

# PRACTICE EXAM 10: FIREFIGHTER I & II SIMULATION (150 QUESTIONS)

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1. Your engine company arrives first at a single-story residential structure with smoke pushing from the eaves at moderate volume and velocity. The "B" side has a window venting brown smoke that occasionally pulses inward. The most urgent reading from these conditions is that the building is?

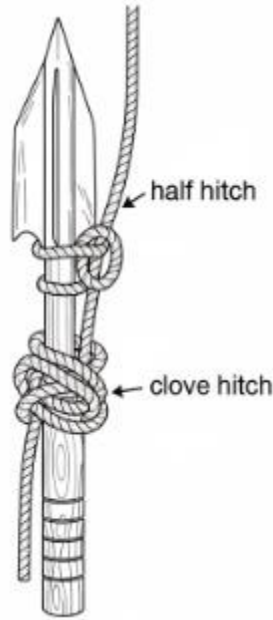
- A. In the incipient stage and will be quickly contained
- B. Fully ventilated and ready for direct interior attack
- C. Ventilation-limited with backdraft potential present
- D. In decay with little remaining fuel load to consume

2. A pump operator must deliver 150 gpm through 200 feet of 1¾-inch hose using the standard friction loss coefficient ( $c = 15.5$ ). The friction loss in the hoseline at this flow is approximately?

- A. 9 pounds per square inch over the full lay
- B. 25 pounds per square inch over the full lay
- C. 70 pounds per square inch over the full lay
- D. 140 pounds per square inch over the full lay

3. A firefighter is assigned to hoist a pike pole to a crew operating on the second floor. Which knot is properly used to secure the working end to the pike pole's head before the load is lifted?

**Figure PQ-1**



- A. Clove hitch with a half hitch above to capture the tool head
- B. Bowline tied around the handle below the metal head
- C. Figure eight on a bight clipped to the handle with a carabiner
- D. Becket bend tied between the tool and the haul line

4. A wood-frame two-story dwelling shows fire venting from a second-floor window with flames lapping the eaves. The most appropriate initial size-up of the structural risk to the cockloft and attic is?

- A. The fire is too small to threaten attic space directly
- B. The attic is protected by the second-floor ceiling assembly
- C. Autoexposure may carry fire into the eave and attic space
- D. The attic has been ventilated by the original window failure

5. A first-arriving engine company at a working basement fire discovers heavy smoke pushing from the basement window and the first-floor door. The basement stairway access is the only interior path. The safest initial attack approach is?

- A. Send a crew directly down the basement stairs with a 1¾-inch line

- B. Bypass the basement and attack the first floor first
- C. Apply water from the exterior basement opening before interior advance
- D. Wait for the next-due engine before any action is taken

6. During a routine inspection at a residential dwelling, you find that the sprinkler control valve is in the closed position. Under NFPA 25 the appropriate immediate action is?

- A. Document the finding and continue with the rest of the inspection
- B. Open the valve immediately and continue the inspection routinely
- C. Order the building manager to replace the entire valve assembly
- D. Notify the owner, document the finding, and require corrective action

7. You are operating a 2½-inch attack line with a 1⅝-inch smooth-bore tip at 50 psi nozzle pressure. The reaction force on the nozzle handler is approximately?

- A. About 50 pounds of reaction at the nozzle
- B. About 75 pounds of reaction at the nozzle
- C. About 150 pounds of reaction at the nozzle
- D. About 250 pounds of reaction at the nozzle

8. Your captain orders ventilation on a balloon-frame two-story residence with fire showing from the basement. The most concerning factor for vertical ventilation timing is that?

- A. Balloon framing provides excellent firestopping at every floor
- B. Fire can travel rapidly through wall cavities to the attic
- C. Modern truss roofs are common in this construction type
- D. Plaster walls completely prevent any vertical fire spread

9. A homeowner asks why their kitchen smoke alarm sounds during cooking but they want to keep it active. The most appropriate technical response is that?

- A. The alarm should be relocated directly above the stove top
- B. The alarm should be replaced with a heat-only device
- C. The alarm should be removed from the kitchen entirely
- D. A photoelectric or dual-sensor alarm reduces nuisance trips

10. You are assigned to operate the inlet side of a portable monitor flowing 500 gpm through 100 feet of 2½-inch supply hose. The friction loss in the supply ( $c = 2$ ) is approximately?

- A. About 50 pounds per square inch at the monitor inlet
- B. About 100 pounds per square inch at the monitor inlet
- C. About 150 pounds per square inch at the monitor inlet
- D. About 200 pounds per square inch at the monitor inlet

11. Your truck company is assigned forcible entry on a commercial occupancy with a steel roll-down security gate. The most efficient and least destructive technique is to?

- A. Cut the entire gate panel with a rotary saw and metal blade
- B. Force the side track using a Halligan and flat-head axe
- C. Pry the bottom rail upward with two Halligan bars
- D. Cut a triangular pass-through in the gate near a lock or latch

12. A firefighter conducts an initial 360-degree size-up on a single-story residential fire and notes that the rear of the structure is at grade but the front is elevated above a daylight basement. The tactical implication is that?

- A. The structure has only one occupied level for size-up purposes
- B. Standard 24-foot ladder coverage will reach all openings
- C. What appears as a single story from the street is actually two
- D. The rear entry will serve all upper floors of the structure

13. Your incident commander assigns your crew to the "Division 2" position. You should report to?

- A. The geographic area encompassing the second floor of the structure
- B. The functional ventilation assignment regardless of floor location
- C. The second-due engine company at its staging position
- D. The Section Chief responsible for the planning function

14. A pump operator is asked for the engine pressure (PDP) to deliver 150 gpm through 200 feet of 1¾-inch line with a fog nozzle. Using  $FL = c \times Q^2 \times L$  with  $c = 15.5$ , the approximate PDP is?

- A. About 50 pounds per square inch at the discharge
- B. About 170 pounds per square inch at the discharge
- C. About 250 pounds per square inch at the discharge
- D. About 350 pounds per square inch at the discharge

15. While operating on the interior of a working structure fire, you hear your low-air alarm activate. Under NFPA 1404 best practice, you should?

- A. Continue with your assignment until your task is finished
- B. Switch to your buddy's air supply through the EBSS
- C. Initiate immediate exit using the shortest known egress path
- D. Wait for the RIC team to escort you out of the structure

16. A captain assigns you to "soften the structure" before fire attack. This typically refers to?

- A. Closing all doors and windows to limit interior airflow
- B. Cooling the exterior with a wide fog pattern
- C. Coordinated forcible entry and ladder placement before entry
- D. Charging all interior hoselines before crews advance

17. Your engine is the first arriving at a dwelling with a porch and front door involved in fire. Heavy smoke shows from upstairs windows. The most appropriate initial action under SLICE-RS is?

- A. Force the front door and immediately advance to the second floor
- B. Stretch a 2½-inch line directly to the upstairs bedroom
- C. Begin overhaul of the porch fire before any interior attack
- D. Apply water from the exterior to cool the involved space

18. The most appropriate technique for advancing a charged 1¾-inch hoseline up an interior stairway is to?

- A. Drape the hose across the banister railing as you climb
- B. Pull excess hose to the top before charging the line
- C. Charge the hose at the top and pull bunches downward
- D. Flake out enough working line on the landing below the fire floor

19. A pre-incident plan for a commercial occupancy should identify which of the following as a critical access feature for fire department operations?

- A. The location of every employee parking space in the lot
- B. The brand name of the security alarm monitoring company
- C. The location of the fire department connection and key box
- D. The complete contents inventory of the storage shelving

20. A firefighter responding to a residential structure fire arrives to find an unattended infant pulled from the structure and lying motionless on the lawn. The infant is unresponsive with no breathing detected. The appropriate immediate priority is to?

- A. Continue to the building and assist with fire suppression
- B. Wait for EMS to arrive and assume care of the patient

- C. Move the infant inside the apparatus cab for warmth
- D. Initiate CPR using the proper compression-to-ventilation ratio

21. A two-firefighter team is conducting a search using a search rope as a tag line for orientation. The rope is anchored at?

- A. The entry point so the team can retrace the line to safety
- B. The seat of the fire to identify a path to the source
- C. The midpoint of the room being searched at that time
- D. The bedroom door of the most distant occupant

22. During a wildland-urban interface response, your captain identifies a "trigger point" on the access road approximately one mile downhill from your engine position. The most accurate description of the trigger point is?

- A. A pre-determined location at which a tactical action must occur
- B. The estimated arrival time of additional resources to the scene
- C. A landmark identifying the maximum extent of fire spread
- D. The point at which radio communications are first established

23. Your engine is dispatched to a reported odor of natural gas inside a single-family dwelling. The first priority on arrival, before any other action, is to?

- A. Enter the dwelling and locate the gas appliance involved
- B. Force open the front door for ventilation purposes
- C. Establish a hazard zone and evacuate occupants from the building
- D. Shut off the gas supply at the meter outside the dwelling

24. A standard four-section aerial ladder operating at its maximum extension above the apparatus has a rated load capacity that is?

- A. Independent of the angle of operation at full extension
- B. Higher when the ladder is operated in the unsupported direction
- C. Higher when operated above the cab end of the apparatus
- D. Reduced as extension increases and elevation decreases

25. A firefighter at a working structure fire reports being trapped in a basement after a partial collapse. The IC orders an immediate RIC deployment and a full PAR. The first information the IC requires for rescue planning is?

- A. The LUNAR self-report transmitted by the trapped firefighter
- B. The number of remaining hoselines available for protection
- C. The name of the manufacturer of the firefighter's SCBA
- D. The location of the apparatus serving the rear of the building

26. Your engine company is laying 600 feet of 5-inch supply line forward from a hydrant. The friction loss for 5-inch hose flowing 500 gpm using  $c = 0.08$  is approximately?

- A. About 1 pound per square inch over the entire lay
- B. About 5 pounds per square inch over the entire lay
- C. About 8 pounds per square inch over the entire lay
- D. About 12 pounds per square inch over the entire lay

27. Your captain orders you to take a position on the roof and "sound" before advancing. To sound the roof means to?

- A. Listen for occupants trapped in the attic space below
- B. Call out your position over the radio to command
- C. Tap the surface with a tool to detect structural integrity
- D. Activate your PASS device to confirm radio coverage

28. A medium-volume foam concentrate is being proportioned at 3 percent through an in-line eductor rated at 95 gpm. The amount of foam concentrate drawn from the pickup tube per minute at the rated flow is?

- A. Approximately 1 gallon of concentrate per minute
- B. Approximately 3 gallons of concentrate per minute
- C. Approximately 6 gallons of concentrate per minute
- D. Approximately 9 gallons of concentrate per minute

29. Your incident commander declares a strategic shift from offensive to defensive operations. The first action the company officers must take is to?

- A. Increase their attack flow to a higher pressure
- B. Continue interior operations until told to leave
- C. Maintain their position and report current air status
- D. Withdraw all interior crews from the structure

30. A pump operator notes that a discharge gauge shows 200 psi while the master discharge pressure is 150 psi. The most likely explanation is?

- A. The intake gauge is reading incorrectly
- B. The relief valve has failed in the closed position
- C. The transfer valve is in the wrong position
- D. The individual discharge gauge has a calibration error

31. A firefighter is unable to advance a charged 2½-inch hoseline alone up an unsupported stairway. The most effective single-firefighter technique is to?

- A. Pull the entire working length to the landing before opening the nozzle
- B. Use the stair-pack technique with hose flaked vertically against the wall

- C. Hold the nozzle open while pulling the line up behind the body
- D. Tie a half-hitch to the railing every five feet during the advance

32. A 75-foot aerial ladder is positioned with the turntable 30 feet from the wall and elevated to a 70-degree angle. The reach of the tip up the wall, as a quick approximation, can be estimated by?

- A. Multiplying the tip extension by the sine of the angle alone
- B. Multiplying the tip distance by 75 percent of full extension
- C. Subtracting the apparatus length from the total reach
- D. Using the formula: vertical reach  $\approx$  length  $\times$  sin(angle) + turntable height

33. The first-due engine at a fire in a strip-mall occupancy finds the front of all four units showing smoke from the roofline. The most useful tactical interpretation is that?

