

Chapter 11 Test

Name: _____ Date: _____

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

- _____ 1. Tactical ventilation is performed during fire attack to: (493) [4.3.11, 4.3.12]
- A. help control the fire.
 - B. limit the need for LDH hose streams.
 - C. minimize personnel needed on scene.
 - D. quickly extinguish a fully developed fire.
- _____ 2. Why is ventilation used during overhaul and loss control? (493) [4.3.11, 4.3.12]
- A. To help control the fire
 - B. Eliminate the need for respiratory protection
 - C. Remove soot and odors from valuable contents
 - D. Evacuate smoke from structures after a fire has been extinguished
- _____ 3. When performing tactical ventilation, what action has the most impact on successful ventilation? (494) [4.3.11, 4.3.12]
- A. Exposure protection
 - B. Removing fuel sources
 - C. Activating sprinkler systems
 - D. Controlling oxygen availability
- _____ 4. Which action may improve visibility inside structures so that interior crews can work more effectively? (494) [4.3.11, 4.3.12]
- A. Exposure protection
 - B. Controlling exhaust openings
 - C. Cooling the exterior of the building
 - D. Increasing the number of personnel

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- _____ 5. As a fire within a compartment consumes oxygen, the amount of unburned fuel in combustion products: (494) [4.3.11]
- A. increases.
 - B. decreases.
 - C. stays the same.
 - D. may either increase or decrease.
- _____ 6. Why should ventilation be immediately followed with exterior or interior fire attack to cool gases and surfaces in the fire room? (494) [4.3.11, 4.3.12]
- A. Fire will enter ventilation-limited decay when water is applied.
 - B. The ventilation crew is already in position to perform fire attack.
 - C. Ventilation will cause the fire to go into decay, making it easy to extinguish.
 - D. The greater the time between ventilation and application of water, the greater the fire's growth.
- _____ 7. What disrupts the ventilation strategy and causes the fire to grow? (494) [4.3.11]
- A. Activating sprinkler systems
 - B. Breaking windows unnecessarily
 - C. Changing to a transitional attack
 - D. Removing items from the structure
- _____ 8. Before interior attack, what action will reduce oxygen available to the fire? (495) [4.3.11]
- A. Closing exterior doors and windows
 - B. Opening exterior doors and windows
 - C. Directing hose streams to the interior of the structure
 - D. Directing hose streams on the exterior of the structure
- _____ 9. What occurs when fresh air (oxygen) from ventilation is introduced into a room, causing gases to reignite and rapid fire development to occur? (495) [4.3.11, 4.3.12]
- A. Burst
 - B. Decay
 - C. Flashover
 - D. Vaporization

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- _____ 10. The primary mode of heat transfer from one compartment to another in a structure fire is: (497) [4.3.11, 4.3.12]
- A. radiation.
 - B. convection.
 - C. conduction.
 - D. direct burning.
- _____ 11. Water application to a fire compartment begins to transition the fire from: (498) [4.3.11, 4.3.12]
- A. growth stage back to the incipient stage.
 - B. fuel-limited to ventilation-limited conditions.
 - C. ventilation-limited to fuel-limited conditions.
 - D. the growth stage to the fully-developed stage.
- _____ 12. When coordinating ventilation with search and rescue, ventilation should be delayed until: (499) [4.3.11, 4.3.12]
- A. the fire is fuel-limited.
 - B. the fire is ventilation-limited.
 - C. lines are charged and crews are ready.
 - D. search and rescue has been conducted.
- _____ 13. Which is a reason for ventilation during overhaul? (499) [4.3.11, 4.3.12]
- A. Help preserve evidence
 - B. Prevent flashover or reignition
 - C. Minimize the number of personnel needed for overhaul
 - D. Minimize property damage to the greatest extent possible
- _____ 14. Which is a condition specific to tactical ventilation that should be communicated to crew members and/or a supervisor? (500) [4.3.11, 4.3.12]
- A. Locations of overhead power lines
 - B. Locations of building power supply
 - C. Locations of alternate water supply
 - D. Locations of nearby apparatus parking

