41. Which portable foam application devices are limited to class A, CAFS applications?
   A. Fog nozzles
   B. Smooth bore nozzles
   C. Air aspirating foam nozzles
   D. Master stream foam nozzles

42. Which portable foam application devices break the foam solution into tiny droplets and use the agitation of water droplets moving through air to achieve the foaming action?
   A. Fog nozzles
   B. Air aspirating foam nozzles
   C. Master stream foam nozzles
   D. Medium and high expansion foam generating devices
43. Which portable foam application devices induct air into the foam solution by a venturi action?
   A. Fog nozzles
   B. Handline nozzles
   C. Master stream foam nozzles
   D. Air aspirating foam nozzles

44. Which portable foam application devices are required to deliver adequate amounts of foam on large-scale flammable and combustible liquids fires?
   A. Fog nozzles
   B. Smooth bore nozzles
   C. Air aspirating foam nozzles
   D. Master stream foam nozzles

45. The water aspirating type of medium and high expansion foam generators are very similar to other foam producing nozzles except that they are:
   A. Much shorter
   B. Much smaller
   C. Much larger and longer
   D. Much smaller, but longer

46. Which foam application technique may be employed when a vertical service is near or within the area of a pool of ignitable liquids?
   A. Roll on method
   B. Bank down method
   C. Rain down method
   D. Direct application method

47. Which foam application technique directs the foam stream on the ground near the front edge of a burning liquid pool or spill?
   A. Roll on method
   B. Bank down method
   C. Rain down method
   D. Direct application method

48. Durable agents retained their fire retarding properties:
   A. A shorter time than class A foam
   B. A longer time than class A foam
   C. A shorter time than class D foam
   D. A longer time than class D foam
49. Durable agents are used in the same way as ________, but are chemically and structurally quite different.

   A. Class A foams
   B. Class B foams
   C. Both class A and class B foams
   D. Class K foams

50. Durable agents are normally applied at a ratio of ________ for fire extinguishment.

   A. 1%
   B. 1.5% to 2%
   C. 2% or 3%
   D. 5% to 7%

Answers

2. B (451)   27. A (466)  
5. B (452)   30. D (469-470)  
6. A (453)   31. B (467)  
7. A (453)   32. B (468)  
8. B (454)   33. B (466)  
9. D (456)   34. D (470)  
10. C (455-456)   35. B (467)  
11. A (455)   36. B (469)  
12. C (457)   37. D (471)  
13. A (457)   38. C (472)  
15. C (458)   40. A (473)  
16. D (458)   41. B (473)  
17. C (459)   42. A (474)  
18. C (460)   43. D (474)  
19. D (460)   44. D (474)  
20. D (462)   45. C (475)  
21. B (462)   46. B (478)  
22. A (461)   47. A (477)  
23. D (462)   48. B (480)  
25. D (465)   50. A (480)