- A. Each unit has its own separate fire of independent origin
- B. The wind is driving smoke from one unit across the rooftop
- C. Fire is traveling through the common cockloft space above
- D. The roof drains are blocked and venting smoke from runoff

34. Your engine arrives at a vehicle accident with a delivery truck displaying a red placard with the number 3 in the lower corner and an additional UN number 1203. The product carried is?

- A. A flammable solid in transport packaging
- B. A non-flammable compressed gas under pressure
- C. A radioactive isotope contained in protective casing
- D. Gasoline, a Class 3 flammable liquid in transport

35. Your truck company is performing salvage operations on the floor below a fire. The most effective initial salvage action when water has begun to penetrate is to?

- A. Move all contents to the upper floors of the structure
- B. Open windows to allow water to flow outside
- C. Create a catchall using a salvage cover to contain water
- D. Pump water directly to a sanitary drain through hose

36. A firefighter is assigned to perform a kerf cut on a flat roof to assess attic conditions. The kerf cut is?

- A. A single chainsaw blade-width cut through the decking only
- B. A 4-by-4-foot square inspection opening cut completely through
- C. A long narrow cut spanning the entire width of the roof
- D. A triangular cut sized to admit a thermal imaging camera

37. A pump operator is supplying a standpipe in a 10-story building. The standpipe outlet pressure required at the top floor is 100 psi. Using 5 psi per floor for elevation and minimal hose friction, the required FDC supply pressure is approximately?

- A. About 100 pounds per square inch at the FDC
- B. About 125 pounds per square inch at the FDC
- C. About 150 pounds per square inch at the FDC
- D. About 200 pounds per square inch at the FDC

38. A captain orders ventilation coordinated with attack-line advance. The proper sequence is to?

- A. Cut the roof before the attack line is charged
- B. Open windows before any water is on the fire
- C. Coordinate the vent opening with hoseline advance into the space
- D. Conduct all ventilation before the attack crew enters the structure

39. A firefighter is taking water from a static water source using a draft. The maximum theoretical lift from a static source at sea level is limited by?

- A. The intake hose diameter and length combined
- B. Atmospheric pressure on the surface of the water source
- C. The available pump capacity at full throttle
- D. The temperature of the water in the source

40. A truck-mounted master stream delivering 1,000 gpm through a 1¾-inch smooth-bore tip operates at a nozzle pressure of?

- A. About 50 pounds per square inch at the tip
- B. About 60 pounds per square inch at the tip
- C. About 75 pounds per square inch at the tip
- D. About 80 pounds per square inch at the tip

41. Your engine arrives third-due at a working fire on a 30-foot wide residential street. The block has hydrants on the same side as the fire building, spaced approximately 500 feet apart. The most useful approach for the third-due engine is to?

- A. Provide a secondary supply line and a second attack line as needed
- B. Park directly in front of the fire building to support the first-due
- C. Bypass the scene and stage at the next intersection
- D. Take command of suppression operations from the first-due

42. The most common cause of fatal fire-ground accidents involving ground ladders is?

- A. Failure of the ladder's structural components under load
- B. Improper footing of the ladder allowing the butt to kick out
- C. Defective halyards releasing under sudden loading

D. Misjudging the climbing angle by more than five degrees

43. A vehicle extrication scenario involves a sedan on its passenger side against a tree, with the driver still belted in the seat. The most appropriate initial stabilization is to?

- A. Right the vehicle to its wheels for unobstructed access
- B. Crib and shore the vehicle in its current orientation
- C. Cut the seat belt to release the driver before stabilization
- D. Cut the A-pillars before any stabilization is complete

44. A firefighter must hoist a charged 1¾-inch hoseline to a second-floor window. The most efficient way to secure the hose to the hoisting rope is to?

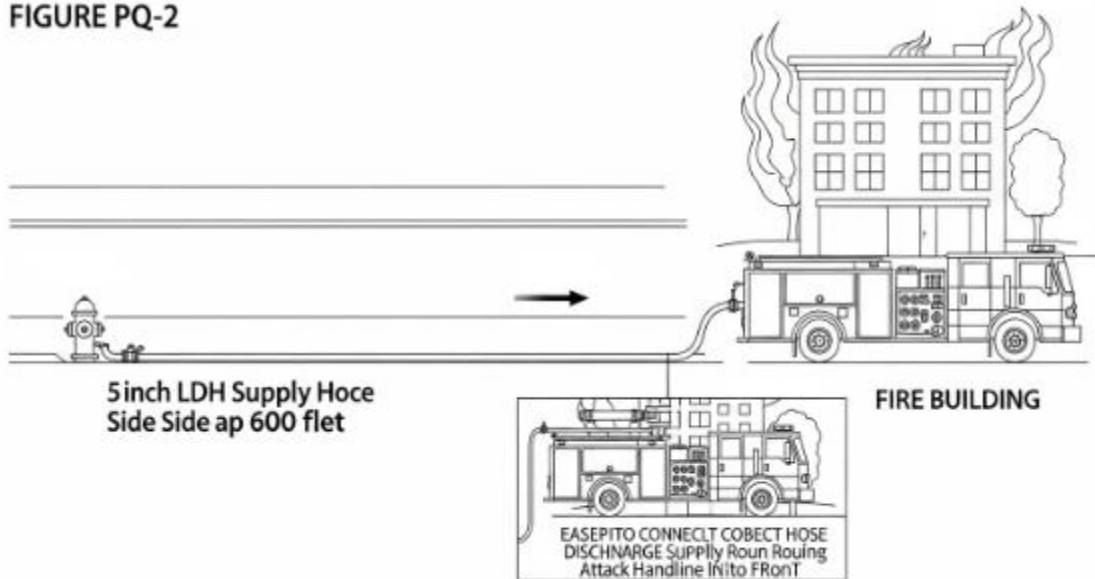
- A. Loop the rope twice around the hose at the nozzle end
- B. Tie a bowline around the nozzle and use it as the lifting point
- C. Pass the rope through the nozzle handle as a single hitch
- D. Use a clove hitch and half hitch on the hose behind the nozzle

45. A captain assigns you to perform a "soft" entry through a residential exterior door that is unlocked but warm to the touch. The proper technique is to?

- A. Open the door fully and immediately advance
- B. Force the door with the Halligan and irons
- C. Cut the door with a rotary saw before opening
- D. Crack the door slowly while controlling it for flow path management

46. The most appropriate hose lay diagram for a forward lay using LDH from a hydrant to a fire 600 feet away on the same side of the street is?

FIGURE PQ-2



- A. Hydrant on the opposite side from the fire with the apparatus crossing
- B. Apparatus at the hydrant and hose stretched from the apparatus forward
- C. Apparatus at the fire with hose laid back to the hydrant from the rear
- D. Apparatus passes the hydrant, drops supply line, and proceeds to the fire

47. Your captain refers to the building you are responding to as a "Type II" construction. The most accurate description of Type II is that?

- A. Wood-frame walls supporting heavy timber floors and roof
- B. Masonry walls with wood-joisted floors and combustible roof
- C. Non-combustible structural members without fire-resistive protection
- D. Fire-resistive concrete and protected steel throughout the structure

48. A firefighter operating on a fire-ground reports an "all clear" from the primary search. The reporting term means that?

- A. All exterior exposures have been protected from the fire
- B. All firefighters have been accounted for at the PAR check

- C. No occupants requiring rescue have been located in the assigned area
- D. The fire has been declared under control by the IC

49. A wood-frame Type V dwelling with a fully involved attic space typically requires the IC to consider?

- A. Sustained interior offensive operations with master streams
- B. Early collapse potential with possible defensive transition
- C. Routine offensive attack with a single 1¾-inch attack line
- D. Complete reliance on automatic sprinkler protection inside

50. A pump operator must determine the proper engine pressure for an attack handline of 200 feet of 1¾-inch hose with a smooth-bore tip at the standard nozzle pressure. Using 50 psi NP and FL = 25 psi, the EP is?

- A. About 50 pounds per square inch at the discharge
- B. About 60 pounds per square inch at the discharge
- C. About 75 pounds per square inch at the discharge
- D. About 100 pounds per square inch at the discharge

51. Your truck company is assigned ventilation on a residential structure with a peaked composition-shingle roof. The most efficient and safest cut, when fire is venting from a second-floor window directly below the cut location, is to?

- A. Make the cut directly above the fire room at the ridge line
- B. Make the cut on the unburned side of the structure at the ridge
- C. Make the cut at the lowest point of the eave to enter the attic
- D. Make a series of small inspection holes across the entire roof

52. A firefighter must transfer from an aerial ladder onto a roof. The aerial ladder tip should be positioned?

- A. With the top rung even with or slightly above the roof edge
- B. Three feet above the roof edge for additional clearance
- C. Below the roof edge so the tip rests against the fascia
- D. At least five feet above the roof edge for handhold use

53. The most appropriate hose stream pattern for cooling a propane storage tank exposed to direct flame impingement is?

- A. A solid stream directed at the flames impinging on the tank
- B. A fog pattern directed at the relief valve outlet only
- C. A wide-angle fog pattern applied to cool the entire vessel surface
- D. A foam blanket applied to the ground around the tank base

54. A firefighter discovers a victim collapsed in a confined space during a structural search. The proper action is to?

- A. Enter the confined space and begin CPR immediately
- B. Call the victim's name and wait for response before approaching
- C. Remove the victim to a safer location for treatment if conditions allow
- D. Report the location and wait for additional crews before any movement

55. The acronym used to remember the rescue sequence in vehicle extrication is L-A-S-T, which stands for?

- A. Locate, Access, Stabilize, Transport
- B. Look, Approach, Secure, Treat
- C. Listen, Assess, Suppress, Transport
- D. Lift, Assess, Stabilize, Triage

56. A working structure fire involves a multi-family dwelling with multiple occupants reporting smoke conditions on the upper floors. The first-arriving company should prioritize?

- A. Establishing a complete pre-incident plan before any action
- B. Drafting from the nearest static water source available
- C. Conducting a 360-degree survey before any other action
- D. Initial size-up, water supply, attack-line stretch, and primary search

57. A firefighter assigned to operate an automatic-only fog nozzle at 100 psi notes the nozzle is delivering a poor stream pattern despite proper pressure. The most likely cause is?

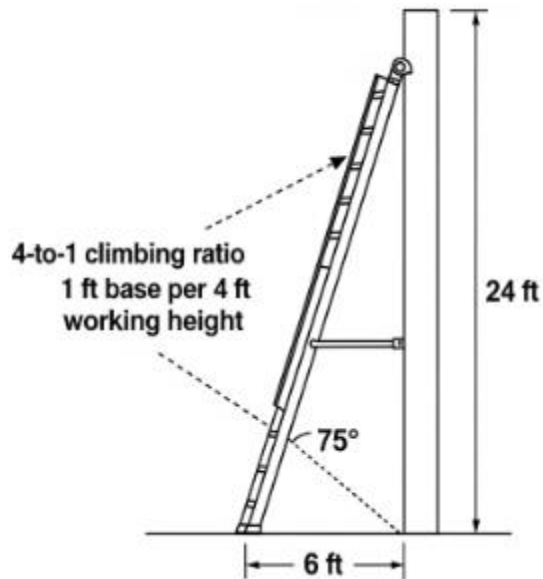
- A. The pump discharge pressure is set too high for the line
- B. Debris in the nozzle screen restricting the flow
- C. The hose has been used past its service life rating
- D. The friction loss coefficient is incorrect for the hose

58. A truck company is performing salvage operations during overhaul. The most appropriate technique for protecting electronic equipment that is still dry is to?

- A. Cover the equipment with a salvage cover from above
- B. Move all equipment to an upper floor of the structure
- C. Place the equipment into watertight containers before covering
- D. Open all windows in the room to allow ventilation drying

59. A firefighter is asked to identify the proper position for the butt of a 28-foot extension ladder set against a wall at the recommended climbing angle for a 24-foot working height to the eave.