- _____ 15. Tactical ventilation roof crew members should have a minimum of: (500) [4.3.12]
- A. one escape location.
 - B. two escape locations.
 - C. three escape locations.
 - D. four escape locations.
- _____ 16. Which is an assumption firefighters should make about any structure fire to guide their decisions when ventilating? (500) [4.3.11, 4.3.12]
- A. Fire is fuel-limited
 - B. Fire will stay in the growth stage
 - C. Structure consists of Type II construction
 - D. Structure consists of lightweight construction
- _____ 17. When wind speeds are 10 mph (15 kph) or faster, firefighters are safest working: (501) [4.3.11, 4.3.12]
- A. while facing the wind.
 - B. entirely inside the structure.
 - C. with the wind at their backs.
 - D. near the center of the structure.
- _____ 18. When ventilation does not release heat and smoke directly above the fire,; (501) [4.3.12]
- A. the fire has stopped increasing in growth.
 - B. the type of fire attack should be changed.
 - C. some routing of smoke becomes necessary.
 - D. ventilation activities should not be used any longer.
- _____ 19. Nearby structures and vegetation can be ignited if _____ carries hot fire brands or embers aloft. (502) [4.3.11, 4.3.12]
- A. diffusion
 - B. radiation
 - C. convection
 - D. conduction
- _____ 20. The Fire Fighter I has the responsibility to: (502) [4.3.11, 4.3.12]
- A. assign ventilation tasks.
 - B. determine vertical ventilation locations.
 - C. determine horizontal ventilation locations.
 - D. communicate observations about performing ventilation.

- _____ 21. Which structural element may contribute to roof failure during a fire? (502) [4.3.12]
- A. Metal roofing materials
 - B. Collar or rafter roof ties
 - C. Lightweight roof trusses
 - D. Attic space beneath the roof
- _____ 22. Which is an indication of possible roof collapse? (503) [4.3.12]
- A. Smoke from upper windows
 - B. Popping or crackling sounds
 - C. HVAC units sagging or leaning
 - D. Fire appearing to travel downward
- _____ 23. What can be used to monitor the impact of ventilation and identify possible ventilation locations? (504) [4.3.11, 4.3.12]
- A. Flexible ducts
 - B. Thermal imagers
 - C. Oxygen monitors
 - D. Smoke control devices
- _____ 24. What ventilation tool would be used to break windows or chop holes through roof decking? (504) [4.3.11, 4.3.12]
- A. Axes
 - B. Pike poles
 - C. Chain saws
 - D. Power saws
- _____ 25. Which air movement equipment is used for hydraulic ventilation? (505) [4.3.11, 4.3.12]
- A. Flexible ducts
 - B. Hoselines and nozzles
 - C. Air movement devices
 - D. Stacking and hanging devices
- _____ 26. Which air movement equipment is used to position smoke ejectors and fans in doors and windows? (505) [4.3.11, 4.3.12]
- A. Flexible ducts
 - B. Hoselines and nozzles
 - C. Air movement devices
 - D. Stacking and hanging devices

- _____ 27. Ventilation equipment that fails inspection should be: (505) [4.5.1]
- A. used with caution.
 - B. marked out of service.
 - C. replaced as soon as possible.
 - D. used for training purposes only.
- _____ 28. Which would be an example of natural horizontal ventilation? (506) [4.3.11]
- A. Using water streams
 - B. Using fans or ejectors
 - C. Opening doors or windows
 - D. Cutting a hole in an exterior wall
- _____ 29. Which would be an example of mechanical ventilation? (506) [4.3.11, 4.3.12]
- A. Using water streams
 - B. Using fans or ejectors
 - C. Opening doors or windows
 - D. Allowing smoke to exit without intervention
- _____ 30. Which type of ventilation requires no additional personnel or equipment to set up and maintain? (506) [4.3.11]
- A. Hydraulic ventilation
 - B. Secondary ventilation
 - C. Mechanical ventilation
 - D. Natural horizontal ventilation
- _____ 31. When performing wind assisted natural horizontal ventilation, windows and doors: (506) [4.3.11]
- A. nearest the seat of the fire should be opened first.
 - B. on the upwind side of the structure should be opened first.
 - C. on all sides of the structure should be opened simultaneously.
 - D. on the downwind side of the structure should be opened first.
- _____ 32. When using natural ventilation, the amount of time firefighters have to use the improved conditions: (507) [4.3.11, 4.3.12]
- A. is unlimited.
 - B. may be less than a minute.
 - C. is generally five to ten minutes.
 - D. is generally three to five minutes.

- _____ 33. Negative pressure ventilation involves artificially lowering pressure inside the structure so that: (507) [4.3.11]
- A. fresh air from outside will not enter.
 - B. fresh air from outside moves in more quickly.
 - C. smoke and fuel gases will have limited movement.
 - D. smoke and fuel gases move toward lower-pressure openings more quickly.
- _____ 34. Positive pressure ventilation involves artificially raising pressure inside the structure so that: (507) [4.3.11, 4.3.12]
- A. fresh air circulates in the interior.
 - B. fresh air from outside moves in more quickly.
 - C. smoke and fuel gases will have limited movement.
 - D. smoke and fuel gases move toward lower-pressure openings more quickly.
- _____ 35. Mechanical ventilation is designed to: (508) [4.3.11, 4.3.12]
- A. replace natural ventilation.
 - B. reduce effects of natural ventilation.
 - C. counter effects of natural ventilation.
 - D. supplement effects of natural ventilation.
- _____ 36. Which type of ventilation is the most effective for clearing contaminated structures of smoke? (508) [4.3.11, 4.3.12]
- A. Hydraulic ventilation
 - B. Secondary ventilation
 - C. Mechanical ventilation
 - D. Natural horizontal ventilation
- _____ 37. Firefighters should continue to wear SCBA and monitor the environment until: (508) [4.3.11, 4.3.12]
- A. the incident is stabilized.
 - B. no smoke or gases are visible.
 - C. overhaul activities are initiated.
 - D. the atmosphere is confirmed to be safe.