**Figure PQ-3**



- A. Approximately 4 feet from the wall along the ground
- B. Approximately 5 feet from the wall along the ground
- C. Approximately 6 feet from the wall along the ground
- D. Approximately 8 feet from the wall along the ground

60. A 175°F-rated sprinkler head will activate when the?

- A. Surrounding ambient temperature reaches the rated 175°F threshold
- B. Building's heat detector signals the suppression release
- C. Fire alarm panel completes its activation cycle to the sprinkler
- D. Smoke detector signals through the sprinkler interface to release

61. A firefighter rescues a victim from a smoke-filled room. After exiting, the victim is conscious and breathing but coughing with a hoarse voice and singed nasal hair. The most likely concern is?

- A. Inhalation injury and possible airway swelling developing later
- B. Carbon dioxide poisoning from oxygen displacement in the room
- C. Smoke staining that will resolve without further intervention

D. Bronchial obstruction from a foreign body lodged in the airway

62. Your captain refers to your apparatus position as "uphill, upwind, and upstream" of a hazmat incident. The most accurate description of this positioning is that it?

- A. Provides the closest access to the source of contamination
- B. Reduces responder exposure to vapor, runoff, and gravity-driven hazard
- C. Allows direct attack on the contained product spill
- D. Places the apparatus in the warm zone for decontamination

63. The hand tool most commonly used as the striking partner of the Halligan bar in standard "irons" sets is the?

- A. Pick-head axe with a 36-inch handle
- B. Sledgehammer rated at 8 pounds
- C. Splitting maul with a heavy steel head
- D. Flat-head axe rated for striking applications

64. A firefighter is assigned to inspect a portable fire extinguisher monthly under NFPA 10. The visual inspection should confirm that?

- A. The extinguisher is in its designated location, fully charged, and accessible
- B. The agent has been weighed on a certified scale within the past month
- C. The internal pressure is verified using a removable gauge connection
- D. The extinguisher is hydrostatically tested at every monthly check

65. A residential structure fire has been declared under control. The IC orders an "investigative overhaul." The crews should be alert to?

- A. Quickly removing all furniture from the structure interior

- B. Stripping wall coverings throughout the building immediately
- C. Discarding debris into a single central pile for removal
- D. Preserving the area around the suspected point of origin

66. A firefighter is asked to deploy a charged 2½-inch attack line through a long corridor. The most efficient single-firefighter movement technique is to?

- A. Drag the line straight behind while walking forward in the corridor
- B. Coil the hose at the entry and pull from the working end inward
- C. Loop the hose over a shoulder and walk with it draped across the body
- D. Pull excess loops behind the body in a J-shape during forward advance

67. A truck company captain reports that they are performing "VEIS" on a second-floor bedroom. The technique consists of?

- A. Vertical entry, isolation, and search of a contained space
- B. Ventilation, entry, isolation, and standard search procedures
- C. Ventilation, evacuation, isolation, and survey of the structure
- D. Vent, enter, isolate, and search a specific room with the door closed

68. A firefighter performing search must isolate the room they are entering through a window. Isolation means?

- A. Cutting all electrical service to the involved room before entry
- B. Closing the bedroom door to limit smoke and heat ingress
- C. Ventilating the room completely before any search begins
- D. Securing the window opening behind the search team for safety

69. A pump operator delivering water to two crosslay attack lines and a deck gun simultaneously notes that pump intake pressure has dropped below 20 psi. The most appropriate immediate action is to?

- A. Reduce the flow on one or more discharges to maintain intake
- B. Increase the throttle to maintain output across all lines
- C. Switch to drafting from a static source for additional capacity
- D. Engage the pressure governor in volume mode for higher flow

70. The most appropriate response to a sudden pump cavitation condition while supplying interior attack lines is to?

- A. Increase the throttle to overcome the cavitation immediately
- B. Reduce flow at the discharge to restore intake supply balance
- C. Disengage the pump and switch to a different supply source
- D. Open all discharges to relieve internal pressure quickly

71. A firefighter operating on the interior reports zero visibility and elevated heat at floor level. The most accurate interpretation of these conditions is that?

- A. The interior atmosphere is tenable with proper PPE in place
- B. The conditions warrant continued slow advance with the hoseline
- C. Flashover may be imminent and immediate withdrawal is indicated
- D. The thermal imager will confirm that conditions are improving

72. Your captain orders you to perform a "soft" search of the room directly inside the front door before any other crews enter. This means?

- A. A quick visual sweep without entering or fully searching the room
- B. A thorough room-by-room search of the entire first floor
- C. A search conducted only after the room has been ventilated
- D. A complete search using a thermal imaging camera technique

73. A firefighter responding to a fire alarm in a sprinklered occupancy notes that the main control valve is in the closed position with a chain and lock. The most appropriate action is to?

- A. Force open the lock and turn on the valve immediately
- B. Verify with building personnel before changing valve position
- C. Open the valve and notify the IC after operations are complete
- D. Leave the valve closed and proceed with hoseline operations only

74. A firefighter discovers a small kitchen grease fire on arrival. The most appropriate handline action is to?

- A. Apply a straight stream of water directly into the pan
- B. Cover the pan with a tight-fitting lid to exclude oxygen
- C. Use a portable water-mist extinguisher on the surface
- D. Apply CO<sub>2</sub> extinguisher in long sweeping passes

75. A firefighter assigned to a wildland-urban interface incident is told to "anchor and flank" the fire. The most accurate description of the technique is to?

- A. Surround the fire completely and apply foam to all flanks
- B. Use heavy equipment to construct a 100-foot wide firebreak
- C. Drop retardant from aircraft along the predicted spread path
- D. Begin work at a secure point and progress along one flank toward the head

76. The most appropriate ladder for accessing the roof of a single-story residential dwelling with an eave height of 10 feet is a?

- A. 16-foot roof ladder with the hooks deployed at the ridge
- B. 24-foot extension ladder with proper climbing angle to the eave
- C. 35-foot Bangor ladder with tormentor poles deployed for stability

D. 14-foot collapsible attic ladder for confined-space deployment

77. A firefighter at a working fire is using a thermal imaging camera and notes a bright white area on a wall surface near the ceiling. The most accurate interpretation is that?

- A. The wall is structurally sound and not heated by the fire
- B. The wall has been wetted by the fire stream activity
- C. The TIC is malfunctioning and providing a false reading
- D. There is significant heat on or behind the wall in that area

78. Your engine company is responding to a Phase II elevator recall in a high-rise building. The most accurate description of Phase II operation is that?

- A. Firefighters use the elevator key to control the car manually
- B. All elevators return to the lobby and lock with doors open
- C. The fire pump activates automatically and supplies sprinklers
- D. The building's smoke control system shifts into evacuation mode

79. Your truck company is on the roof performing vertical ventilation. The captain has selected a vent location directly above the fire. The reasoning behind this placement is that?

- A. The roof structure is strongest directly above the seat of the fire
- B. Crews on the roof are safest from collapse over the fire compartment
- C. The fire load below provides convective cooling of the roof deck
- D. Placing the vent above the fire allows hot gases to exit most efficiently

80. A firefighter on a working fire reports they have completed the primary search of a single-family dwelling and received an "all clear." The most accurate interpretation of the all-clear is that?

- A. No further searches will be conducted under any circumstances

- B. The fire has been confirmed extinguished and all crews can stand down
- C. All occupants in the search area have been located and removed
- D. No occupants requiring rescue have been located in that area

81. A pump operator must supply a deck gun flowing 750 gpm directly off the pump panel. The most appropriate technique for supplying this flow is to?

- A. Use a single 2½-inch attack line as the dedicated supply
- B. Provide a dedicated LDH or two 2½-inch supply lines to the discharge
- C. Reduce all other discharges to maintain the master stream flow
- D. Switch from drafting to a hydrant operation for sustained flow

82. A residential occupancy fire with two confirmed victims trapped on the second floor requires immediate ladder placement. The most appropriate first ladder placement is at?

- A. The lowest window of the structure on the ground level
- B. The "A" side garage door for fire department access
- C. The most accessible second-floor window with reported victims
- D. The roof line over the apparent fire compartment for ventilation

83. A firefighter discovers a downed firefighter during a primary search. The proper initial radio transmission is?

- A. "Need help — firefighter down — sending location next"
- B. "MAYDAY, MAYDAY, MAYDAY — firefighter down, location and condition follow"
- C. "Emergency traffic only — firefighter located, requesting RIC"
- D. "Standby for urgent traffic — firefighter located, awaiting orders"

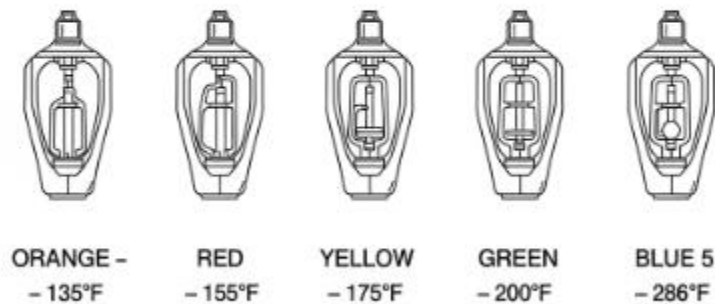
84. A firefighter at a multi-family residential fire identifies a "kink" in the attack hoseline that is restricting the flow significantly. The most appropriate action is to?

- A. Open the nozzle fully to clear the kink hydraulically
- B. Notify the pump operator to raise the discharge pressure
- C. Shut down the nozzle until the pump operator stops the line
- D. Straighten the affected section to restore the proper flow

85. A firefighter is asked to identify the standard color for a 286°F sprinkler bulb glass element under the NFPA color code system.

### NFPA Sprinkler Bulb Color Codes

Figure PQ-4



- A. Yellow indicating intermediate-temperature sprinkler operation
- B. Blue indicating high-temperature sprinkler activation
- C. Red indicating ordinary-temperature sprinkler operation
- D. Green indicating intermediate-temperature operation

86. Your engine company is dispatched to a reported structure fire at 3:00 a.m. in a Type V residential occupancy. Upon arrival you note that the occupants report they have all evacuated. The most accurate immediate priority is to?

- A. Begin overhaul operations on the involved area immediately

- B. Confirm the head count and conduct a confirmation search
- C. Cancel additional resources and conduct exterior operations only
- D. Discontinue interior operations and begin defensive attack

87. A pump operator increases the engine RPM but the discharge pressure does not rise. The most likely diagnostic explanation is that?

- A. The discharge gauges have all failed simultaneously
- B. The pressure relief valve has stuck in the open position
- C. The transfer valve is set in the wrong configuration
- D. The pump has lost prime or is cavitating from supply loss

88. A firefighter performing forcible entry on a metal-clad door with a deadbolt finds that the door will not move with standard Halligan technique. The most appropriate next step is to?

- A. Cut the door at all four corners with a rotary saw
- B. Force the hinges out with a sledgehammer impact
- C. Apply through-the-lock technique using a K-tool on the cylinder
- D. Pry the bottom of the door upward off its threshold

89. A firefighter notes their PASS alarm in pre-alarm mode while operating on the interior. The most appropriate action is to?

- A. Move briefly to reset the device before it goes to full alarm
- B. Continue work and ignore the pre-alarm activation entirely
- C. Switch the PASS device off completely to prevent activation
- D. Exit the structure immediately as the pre-alarm is a warning

90. A truck company on the roof during vertical ventilation encounters a roof that "feels spongy" underfoot. The most accurate interpretation is that?

- A. The roof decking may be weakened by fire below and is at risk
- B. The roof has been wetted by exterior streams and is structurally sound
- C. The roof material is rated for high-impact loading and is acceptable
- D. The composition shingle is heated and will harden in cooler conditions

91. A firefighter assigned to ventilation finds the building has solar photovoltaic panels covering most of the roof surface. The most accurate concern is that?

- A. Cutting through PV panels is faster than cutting standard decking
- B. The PV array prevents any ventilation from being effective below
- C. Solar arrays can be safely cut with standard chainsaw blades
- D. PV systems remain energized in sunlight and cannot be safely shut down at the panel

92. A firefighter must operate a portable fire extinguisher on an electrical equipment fire involving a control panel. The most appropriate agent is?

- A. A Class A water-based extinguisher applied as a fog spray
- B. A Class C clean agent or CO<sub>2</sub> extinguisher rated for electrical use
- C. A Class K wet chemical extinguisher applied in long passes
- D. A Class D combustible-metal extinguisher applied directly

93. A firefighter on a working fire reports a victim located in a second-floor bedroom with active fire in the hallway between the victim and the stairs. The most appropriate rescue method is?

- A. Have the victim shelter in place until the fire is fully extinguished
- B. Carry the victim through the hallway with a personal water can
- C. Order the occupant to jump from the window to a tarp held below
- D. Place a ground ladder to the bedroom window and remove the victim

94. A pump operator supplying an FDC must consider the type of system being supplied. For a Class III standpipe with both 2½-inch and 1½-inch outlets, the engine pressure should be calculated to?

- A. Provide at least 100 psi at the highest 2½-inch outlet
- B. Provide approximately 50 psi at the topmost 1½-inch outlet
- C. Provide approximately 200 psi at the FDC inlet only
- D. Match the maximum static pressure of the supply hydrant

95. A firefighter is asked to define "rollover" as it pertains to compartment fire behavior. Rollover is best described as?

- A. The complete involvement of all surfaces in a single room
- B. The breakdown of the upper smoke layer into descending fingers
- C. The ignition of pyrolysis gases at the ceiling level only
- D. The collapse of the upper smoke layer onto the floor surface

96. Your IC orders a "PAR" check during a working fire. The proper response from each company officer is to?

- A. Acknowledge the order without taking any action
- B. Report the location of their company only
- C. Report the company designation and number of personnel only
- D. Account for all personnel and report by company designation

97. A firefighter must respond to a victim who has fallen into a residential swimming pool. The most appropriate water rescue technique for a non-water-rescue trained firefighter is to?

- A. Reach with a pole, throw a flotation device, or row out before going in
- B. Enter the water immediately and swim to the victim's position
- C. Wait for the next-due engine company before any action is taken

D. Direct bystanders to swim to the victim while you call for help

98. A standard 1 $\frac{3}{4}$ -inch crosslay preconnect on most engines is preloaded with approximately how many feet of hose?

A. About 100 feet of hose preconnected to a discharge

B. About 200 feet of hose preconnected to a discharge

C. About 400 feet of hose preconnected to a discharge

D. About 600 feet of hose preconnected to a discharge

99. A firefighter must select an appropriate nozzle for an interior attack at a residential structure fire. The most appropriate stream type for an offensive interior attack is?

A. A straight stream or narrow fog allowing reach and penetration

B. A wide-angle fog at 90 degrees applied to the upper smoke layer

C. A solid stream master-stream tip at maximum pressure

D. A foam-induced stream proportioned at 6 percent at the nozzle

100. A pump operator is asked the difference between "pressure" mode and "volume" mode on a transfer valve in a two-stage centrifugal pump. The pressure mode arranges the impellers in?

A. Parallel for maximum total volume at lower pressure

B. Sequence with bypass for lowest possible discharge

C. A single-stage configuration regardless of flow demand

D. Series so each impeller adds to the discharge pressure

101. A truck company is assigned forcible entry on a residential door with multiple deadbolt locks visible from the exterior. The most efficient first step is to?

A. Try the doorknob to verify that the door is actually locked

- B. Force the door with the irons using the gap-set-force technique
- C. Cut all the visible deadbolts with a rotary saw blade
- D. Break a window adjacent to the door to gain entry instead

102. Your engine company arrives at a vehicle fire with visible flame from under the hood and the driver out of the vehicle on the curb. The most appropriate stream technique is to?

- A. Approach from a 45-degree upwind angle with a fog stream ready
- B. Approach from directly in front of the vehicle for direct attack
- C. Approach from directly behind the vehicle to avoid bumper hazards
- D. Wait at the apparatus for the fire to self-extinguish on the engine

103. A firefighter conducting a primary search opens a bedroom door and immediately observes flame venting horizontally through the door opening. The most accurate interpretation is that?

- A. The room is in the incipient stage and easily controllable
- B. The fire is confined to the bedroom and not at risk of spread
- C. The structural integrity of the doorway is fully intact
- D. The bedroom is post-flashover with high heat-release rate

104. A firefighter operating in a high-rise environment is assigned to "lobby control." The most accurate description of the lobby control function is to?

- A. Manage elevator operation, building systems, and stairwell access
- B. Coordinate all hoseline operations on the fire floor only
- C. Direct the salvage operations on the floor below the fire
- D. Communicate directly with the building owner and management

105. A firefighter using positive-pressure attack (PPA) places the PPV fan?

- A. Inside the involved compartment to push gases laterally outward
- B. At the entry point sealing the doorway with the fan cone
- C. Directly over the seat of the fire on the floor below
- D. At the exhaust opening to draw gases out of the structure

106. A firefighter conducts a search above the fire floor in a high-rise structure. The most appropriate path of advance is?

- A. Up the elevator shaft to bypass smoke and heat in the stairwell
- B. Along the unprotected ventilation shaft for the highest floors
- C. Through the contaminated stairwell, regardless of conditions present
- D. Up the stairwell that is not being used for fire attack

107. A firefighter is asked to identify the standard NFPA 704 color and number system for a chemical container. The blue diamond on the 704 placard indicates?

- A. The fire hazard rating from 0 to 4 levels
- B. The health hazard rating from 0 to 4 levels
- C. The instability hazard rating from 0 to 4 levels
- D. The special hazard symbol such as W or OX

108. A firefighter must defend a structure from a wildland fire approaching at moderate spread rate. The most appropriate "structure triage" decision when the home has minimal defensible space is?

- A. Commit a crew to interior structure protection inside the home
- B. Stage at the home and apply continuous water during fire passage
- C. Designate the structure as a non-defensible position and reposition
- D. Apply Class A foam to the entire structure exterior in advance

109. A firefighter using a hydrant to supply an attack engine notes the static pressure is 60 psi and the residual pressure with one line flowing is 50 psi. The percentage drop is approximately?

- A. Less than 5 percent indicating excellent supply available
- B. Between 5 and 10 percent indicating excellent supply
- C. Between 11 and 15 percent indicating very good supply
- D. Between 16 and 25 percent indicating good but limited supply

110. A pump operator engaging the pump from "road" to "pump" gear must follow which essential sequence?

- A. Stop the apparatus, set parking brake, shift to neutral, engage pump
- B. Place the transmission in drive, then shift the pump engagement
- C. Apply throttle to high RPM, then engage the pump engagement
- D. Engage the pump first, then place the transmission in pump gear

111. A firefighter performing overhaul finds smoke charring on the underside of a baseboard that extends behind the drywall. The most appropriate action is to?

- A. Replace the baseboard with new material from the truck supply
- B. Apply water through a small hole in the baseboard for cooling
- C. Open the wall to inspect for hidden fire extension behind it
- D. Photograph the area and continue with the rest of the overhaul

112. A truck company is assigned to perform ventilation at a single-story residential structure. The IC orders horizontal ventilation only. The most accurate description of the technique chosen is?

- A. Open windows or doors at the same level as the fire for cross-ventilation
- B. Cut a vertical opening directly above the seat of the fire
- C. Use a positive-pressure fan at the front door for forced airflow

D. Pull ceilings inside the involved area for upward ventilation

113. A firefighter at a working fire is asked to describe what is meant by the "flow path" of a structure fire. The flow path is?

- A. The route taken by water from the attack line to the seat of the fire
- B. The movement of air and combustion products from intake to exhaust
- C. The progression of the fire from incipient through decay stages
- D. The course of the supply line from the hydrant to the apparatus

114. Your captain orders you to "control the door" before opening it during a residential fire attack. The most accurate description of the technique is to?

- A. Maintain the door in a partially-open position to manage flow path
- B. Lock the door from the outside to prevent occupant exit
- C. Force the door fully open to maximize ventilation effect
- D. Hold the doorknob with both hands during the entry sequence

115. A firefighter operating an SCBA notes that the regulator has begun to free-flow continuously even when not breathing. The most appropriate immediate action is to?

- A. Use the emergency bypass and exit immediately while monitoring air
- B. Switch to a buddy's SCBA through the EBSS connection
- C. Disconnect the regulator from the facepiece and exit slowly
- D. Continue operations while monitoring air pressure on the gauge

116. A firefighter is asked to identify the proper position when riding on apparatus to and from incidents. Under NFPA 1500 best practice the firefighter must?

- A. Stand on the tailboard during any non-emergency response only

- B. Be seated in an approved seat with the seat belt fastened at all times
- C. Ride in the cab without a seat belt only during emergency response
- D. Stand braced inside the crew cab during all returns to quarters

117. A firefighter assigned to operate at a vehicle accident finds a sedan with the front end pinned against a utility pole. The pole is still upright but the wire above is sagging. The most appropriate immediate action is to?

- A. Approach and patient-contact the driver before checking the pole
- B. Establish a hazard zone with at least one full span between poles
- C. Cut the wire with the rescue saw to remove the hazard quickly
- D. Climb the pole and disconnect the wire from the cross-arm above

118. A firefighter must operate a fire extinguisher on a flammable liquid spill fire involving approximately 5 gallons of gasoline. The most appropriate extinguisher choice is?

- A. A 2½-gallon water can applied as a fog spray on the spill
- B. A wet-chemical Class K extinguisher applied in passes
- C. A Class B dry-chemical or AFFF foam extinguisher
- D. A 20-pound CO<sub>2</sub> extinguisher applied in short bursts

119. A firefighter conducting an investigation into a residential dwelling fire notes V-pattern char on a wall behind a couch. The V-pattern indicates?

- A. The presence of an electrical short along the wall surface
- B. The direction of fire spread from one room to another
- C. The fire originated at or near the base of the V-pattern
- D. The fire involved a flammable liquid accelerant deliberately

120. A firefighter is part of an engine crew assigned to "drop" a supply line at an intersection 500 feet from the fire. The most accurate explanation of the technique is to?

- A. Disconnect a length of supply hose at the intersection for later pickup
- B. Stop the apparatus and shut down all flow at the intersection
- C. Run a second supply line from the intersection to a static source
- D. Deploy a portable manifold for use by other companies arriving

121. A firefighter is assigned to a ventilation group on a high-rise fire. The captain orders "stairwell pressurization" to be confirmed. The most accurate description of stairwell pressurization is that?

- A. Smoke is pushed up the stairwell using a portable PPV fan
- B. The stairwell fan creates higher pressure than adjacent floor spaces
- C. The stairwell is sealed completely at every floor for evacuation
- D. Stair pressurization is the same as a fire alarm recall sequence

122. A firefighter on the interior of a working structure fire is asked to "read the smoke" as part of the size-up. The four key indicators of smoke conditions are?

- A. Color, density, transparency, and ceiling height contact
- B. Volume, velocity, density, and color of the smoke product
- C. Origin, density, color, and structural impact assessment
- D. Smell, color, density, and lower-layer thermal load level

123. A firefighter must position an aerial ladder to make a rescue from a fifth-floor window. The most appropriate position for the apparatus is to?

- A. Stop directly under the window for the shortest vertical reach
- B. Park the apparatus at a 90-degree angle to the building face
- C. Spot the apparatus so the aerial can reach the window with proper scrub area

D. Stage at least 100 feet from the building for safety

124. A firefighter operating on the interior of a vacant structure suddenly notes a change in fire conditions — smoke is now banking down toward the floor and the heat has increased rapidly. The most accurate interpretation is that?