- _____ 38. Negative-pressure ventilation requires that the opening around the fan: (509) [4.3.11]
- A. allow the fan to be easily moved if needed.
 - B. allow hose streams to fit through the opening.
 - C. be sealed to prevent outside air from being drawn in around the fan.
 - D. be at least six inches to allow outside air to be drawn in around the fan.
- _____ 39. Positive-pressure attack is only effective if the location of the fire is known and: (510) [4.3.11]
- A. there are no nearby exterior exposures.
 - B. water is being applied to the seat of the fire.
 - C. both horizontal and vertical ventilation are possible.
 - D. the appropriate exhaust-to-intake ratio (greater than 1 to 1) can be achieved.
- _____ 40. When performing a positive-pressure attack, the exhaust openings must be located: (510) [4.3.11]
- A. in the fire compartment.
 - B. on the main floor of the structure.
 - C. on the upwind side of the structure.
 - D. on the downwind side of the structure.
- _____ 41. What is the goal of positive-pressure ventilation? (511) [4.3.11, 4.3.12]
- A. Maintain the same interior and exterior pressure
 - B. Decrease pressure to lower than the exterior of the structure
 - C. Increase pressure to higher than the exterior of the structure, not higher than the fire can produce
 - D. Increase pressure to higher than the exterior of the structure and also higher than the fire can produce
- _____ 42. When performing positive-pressure ventilation,,: (512) [4.3.11, 4.3.12]
- A. firefighters must use horizontal ventilation.
 - B. exposures are at a much greater risk of fire spread.
 - C. firefighters must enter the smoke-filled environment to set up PPV blowers.
 - D. firefighters can set up PPV blowers without entering the smoke-filled environment.

- _____ 43. When performing positive-pressure ventilation in commercial and multistory buildings, a main problem in aboveground operations is coordinating the: (513) [4.3.11, 4.3.12]
- A. search and rescue efforts.
 - B. property conservation efforts.
 - C. operations with other ventilation types.
 - D. opening and closing of doors in stairwells used to ventilate the building.
- _____ 44. Which type of ventilation may be used in situations where other types of forced ventilation are unavailable? (513) [4.3.11]
- A. Primary ventilation
 - B. Hydraulic ventilation
 - C. Secondary ventilation
 - D. Mechanical ventilation
- _____ 45. When performing hydraulic ventilation, set the fog nozzle on a pattern: (513) [4.3.11]
- A. that varies between wide and narrow.
 - B. wide enough to cover the exhaust opening.
 - C. narrow enough to direct smoke and gases out the exhaust.
 - D. that directly wets an area around the firefighter on the nozzle.
- _____ 46. Which is a disadvantage of hydraulic ventilation? (513) [4.3.11]
- A. Requires specialized equipment
 - B. Can only be used on fires still in the incipient stage
 - C. Must be used in combination with another type of ventilation
 - D. Firefighters operating nozzle must remain in heated, hazardous atmosphere throughout operation
- _____ 47. Which would be an example of vertical ventilation? (514) [4.3.12]
- A. Opening interior doors and windows
 - B. Directing a hoseline out an upper story
 - C. Blowers in exterior doors and windows
 - D. Cutting a hole in the roof above the fire
- _____ 48. What is needed for vertical ventilation to be effective? (514) [4.3.12]
- A. Large exhaust-to-intake ratio
 - B. Multiple horizontal inlet openings
 - C. Horizontal inlet opening above fire level
 - D. Horizontal inlet opening at or below fire level