- A. The fire has entered the decay stage and is producing less heat
- B. The fire is rapidly growing toward flashover and exit is indicated
- C. The interior conditions are improving as ventilation takes effect
- D. The fire has been extinguished and only smoke remains in the space

125. A firefighter assigned to a "rehab" function during a working fire is responsible for?

- A. Re-equipping companies and replacing damaged equipment only
- B. Monitoring firefighter recovery, vitals, hydration, and rotation
- C. Replacing depleted SCBA cylinders for active interior companies
- D. Coordinating all radio communications during the active period

126. A firefighter is asked to identify the NFPA 1500 minimum number of firefighters required to safely operate a 2½-inch handline at maximum flow. The minimum staffing is?

- A. One firefighter with a nozzle wedged against a fixed point
- B. Two firefighters working together at the nozzle position
- C. Three firefighters working together with a backup at the nozzle
- D. Four firefighters working together with a relief crew on standby

127. A firefighter operating a portable monitor at maximum flow rate (typically 500 gpm) must consider that the monitor reaction force?

- A. Requires the monitor to be anchored or weighted to prevent movement

- B. Is offset entirely by the design of the monitor's discharge baffle
- C. Diminishes as the nozzle pressure approaches design maximum
- D. Becomes negligible at flow rates above the manufacturer rating

128. A firefighter must operate a deck gun supplied by a 3-inch line at 100 gpm. The captain notes the deck gun is producing a weak stream. The most likely diagnostic cause is?

- A. The nozzle is set at the wrong stream pattern for the operation
- B. The deck gun internal valve is improperly seated for the discharge
- C. The 3-inch supply is rated for the required flow on the discharge
- D. Supply hose diameter and friction loss are restricting actual flow

129. Your captain orders your crew to "open up" the ceiling during overhaul of a kitchen fire. The most accurate purpose of opening the ceiling is to?

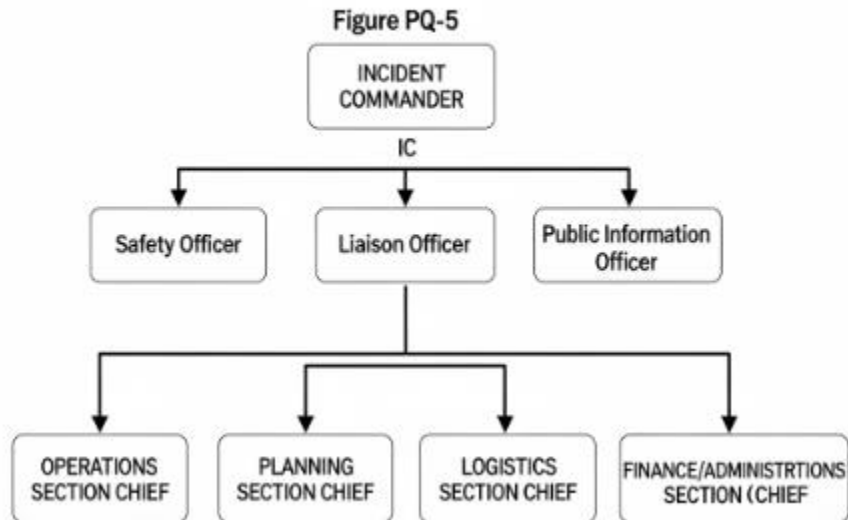
- A. Allow the structure to dry more effectively after the fire
- B. Provide additional ventilation to the room for occupant comfort
- C. Inspect for trapped occupants in the attic above the kitchen
- D. Inspect for hidden fire extension in the ceiling and attic space

130. A firefighter conducts a primary search of a third-floor apartment in a multi-family dwelling. The crew encounters a closed bedroom door with heavy heat at the floor. The most appropriate action is to?

- A. Force the door fully open and rapidly advance into the bedroom
- B. Bypass the bedroom and continue searching the rest of the apartment
- C. Crack the door slowly while controlling it and assess interior conditions
- D. Vent the bedroom window first from outside, then enter from the hallway

131. A firefighter is asked to interpret an ICS organizational chart shown by the IC. The chart shows the basic structure of a moderately complex incident.

## ICS Organization – Basic Structure



- A. The chart shows that the Safety Officer reports to the Operations Section Chief
- B. The chart shows the four primary General Staff sections under the IC
- C. The chart shows Branch Directors at the second tier of organization
- D. The chart shows a Unified Command structure with multiple agencies

132. A firefighter operating on a working fire is asked to "hold the line" by the captain. The accurate interpretation is to?

- A. Continue applying water at the current location without further advance
- B. Withdraw the line completely and stage at the apparatus
- C. Open the bale fully and apply maximum water to the involved area
- D. Disconnect the nozzle and reposition with a different stream pattern

133. A firefighter is asked to identify the correct hose stretch length for a residential structure with a setback of 30 feet from the curb and a working area of 75 feet into the structure. The minimum recommended attack-line stretch is?

- A. About 100 feet to reach the working area only
- B. About 150 feet to reach the average bedroom
- C. About 175 feet to reach with no excess line
- D. About 200 feet including a working margin of excess hose

134. A firefighter operating in a sprinklered occupancy with one head activated is supplied through the FDC. The most appropriate action with regard to the activated head after extinguishment is to?

- A. Stop the flow at the sprinkler riser using a sprinkler wedge
- B. Cut the activated head from the system at the connection
- C. Leave the head in service and notify the building owner only
- D. Allow the head to continue flowing until building maintenance arrives

135. A firefighter conducting an inspection of a portable fire extinguisher under NFPA 10 notes a tamper seal that is missing from the extinguisher. The most appropriate action is to?

- A. Remove the extinguisher from service for full inspection and recharging
- B. Continue the inspection and note the missing seal in the log book
- C. Apply a new tamper seal at the unit before continuing the inspection
- D. Test fire the extinguisher to confirm the unit is still functional

136. A firefighter is operating a portable smoke ejector at a window during negative-pressure ventilation. The most appropriate position is to?

- A. Pull the fan inward toward the smoke being removed from the structure
- B. Position the fan with the intake side facing the smoke-filled area
- C. Place the fan flat against the outside surface of the wall
- D. Mount the fan on the floor in the center of the room

137. A firefighter is asked to identify the standard apparatus position for a "first-due" engine company arriving at a single-family residential structure fire. The most appropriate position is?

- A. Behind the residence at the rear access for direct entry
- B. Diagonally across the street from the involved structure
- C. Just past the front of the structure to allow truck company access
- D. Directly in front of the involved structure for maximum visibility

138. A firefighter conducts an oxygen-content reading at a structure fire scene and notes 17 percent oxygen at the interior. The most accurate interpretation is that?

- A. The atmosphere is oxygen-deficient and requires SCBA for entry
- B. The atmosphere is normal and standard PPE is sufficient
- C. The atmosphere is oxygen-enriched and fire intensity will be high
- D. The atmosphere has been ventilated and is safe for interior occupants

139. A firefighter is asked to interpret the "rule of thumb" for evaluating exposures in a structure fire. The proper rule is?

- A. Any exposure within 100 feet of the fire is always at risk
- B. If the thumb held at arm's length covers the fire, the exposure is safe
- C. The exposure rule scales with the wind speed and direction
- D. Exposures should be measured with a thermal imaging camera only

140. A firefighter operating on a working fire is asked to perform "exposure protection." The most accurate description of the technique is to?

- A. Apply water to surfaces of nearby structures to prevent ignition
- B. Stretch a hoseline into the exposure structure for an interior attack
- C. Conduct a primary search of the exposure structures immediately

D. Construct a temporary fire break between the fire and exposure

141. A firefighter is asked to identify the correct sequence for the four steps of the donning sequence of structural PPE. The standardized sequence is?

- A. Hood, helmet, coat, pants, boots, gloves
- B. Helmet, coat, hood, pants, boots, gloves
- C. Pants and boots first, then coat, hood, SCBA, helmet, gloves
- D. Coat first, then pants, boots, hood, helmet, gloves

142. A firefighter must select a knot for joining two ropes of equal diameter. The most appropriate knot is the?

- A. Bowline tied with two interlocking loops at the joining point
- B. Figure eight loop tied through each rope and clipped together
- C. Clove hitch tied at the end of each rope working end
- D. Becket bend (sheet bend) or a double sheet bend for security

143. A firefighter responds to a multi-family residential dwelling with fire visible from the second-floor window. The captain orders a "stretch and stop" approach. The most accurate description is to?

- A. Stretch attack line and prepare to open the nozzle immediately upon entry
- B. Stretch the line completely, then stop and wait for additional crews
- C. Stretch the line to the fire compartment door but do not advance further
- D. Stretch and stop at the second-floor landing before any further advance

144. A firefighter is assigned to control utilities at a working structure fire. The proper sequence for shutting off natural gas service to the building is to?

- A. Cut the gas line with a fire axe at the meter location

- B. Disconnect the meter from the gas line at the connection
- C. Turn the gas valve at the meter a quarter-turn to the off position
- D. Use a wrench to close the main shutoff at the appliance only

145. A firefighter is operating at a single-family residential structure fire when a partial collapse occurs. The IC orders an immediate PAR and a withdrawal to defensive operations. The most appropriate immediate action by company officers is to?

- A. Continue interior attack while the PAR is being completed
- B. Withdraw all interior crews immediately and account for all personnel
- C. Wait for an "all clear" from the IC before movement at all
- D. Advance the attack line further to maintain control of the involved area

146. A firefighter is asked to evaluate the proper fire flow for an apartment building involving a single 1,200-square-foot unit. Using the National Fire Academy formula ( $\text{length} \times \text{width} \div 3$ ), the required fire flow for the involved area is approximately?

- A. About 200 gallons per minute for the involved unit
- B. About 400 gallons per minute for the involved unit
- C. About 600 gallons per minute for the involved unit
- D. About 1,000 gallons per minute for the involved unit

147. A firefighter conducting overhaul opens a wall cavity and finds smoldering insulation behind the drywall surface. The most appropriate technique is to?

- A. Remove the affected insulation and apply water to fully cool the area
- B. Apply a wide fog stream into the wall cavity and reseal the drywall
- C. Leave the insulation in place and apply fan ventilation to the area
- D. Cover the wall opening with a salvage cover for property protection

148. A firefighter discovers a victim on a working fire and must initiate emergency moves. The most appropriate emergency drag for a single rescuer with a heavy adult is the?

- A. Two-person carry with the rescuer at each end of the victim
- B. Cradle carry with the victim's head against the rescuer's shoulder
- C. Pack-strap carry with the victim draped over the rescuer's back
- D. Webbing or blanket drag using a sling or improvised harness

149. A pump operator is supplying two attack lines flowing 150 gpm each through identical 200-foot 1¾-inch lays. The pump operator's challenge is to provide?

- A. Different discharge pressures based on hose color
- B. A single average pressure to both lines simultaneously
- C. Only one line at any moment to maintain pressure
- D. Equal discharge pressure to both lines from the same pump

150. A firefighter responding to a residential structure fire is briefed at the apparatus that one occupant remains unaccounted for. The most accurate interpretation by the company officer for initial tactical priorities is to?