- _____ 49. Which is an increased risk of performing vertical ventilation? (514) [4.3.12]
- A. Hoselines are not in place
 - B. Remaining in the fire compartment
 - C. Working on peaked and flat roof surfaces
 - D. Personnel must stay on the roof after operations
- _____ 50. A safety precaution when performing vertical ventilation is to work: (515) [4.3.12]
- A. only near the center of the roof.
 - B. only near the corners of the roof.
 - C. facing the wind so you can better see any changes in fire behavior.
 - D. with the wind at your back or side to protect yourself from heat, smoke, and embers.
- _____ 51. When performing vertical ventilation, extend ground ladders at least _____ rungs above the edge of the roof or top of the parapet wall. [4.3.12] (515)
- A. two
 - B. three
 - C. four
 - D. five
- _____ 52. Roofs with several layers of composition shingles or other roof coverings: (517) [4.3.12]
- A. will not sound solid when any damage has occurred.
 - B. can use sounding as the only means to determine stability.
 - C. may sound solid even though fire may have severely damaged roof supports.
 - D. cannot be sounded and shingles must be removed to reveal underlying structure.
- _____ 53. Which is a responsibility of the roof ventilation team? (517) [4.3.12]
- A. Set up a rehabilitation area
 - B. Determine fire cause and origin
 - C. Direct hose streams for protection
 - D. Report changes they see to the supervisor

- _____ 54. The roof ventilation team leader is responsible for ensuring at least _____ means of egress from the roof. (517) [4.3.12]
- A. one
 - B. two
 - C. three
 - D. four
- _____ 55. Cutting an inspection hole helps determine: (518) [4.3.12]
- A. wind direction.
 - B. possible exposures.
 - C. potential for survivors.
 - D. the location of the fire.
- _____ 56. Which inspection hole is made by making a single cut in the roof surface using a rotary saw, chain saw, or axe? (518) [4.3.12]
- A. Box cut
 - B. Kerf cut
 - C. Angle cut
 - D. Triangle cut
- _____ 57. When ventilating flat roofs, the most common openings are: (518) [4.3.12]
- A. triangular.
 - B. straight lines.
 - C. circular or oval.
 - D. square or rectangular.
- _____ 58. When ventilating shingle-covered pitched roofs, always cut the exhaust openings: (519) [4.3.12]
- A. near the center of the roof.
 - B. as close to an egress point as possible.
 - C. at or very near the lowest point of the roof, when possible.
 - D. at or very near the highest point of the roof, when possible.
- _____ 59. When ventilating metal roofs, which type of roof can be sliced open with an axe, carbide tip chain saw, or rotary saw and peeled back? (519) [4.3.12]
- A. Thin metal roofs
 - B. Sheet metal roofs
 - C. Industrial metal roofs
 - D. Roofs built after 2000

- _____ 60. What is the purpose of a trench cut? (520) [4.3.12]
- A. Indicate conditions below the roof
 - B. Determine construction features of the roof
 - C. Create a defensible line ahead of the fire's spread
 - D. Make conditions on upper floors tenable for firefighters
- _____ 61. For what situation would an incident commander order a trench cut? (520) [4.3.12]
- A. Structural collapse is likely
 - B. Victims are trapped on upper floors
 - C. The main fire is too large to extinguish
 - D. The main fire is igniting nearby exposures
- _____ 62. Horizontal ventilation can be employed effectively in a basement if the basement: (523) [4.3.11]
- A. has interior stairs.
 - B. consists of a large open plan.
 - C. consists of one small compartment.
 - D. has ground level windows or below ground level windows in wells.
- _____ 63. What type of nozzles can be used before ventilation to reduce the risks associated with ventilating a windowless basement? (523) [4.3.12]
- A. Fog nozzles
 - B. Piercing nozzles
 - C. Adjustable nozzles
 - D. Combination nozzles
- _____ 64. The feasibility of opening a floor during fire fighting depends on how it was constructed and: (523) [4.3.12]
- A. the value of the floor.
 - B. surrounding furniture.
 - C. how easily it can be replaced.
 - D. from what material it was constructed.
- _____ 65. Fires in windowless buildings usually require _____ ventilation for removal of smoke. (523) [4.3.12, 4.3.11]
- A. natural
 - B. hydraulic
 - C. mechanical
 - D. combination

- _____ 66. What has an even higher priority in high-rise buildings because they often have more occupants than other structures? (525) [4.3.11, 4.3.12]
- A. Life safety
 - B. Property conservation
 - C. Incident stabilization
 - D. Environmental concerns
- _____ 67. For what type of fires can fire, smoke, and toxic gases spread rapidly through pipe chases, stairways, elevator shafts, and unprotected ducts? (525) [4.3.12]
- A. Basement fires
 - B. High-rise fires
 - C. Warehouse fires
 - D. Fires in windowless buildings
- _____ 68. The _____ effect occurs when heated smoke and fire gases travel upward and then spread horizontally and stratify. (525) [4.3.12]
- A. rise
 - B. stack
 - C. smoke
 - D. compartment
- _____ 69. When an enclosed secondary stairwell is used for evacuating occupants, what should be located at the bottom floor to pressurize the stairwell and keep smoke from entering it? (526) [4.3.12]
- A. PPV fans
 - B. NPV fans
 - C. Door monitors
 - D. Both PPV fans and NPV fans