- A. Conduct a rapid primary search prioritized over fire suppression
- B. Begin defensive attack and stage the search for later operations
- C. Delay any search activity until the fire is fully extinguished first
- D. Complete a 360-degree assessment before any interior commitment

## PRACTICE EXAM 10 – ANSWER KEY AND EXPLANATIONS

- 1. C** — Ventilation-limited with backdraft potential, because pulsating brown smoke at moderate velocity reflects pressure equalization across openings in an oxygen-starved compartment. Brown smoke indicates pyrolysis products from incomplete combustion, and inward pulsing is the classic backdraft warning. Opening such a structure without recognizing the signs can trigger an explosive event when fresh air reaches the heated gases.
- 2. C** — Approximately 70 psi by the  $cQ^2L$  formula:  $FL = 15.5 \times 1.5^2 \times 2 = 69.75$  psi over the 200-foot lay. The coefficient for 1¾" hose is 15.5, with Q in hundreds of gpm and L in hundreds of feet. Calculating friction loss correctly drives accurate pump discharge pressure and proper nozzle performance.
- 3. A** — Clove hitch with a half hitch above is the standard knot for hoisting tools to operating crews. The clove hitch grips the handle while the half hitch captures the metal head and prevents rotation or slip during the lift. The combination is taught universally for axes, pike poles, hose, and similar tools.
- 4. C** — Autoexposure may carry fire into the eave and attic space when flame vents from a second-floor window directly below the soffit. Flames lap up the exterior, igniting the soffit material and entering the attic through the eave vents. Recognizing autoexposure risk drives early attic access and exposure-line placement.
- 5. C** — Apply water from the exterior basement opening before interior advance, because basement fires expose advancing crews to extreme heat and rapidly developing flashover. UL and NIST research confirms that brief exterior cooling reduces interior temperatures rather than worsening conditions. Direct interior advance down a single stairway into a working basement fire is among the highest-risk tactics in the modern fire service.
- 6. D** — Notify the owner, document the finding, and require corrective action under NFPA 25. A closed sprinkler control valve is a recognized impairment and must be managed through the impairment program. Opening the valve without verification may mask intentional service activity or flood under-maintained piping.
- 7. B** — Approximately 75 pounds of nozzle reaction using the simplified rule of thumb for a 2½" handline with a smooth-bore tip at 50 psi. The reaction is the largest force the handler must brace against and directly drives required staffing at the nozzle position. Underestimating reaction force is a leading cause of loss of stream control on heavy lines.
- 8. B** — Fire can travel rapidly through wall cavities to the attic because balloon-frame construction has continuous wall stud cavities running from foundation to attic without intermediate firestops. Basement fires in balloon-frame structures often appear in the attic with little or no visible interior involvement. Recognizing balloon framing during size-up drives early attic checks.
- 9. D** — A photoelectric or dual-sensor alarm reduces nuisance trips because it is significantly less responsive to cooking aerosols than a stand-alone ionization alarm. NFPA 72 supports installation of photoelectric or dual-sensor alarms in areas prone to nuisance activations. Removing the alarm entirely defeats its life-safety purpose.

**10. A** — About 50 psi:  $FL = 2 \times 5^2 \times 1 = 50$  psi for 500 gpm through 100 feet of 2½" hose. The coefficient for 2½" hose is 2 in the  $cQ^2L$  formula. This calculation is essential for portable monitor and attack-line operations.

**11. D** — A triangular pass-through cut near a lock or latch allows a firefighter to step through a roll-down security gate without defeating the entire gate mechanism. The triangular opening can be cut quickly and provides crew access while leaving the rest of the gate intact. Cutting the whole panel is excessively time-consuming for a tactical entry.

**12. C** — What appears as a single story from the street is actually two, because the daylight basement (or hillside dwelling) exposes a fully occupied lower level at the rear. The 360-degree walk-around is the only way to detect this configuration. An officer who skips the walk-around plans attack and search for one floor when two exist.

**13. A** — The geographic area encompassing the second floor of the structure. Divisions in the ICS structure are organized by geography, not function. Reporting to the correct geographic area ensures coordinated tactical work and accurate accountability.

**14. B** — About 170 psi:  $PDP = NP + FL = 100 + (15.5 \times 1.5^2 \times 2) = 100 + 70 = 170$  psi. Nozzle pressure for a fog nozzle is 100 psi, and friction loss for the 1¾" line at 150 gpm over 200 feet is approximately 70 psi. This is the foundational PDP calculation for residential attack lines.

**15. C** — Initiate immediate exit using the shortest known egress path, because the low-air alarm signals that approximately one-third of cylinder pressure remains. The reserve is limited and must be used for egress, not continued work or rescue waiting. Completing tasks at this point consumes the reserve and creates a self-induced air emergency.

**16. C** — Coordinated forcible entry and ladder placement before entry are the truck-company tasks that "soften the structure" for engine company advance. The work creates access and egress paths before the engine crew commits to interior operations. Uncoordinated entry delays attack and exposes crews to unnecessary risk.

**17. D** — Apply water from the exterior to cool the involved space, consistent with the "Cool" step of SLICE-RS. Cooling from the safest effective location reduces interior conditions for the advancing crew rather than worsening them. Modern fire-attack research supports brief exterior application before transition to interior operations.

**18. D** — Flake out enough working line on the landing below the fire floor before advancing up to the fire compartment. The flaked excess allows the nozzle team to advance without dragging or kinking the line. Charging the line at the top or pulling charged hose up the stairs is exhausting and frequently fails.

**19. C** — The location of the fire department connection and key box, because these are the critical access features for fire department operations. Pre-incident plans capture FDC location, Knox box position, and operating instructions so responders are not searching during the emergency. Other features like employee parking or alarm vendor contact are routine inspection items, not pre-plan essentials.

**20. D** — Initiate CPR using the proper compression-to-ventilation ratio, because an unresponsive, unbreathing infant requires immediate resuscitation. Life safety is the overriding incident priority, and waiting for EMS or returning to suppression forfeits the brief window in which CPR is effective. Every firefighter trained at the BLS level must initiate CPR on a pulseless, unbreathing patient.

**21. A** — The entry point, so the team can retrace the rope back to safety in zero-visibility conditions. The anchored end provides a positive lifeline that cannot be lost or confused with other lines. Anchoring at any other location defeats the rope's purpose as an egress reference.

**22. A** — A pre-determined location at which a tactical action must occur, typically disengagement or repositioning. Trigger points are identified during size-up and monitored as the fire progresses, converting reactive decisions into pre-planned ones. They are core to wildland-urban interface safety.

**23. C** — Establish a hazard zone and evacuate occupants from the building, because natural gas creates an explosive atmosphere that cannot be safely measured by entering responders. Life safety takes precedence over locating the leak, ventilating, or shutting off the gas. Standard procedure protects the public from a potential explosion before any source-mitigation action.

**24. D** — Reduced as extension increases and elevation decreases, because greater extension produces more leverage on the boom and lower elevation produces a greater horizontal moment. Both factors combine, so rated capacity at maximum extension and low elevation is dramatically less than at high elevation with shorter extension. The aerial load chart must be consulted before operations.

**25. A** — The LUNAR self-report transmitted by the trapped firefighter, providing Location, Unit, Name, Assignment, and Resources needed. Without LUNAR data, the RIC and IC must guess at position and condition, delaying rescue. The transmission is the first information requested in any working MAYDAY.

**26. D** — About 12 psi:  $FL = 0.08 \times 5^2 \times 6 = 12$  psi for 500 gpm through 600 feet of 5" LDH. The coefficient for 5-inch hose in the  $cQ^2L$  formula is approximately 0.08. Five-inch LDH is the dominant supply hose precisely because friction loss remains minimal at high flow.

**27. C** — Tap the surface with a tool to detect structural integrity. A firm sound indicates intact decking; a hollow or soft sound indicates fire damage beneath. Sounding before each step is a critical roof-safety practice during vertical ventilation.

**28. B** — Approximately 3 gallons of concentrate per minute:  $3\% \times 95 \text{ gpm} = 2.85$  gpm of foam concentrate drawn from the pickup tube. Proper proportioning ensures the finished foam has the correct expansion and stability. Incorrect proportioning produces ineffective or rapidly breaking foam.

**29. D** — Withdraw all interior crews from the structure, because a strategic shift from offensive to defensive operations requires the building to be cleared and personnel accounted for. Defensive operations cannot proceed with interior crews exposed to collapse and other defensive-strategy triggers. The transition is non-negotiable.

**30. D** — The individual discharge gauge has a calibration error, since the master discharge gauge reflects actual pump output more reliably than individual gauges that can drift over time. Cross-checking gauges

during operations is a standard pump-operator practice. The discrepancy points to gauge maintenance rather than a pump or valve failure.

**31. B** — The stair-pack technique with hose flaked vertically against the wall in the stairwell. Vertical orientation uses gravity to assist the advance instead of resisting it, allowing a single firefighter to move the heavy 2½" line up. This is the standard solution for single-firefighter heavy-line stair stretches.

**32. D** — Vertical reach  $\approx$  length  $\times$  sin(angle) + turntable height. The sine of the angle gives the vertical component of the ladder length, and the turntable height adds the apparatus base. This formula is the standard quick estimate for aerial reach in spotting decisions.

**33. C** — Fire is traveling through the common cockloft space above the units, since smoke from all four units' rooflines indicates a continuous void above the ceilings. The cockloft is unprotected and is a primary fire-spread pathway in this construction type. Early cockloft access and trench cuts are critical.

**34. D** — Gasoline, a Class 3 flammable liquid in transport, since UN 1203 is the specific identification number for gasoline and the red placard with "3" indicates Class 3 flammable liquid. The ID number identifies the exact material and the class identifies the hazard. The ERG cross-references the UN number to detailed response guidance.

**35. C** — Create a catchall using a salvage cover to contain water flowing in from above. A folded salvage cover with raised edges contains water before it reaches valued contents. Moving contents elsewhere compounds damage and consumes labor needed for other salvage priorities.

**36. A** — A single chainsaw blade-width cut through the decking only, used as a quick inspection or pressure-relief opening. A kerf cut is the smallest practical roof opening and is far faster than a full ventilation hole. It also relieves pressure in confined attic spaces that may otherwise contribute to backdraft.

**37. C** — About 150 psi at the FDC: top-floor outlet pressure of 100 psi plus 9-floor elevation loss ( $9 \times 5 \approx 45$  psi) plus minimal friction loss yields approximately 150 psi. The pump must overcome elevation and friction to deliver required outlet pressure on the operating floor. This is the standard standpipe pressure calculation.

**38. C** — Coordinate the vent opening with hoseline advance into the space, because uncoordinated ventilation pushes heat and smoke ahead of the crew. The vent is made at or just before water is applied, moving products of combustion away from the attack team. Coordination is the principle that distinguishes effective from harmful ventilation.

**39. B** — Atmospheric pressure on the surface of the water source, because atmospheric pressure (approximately 14.7 psi at sea level) is the only force lifting water into the pump during drafting. Theoretical maximum lift is approximately 33 feet, with practical maximum closer to 22–25 feet. Higher altitude reduces achievable lift further.

**40. D** — About 80 pounds per square inch at the tip, the standard nozzle pressure for smooth-bore master streams. Smooth-bore handlines operate at 50 psi and combination (fog) nozzles at 100 psi. The higher master-stream pressure produces the necessary reach for large-flow exterior operations.

**41. A** — Provide a secondary supply line and a second attack line as needed. The third-due engine's role is support — augmenting water supply and providing additional attack capability based on the IC's developing tactical plan. Specific assignments vary by department SOP but rarely include initial suppression or command.

**42. B** — Improper footing of the ladder allowing the butt to kick out is the most common cause of fatal ground-ladder accidents. Climbing-angle errors, halyard failures, and structural failures are less common. Heel strapping, footing by a firefighter, or tying off the base prevents the failure mode.

**43. B** — Crib and shore the vehicle in its current orientation, because righting a vehicle on its side is a complex secondary operation that can crush the patient. Cribbing wedges and step blocks against contact points stabilize the vehicle for extrication. Stabilization always precedes patient access.

**44. D** — Clove hitch and half hitch on the hose behind the nozzle, the standard hose-hoisting technique. The clove hitch grips the hose body while the half hitch above secures the nozzle from rotating or slipping out. Bowlines or loops on the nozzle itself can damage the bale under load.

**45. D** — Crack the door slowly while controlling it for flow path management. A door warm to the touch indicates fire on the other side, and full opening creates an immediate flow path that can produce flashover. Door control is a critical flashover-prevention skill.

**46. B** — Apparatus at the hydrant and hose stretched from the apparatus forward, the defining feature of a forward lay. The engine stops at the hydrant where the supply line is secured, then proceeds toward the fire while laying hose from the bed. The forward lay is the most common supply lay for first-due engines.

**47. C** — Non-combustible structural members without fire-resistive protection. Type II construction uses unprotected non-combustible materials (typically structural steel) without the protection required for Type I. Without protection, structural steel can lose strength rapidly under fire exposure.

**48. C** — No occupants requiring rescue have been located in the assigned area. The all-clear is a search benchmark only — it does not mean the fire is extinguished, the building is empty of all persons, or that a secondary search is unnecessary. Multiple benchmarks (all-clear, under control, loss stop) track separate aspects of the operation.

**49. B** — Early collapse potential with possible defensive transition, because lightweight engineered roof structures in modern wood-frame dwellings can fail within 5–10 minutes of direct flame contact. Sustained offensive operations beneath a fully involved attic expose interior crews to roof collapse. Defensive transition or repositioning may be required.

**50. C** — About 75 psi:  $EP = NP + FL = 50 + 25 = 75$  psi. Nozzle pressure for a smooth-bore handline is 50 psi and friction loss is 25 psi as given. This is the most basic engine-pressure calculation.

- 51. B** — Make the cut on the unburned side of the structure at the ridge, positioning the cutting crew away from the immediate flow path and reducing collapse exposure. The cut still relieves interior heat and smoke from the fire compartment below, but the firefighter work position is on the safer side of the peak. Crew safety drives ventilation positioning even when the cut location is otherwise dictated by the fire.
- 52. A** — With the top rung even with or slightly above the roof edge, providing a useful handhold and a clean transition from ladder to roof. Tip too low places the rung below the eave; tip too high creates an awkward step-over. The proper tip position is taught universally for aerial-to-roof transitions.
- 53. C** — A wide-angle fog pattern applied to cool the entire vessel surface, with priority to the vapor space above the liquid level. The vapor space heats fastest and loses strength first, leading to potential BLEVE. Wide-angle application maximizes surface coverage from a safe distance.
- 54. C** — Remove the victim to a safer location for treatment if conditions allow, because in-place treatment in an IDLH atmosphere is ineffective. Effective resuscitation requires the cold zone where airway and breathing can be properly managed. Removing the victim is consistent with the life-safety priority.
- 55. A** — Locate, Access, Stabilize, Transport — the standard vehicle extrication rescue sequence. The acronym ensures patient location and condition are confirmed before invasive tools are applied. LAST organizes the entire operation from arrival through patient handoff.
- 56. D** — Initial size-up, water supply, attack-line stretch, and primary search — the coordinated first-due engine functions at a working structure fire. All four tasks are accomplished by company action, not by sequential single-task focus. Delaying any of them compromises tactical effectiveness.
- 57. B** — Debris in the nozzle screen restricting the flow, a common cause of poor stream pattern despite normal pressure. The screen at the nozzle inlet captures particulate that passes through hose and gradually obstructs flow. Cleaning the screen restores normal operation.
- 58. A** — Cover the equipment with a salvage cover from above to protect it from water and debris during overhaul. Moving equipment risks handling damage, and watertight containers are impractical at scale. Salvage covers are the standard equipment-protection tool.
- 59. C** — Approximately 6 feet from the wall along the ground:  $24 \text{ ft working height} \div 4 = 6 \text{ ft base offset}$  for the 75-degree climbing angle. The 1-to-4 ratio is the quick rule for setting safe ladder angle without measuring tools. Steeper or shallower angles compromise stability.
- 60. A** — The surrounding ambient temperature reaches the rated 175°F threshold and the heat-sensitive element (bulb or fusible link) releases. Each sprinkler head responds independently to local thermal conditions and does not depend on external fire alarm signals. Independent operation is the foundation of automatic sprinkler reliability.
- 61. A** — Inhalation injury and possible airway swelling developing later. Hoarseness, coughing, and singed nasal hair are warning signs that the upper airway has been thermally insulted. Initial presentation

may be mild, with airway compromise progressing over minutes to hours, so early advanced airway evaluation and high-flow oxygen are indicated.

**62. B** — Reduces responder exposure to vapor, runoff, and gravity-driven hazard. Uphill places the apparatus above any liquid runoff, upwind protects from vapor migration, and upstream avoids waterborne contamination. The same principle applies to all hazmat, fuel-fire, and unknown-spill operations.

**63. D** — Flat-head axe rated for striking applications. The flat-head axe is the universal striking partner for the Halligan bar in standard "irons" sets. The pick-head axe is not designed for striking and would deform under repeated impact.

**64. A** — The extinguisher is in its designated location, fully charged, and accessible — the visual verification required by monthly inspection under NFPA 10. Weighing, internal inspection, and hydrostatic testing occur at longer scheduled intervals. Monthly checks are the first line of readiness assurance.

**65. D** — Preserving the area around the suspected point of origin so the fire investigator can examine evidence in place. Aggressive removal of debris, wall coverings, or contents in the origin area destroys evidence and burn patterns. Overhaul outside the origin area proceeds normally to ensure full extinguishment.

**66. C** — Loop the hose over a shoulder and walk with it draped across the body. The shoulder loop distributes the heavy 2½" line across the upper body, allowing a single firefighter to move the line through a long corridor. The technique frees the hands for the nozzle and control points.

**67. D** — Vent, Enter, Isolate, and Search a specific room with the door closed. VEIS is a rapid search tactic used when the search target is known and conditions permit entry from a window after ventilation, with the door closed to isolate the room from the rest of the fire. The technique combines speed and isolation.

**68. B** — Closing the bedroom door to limit smoke and heat ingress. Isolation in VEIS creates a defended pocket inside which the search can proceed with somewhat better conditions. The closed door is the step that distinguishes VEIS from standard interior search.

**69. A** — Reduce the flow on one or more discharges to maintain intake. When intake pressure drops below safe levels, the operator must reduce demand to prevent cavitation. Increasing throttle worsens cavitation by demanding more flow than the supply provides.

**70. B** — Reduce flow at the discharge to restore intake supply balance. Cavitation is corrected by reducing demand at the pump output, not by increasing throttle. The operator's first response to cavitation is always to reduce discharge.

**71. C** — Flashover may be imminent and immediate withdrawal is indicated. Zero visibility combined with elevated floor-level heat reflects a heavily loaded upper smoke layer and a room near ignition temperature. These are classic late-pre-flashover indicators.

**72. A** — A quick visual sweep without entering or fully searching the room. A soft search is a triage-level scan used to confirm an area is clear or to spot obvious victims near an entry point. Full primary and secondary searches follow.

**73. B** — Verify with building personnel before changing the valve position, because a sprinkler valve closed and locked with a chain is presumed to be an intentional impairment. Opening a deliberately closed system can flood under-maintained piping or release contaminated water. Verification protects against unintended consequences in non-active-fire conditions.

**74. B** — Cover the pan with a tight-fitting lid to exclude oxygen, the most effective tactic for a small contained grease fire. Water spreads burning grease and produces violent flare-ups, and even a Class K extinguisher is unnecessary for an immediately accessible covered pan. Smothering is the simplest and safest method.

**75. D** — Begin work at a secure point and progress along one flank toward the head. The anchor-and-flank technique prevents the fire from outflanking the crew and ensures controlled progress along the perimeter. Working directly at the head without an anchor exposes the crew to entrapment.

**76. B** — A 24-foot extension ladder with proper climbing angle to the eave. The 24-foot extension is the standard ground-access ladder for single-story residential operations, reaching a 10-foot eave with appropriate working margin. The 16-foot roof ladder is used differently — typically hoisted onto a sloped roof.

**77. D** — Significant heat on or behind the wall in that area. A bright white area on the thermal imager indicates the highest-contrast thermal signature visible to the camera. The TIC does not see through walls but identifies the thermal evidence of fire behind them, prompting further investigation.

**78. A** — Firefighters use the elevator key to control the car manually, the defining feature of Phase II operation. Phase I returns elevators to the recall floor; Phase II resumes manual firefighter control of the elevator from inside the car. Both phases are essential to high-rise operations.

**79. D** — Placing the vent above the fire allows hot gases to exit most efficiently through the shortest buoyant path. This produces the greatest reduction in interior temperature and smoke. Cutting away from the fire wastes labor and roof material without comparable benefit.

**80. D** — No occupants requiring rescue have been located in that area. The all-clear is a primary-search benchmark only and does not imply the fire is extinguished, the building is empty of all persons, or that a secondary search is unnecessary. Each benchmark reports a separate operational status.

**81. B** — Provide a dedicated LDH or two 2½" supply lines to the discharge. A deck gun flowing 750 gpm cannot be supplied by a single 2½" attack line at usable inlet pressure. Supply hose sizing is the dominant factor in master-stream performance.

**82. C** — The most accessible second-floor window with reported victims. When victims are confirmed trapped, life safety takes priority over ventilation, roof access, or apparatus convenience for first ladder placement. Subsequent ladders address other priorities.

**83. B** — "MAYDAY, MAYDAY, MAYDAY — firefighter down, location and condition follow." The MAYDAY call is repeated three times so the radio system captures it and other crews recognize the priority traffic. The transmission is followed by LUNAR data or, as here, location and condition.

**84. D** — Straighten the affected section to restore the proper flow. A kink can be relieved instantly without changing pump pressure or shutting the line down. Increasing pump pressure cannot push water through a fully kinked line, and shutting down loses water on the fire.

**85. B** — Blue indicating high-temperature sprinkler activation. The NFPA sprinkler bulb color code assigns orange to 135°F, red to 155°F, yellow to 175°F, green to 200°F, and blue to 286°F. Identifying activation temperature by color supports rapid system assessment.

**86. B** — Confirm the head count and conduct a confirmation search. Even when occupants report all evacuated, the IC must independently verify by primary search. Occupant reports under stress are unreliable, and a missed occupant is the worst possible outcome.

**87. D** — The pump has lost prime or is cavitating from supply loss. If the engine RPM rises but discharge pressure does not, the pump is moving air or insufficient water and cannot build pressure. The operator must restore intake supply or re-prime before flow can be reestablished.

**88. C** — Apply through-the-lock technique using a K-tool on the cylinder. A metal-clad door with multiple deadbolts resists conventional Halligan force, but the lock cylinder can be pulled and the lock operated directly. Through-the-lock entry defeats heavy locks without damaging the door structure.

**89. A** — Move briefly to reset the device before it goes to full alarm. The PASS pre-alarm is a warning that motion has not been detected and full alarm is imminent. Brief intentional motion resets the device and confirms the wearer is conscious.

**90. A** — The roof decking may be weakened by fire below and is at risk. A spongy feel indicates loss of structural integrity in the decking, often from concealed fire exposure or rot. Spongy decking is a primary structural-failure warning and warrants immediate withdrawal from the area.

**91. D** — PV systems remain energized in sunlight and cannot be safely shut down at the panel. There is no service-level shutoff that fully de-energizes solar panels at their surface, creating a persistent electrical hazard for firefighters cutting or contacting them. Newer rapid-shutdown systems reduce but do not eliminate the hazard.

**92. B** — A Class C clean agent or CO<sub>2</sub> extinguisher rated for electrical use. Class C agents suppress without conducting current back to the operator and leave no conductive residue. Water-based or dry-chemical agents are inappropriate for energized control panels.

**93. D** — Place a ground ladder to the bedroom window and remove the victim. A victim cut off from the interior egress by active fire is rescued externally by ladder, the fastest and safest route. Internal rescue would require crossing the active fire, risking both victim and rescuer.

- 94. A** — Provide at least 100 psi at the highest 2½" outlet, the NFPA 14 design requirement for Class I and Class III standpipe systems. The FDC supply pressure is calculated to achieve this outlet pressure after elevation and friction losses. The 1½" hose station pressure is lower and is addressed in system design.
- 95. C** — Ignition of pyrolysis gases at the ceiling level only. Rollover (or flameover) occurs when the upper smoke layer ignites, producing flames that travel horizontally through the gas layer. It is a precursor to flashover and warns advancing crews to cool the upper layer immediately.
- 96. D** — Account for all personnel and report by company designation. Each company officer's response to a PAR follows a standardized format ensuring no firefighter is unaccounted for or unable to communicate. PAR responses are time-critical to scene accountability.
- 97. A** — Reach with a pole, throw a flotation device, or row out before going in. The "reach, throw, row, go" sequence directs untrained rescuers through escalating intervention. Direct water entry by an untrained responder commonly produces a second victim.
- 98. B** — About 200 feet of hose preconnected to a discharge. Standard 1¾" crosslay preconnects on most engines carry approximately 200 feet — sufficient for typical residential structure work without an additional pull. Longer or shorter preconnects supplement for specific situations.
- 99. A** — A straight stream or narrow fog allowing reach and penetration into the fire compartment. The narrow stream pattern provides reach without disturbing the thermal balance of the room. Wide-angle fog from inside disrupts the upper layer and can produce steam burns.
- 100. D** — Series so each impeller adds to the discharge pressure. Pressure mode in a two-stage centrifugal pump arranges the impellers in series, with each adding to the final discharge pressure. Volume mode arranges them in parallel, increasing total flow at lower pressure.
- 101. A** — Try the doorknob to verify that the door is actually locked. "Try before you pry" is the first principle of forcible entry — many doors are unlatched even when they appear secured. The time saved by checking prevents unnecessary property damage and operational delay.
- 102. A** — Approach from a 45-degree upwind angle with a fog stream ready. The upwind 45-degree approach positions responders out of the bumper-strut release path, fuel runoff, and tire-blast trajectory. Direct front or rear approaches expose responders to specific vehicle-fire hazards.
- 103. D** — The bedroom is post-flashover with high heat-release rate. Flame venting horizontally through an opened door indicates the room contents have reached ignition temperature and the upper layer is self-sustaining. Survival-limit conditions exist inside.
- 104. A** — Manage elevator operation, building systems, and stairwell access. Lobby control is the high-rise gateway function, coordinating resources moving up the building and information moving down. The role is critical to high-rise tactical effectiveness.

**105. B** — At the entry point sealing the doorway with the fan cone. Positive-pressure attack (PPA) places the PPV fan at the entry, with the fan cone fully sealing the doorway, pushing fresh air into the structure while combustion products exit through a coordinated exhaust opening. PPA is used selectively based on fire conditions.

**106. D** — Up the stairwell that is not being used for fire attack. Search above the fire floor in a high-rise proceeds through the evacuation stairwell, keeping the search crew out of the contaminated attack stairwell. Two-stairwell separation is the foundation of high-rise tactics.

**107. B** — The health hazard rating from 0 to 4 levels. On the NFPA 704 marking system, the blue diamond indicates health hazard. Red is fire, yellow is instability, and white is special hazards (W, OX, etc.).

**108. C** — Designate the structure as a non-defensible position and reposition. Minimal defensible space, fuel loading, or position can make a structure undefensible, requiring the crew to move to a defensible location. Committing to an undefensible position exposes the crew to entrapment and turnover.

**109. D** — Between 16 and 25 percent indicating good but limited supply:  $(60 - 50) \div 60 = 16.7$  percent drop. Under the percent-drop rule, a 16–25 percent drop indicates approximately equal flow still available from the hydrant. This is the standard hydrant capacity assessment.

**110. A** — Stop the apparatus, set parking brake, shift to neutral, engage pump. The midship or split-shaft pump engagement sequence prevents mechanical damage and allows safe transition between road and pump operation. Each apparatus has manufacturer-specific guidance, but this is the general procedure.

**111. C** — Open the wall to inspect for hidden fire extension behind it. Smoke charring on a baseboard extending behind drywall indicates fire has communicated into the wall cavity. Concealed fire that is not opened and extinguished will rekindle.

**112. A** — Open windows or doors at the same level as the fire for cross-ventilation. Horizontal ventilation works air movement across the involved space using openings at the same level as the fire. Effectiveness depends on coordinated entry and exit openings.

**113. B** — The movement of air and combustion products from intake to exhaust. The flow path describes how air, smoke, and heat move through the structure between openings. Understanding flow path is essential for door control, ventilation timing, and crew positioning.

**114. A** — Maintain the door in a partially-open position to manage flow path. Controlling the door limits the air supply to the fire while allowing the crew to enter or apply water. Fully opening the door creates an uncontrolled flow path that can produce flashover.

**115. A** — Use the emergency bypass and exit immediately while monitoring air. A continuously free-flowing regulator drains the cylinder rapidly, limiting available work time. The emergency bypass allows controlled flow during exit while the operator monitors remaining air.

**116. B** — Be seated in an approved seat with the seat belt fastened at all times. NFPA 1500 requires belted seating during all apparatus movement, regardless of urgency. Seat-belt compliance is the single most important apparatus-safety measure.

**117. B** — Establish a hazard zone with at least one full span between poles. A sagging conductor creates a whip hazard if the wire falls or breaks, with the snap distance covering roughly one full span. The hazard zone extends from pole to pole on either side of the damaged span.

**118. C** — A Class B dry-chemical or AFFF foam extinguisher. A 5-gallon gasoline spill fire requires a Class B agent that excludes oxygen and prevents vapor reignition. Water can spread the fuel, and CO<sub>2</sub> may displace but not fully cover the spill.

**119. C** — The fire originated at or near the base of the V-pattern. The V-pattern char is produced as fire spreads upward and outward from its origin, leaving the characteristic angular pattern on the wall. Identifying V-patterns is a fundamental fire-investigation indicator.

**120. A** — Disconnect a length of supply hose at the intersection for later pickup. "Dropping a line" detaches a supply length at a strategic point so the apparatus can continue. The dropped section is picked up later by another company that completes or extends the lay.

**121. B** — The stairwell fan creates higher pressure than adjacent floor spaces. Stairwell pressurization establishes a positive pressure differential that prevents smoke from entering the stairwell. The pressurized stairwell remains usable for evacuation and fire department access.

**122. B** — Volume, velocity, density, and color of the smoke product. The four indicators of "reading smoke" provide information about fire stage, fuel, and ventilation status. Together they support tactical decisions about strategy and crew positioning.

**123. C** — Spot the apparatus so the aerial can reach the window with proper scrub area. Scrub area is the area within reach of the working tip — typically a 90-degree angle to the building face with apparatus offset to allow articulation. Direct under-window or distant positions waste reach and complicate operations.

**124. B** — The fire is rapidly growing toward flashover and exit is indicated. Smoke banking down with rising heat indicates the upper layer is heavily loaded with pyrolysis gases and the room is at or near ignition temperature. Immediate exit is the only safe action.

**125. B** — Monitoring firefighter recovery, vitals, hydration, and rotation through assignments. Rehab is a formal medical and operational function staffed appropriately for the incident size. It reduces line-of-duty cardiac events and improves sustained operational stamina.

**126. C** — Three firefighters working together with a backup at the nozzle. A 2½" handline at maximum flow produces reaction force exceeding 75 pounds and cannot be safely controlled by one or two firefighters. Proper staffing — nozzle, backup, and control firefighter at a corner or door — is fundamental to safe heavy-line operations.

**127. A** — Requires the monitor to be anchored or weighted to prevent movement. A portable monitor at 500 gpm produces enough reaction force to move itself if not secured. Monitor design includes anchor points and weight bags deployed before operation.

**128. D** — Supply hose diameter and friction loss are restricting actual flow. A deck gun supplied through 3-inch hose at only 100 gpm reflects severe supply restriction — the supply configuration cannot deliver the master-stream demand. Master streams require supply lines sized for the rated flow.

**129. D** — Inspect for hidden fire extension in the ceiling and attic space. Fire commonly travels through joist channels into attic space without visible signs at the ceiling surface. Opening the ceiling exposes hidden fire that would otherwise rekindle.

**130. C** — Crack the door slowly while controlling it and assess interior conditions. Heavy floor-level heat behind a closed door indicates significant interior fire conditions, and uncontrolled opening creates an immediate flow path. Door control allows assessment, water application, and managed entry.

**131. B** — The chart shows the four primary General Staff sections under the IC. The basic ICS organization places Operations, Planning, Logistics, and Finance/Administration as Section Chiefs under the Incident Commander, with Command Staff (Safety, Liaison, PIO) reporting directly to the IC. Branches and Unified Command structures are not shown at this complexity level.

**132. C** — Open the bale fully and apply maximum water to the involved area. "Holding the line" means applying maximum water to maintain a defensive position and prevent fire spread past the current line. The line is held in position while water is applied at the maximum effective rate.

**133. D** — About 200 feet including a working margin of excess hose. A 30-foot setback plus 75-foot interior reach equals 105 feet of working length, and 95 feet of margin allows for routing, doorways, and unexpected obstacles. Insufficient stretch is a primary cause of attack failure on the residential fireground.

**134. A** — Stop the flow at the sprinkler riser using a sprinkler wedge. A wedge plugs the activated head from outside, stopping the discharge without shutting down the entire system. The rest of the sprinkler network remains in service for additional activations.

**135. A** — Remove the extinguisher from service for full inspection and recharging. A missing tamper seal indicates possible tampering or partial use, both of which compromise readiness. Returning a tampered extinguisher to service without inspection defeats the maintenance program.

**136. B** — Position the fan with the intake side facing the smoke-filled area. A negative-pressure smoke ejector draws smoke through the fan and exhausts it outside, so the intake must face the smoke. Reversed positioning either does nothing or pushes smoke further inside.

**137. C** — Just past the front of the structure to allow truck company access. The first-due engine leaves the building front available for the truck company's aerial and ladder operations. This SOP supports coordinated engine-truck operations on the residential fireground.

**138. A** — The atmosphere is oxygen-deficient and requires SCBA for entry. OSHA defines oxygen-deficient atmospheres as below 19.5 percent, and 17 percent is well below that threshold. SCBA is required, and the atmosphere is treated as IDLH.

**139. B** — If the thumb held at arm's length covers the fire, the exposure is safe. The thumb rule scales naturally with fire size and distance, providing a quick assessment of exposure risk. When the fire exceeds the thumb's apparent size, exposure lines are warranted.

**140. A** — Apply water to surfaces of nearby structures to prevent ignition. Exposure protection cools the exposure surface below ignition temperature and provides an evaporative barrier against radiant heat. Exposure lines are placed early in defensive and transitional operations.

**141. C** — Pants and boots first, then coat, hood, SCBA, helmet, gloves. The standard donning sequence allows each PPE layer to engage properly with the previous one before the next is added. Reversed sequences leave gaps or incomplete coverage.

**142. D** — Becket bend (sheet bend) or a double sheet bend for security. The becket bend is the standard knot for joining two ropes for utility hauling — it ties quickly, holds securely, and unties reliably after release. The double sheet bend adds extra security for ropes under heavier load.

**143. C** — Stretch the line to the fire compartment door but do not advance further. The "stretch and stop" tactical pause positions the attack line at the fire compartment but holds further advance pending ventilation, search, or additional crew coordination. The pause prevents premature commitment to interior advance.

**144. C** — Turn the gas valve at the meter a quarter-turn to the off position. Natural gas is shut off at the meter by turning the operating lever perpendicular to the gas line. This is a simple, repeatable utility-control technique used by every firefighter.

**145. B** — Withdraw all interior crews immediately and account for all personnel. A partial collapse triggers immediate withdrawal and an emergency PAR to verify accountability. Continuing operations after a collapse exposes additional crews to secondary collapse and creates compound rescue scenarios.

**146. B** — About 400 gallons per minute:  $1,200 \text{ sq ft} \div 3 = 400 \text{ gpm}$  by the National Fire Academy formula. The NFA formula provides a rapid estimate of needed fire flow based on square footage of involvement. Adjustments are made for exposures and percentage of involvement.

**147. A** — Remove the affected insulation and apply water to fully cool the area. Smoldering insulation in a wall cavity virtually guarantees rekindle if left in place. Removal and direct water application is the standard overhaul technique.

**148. D** — Webbing or blanket drag using a sling or improvised harness. A drag uses the floor to support most of the victim's weight, allowing a single rescuer to move a heavy adult without the lifting strain of a carry. Drags are the standard single-rescuer technique for non-ambulatory adults.

**149. D** — Equal discharge pressure to both lines from the same pump. Two identical hose lays at identical flow require identical discharge pressure to deliver the same nozzle pressure. Pressure differences between matched lines indicate a problem in one of them.

**150. A** — Conduct a rapid primary search prioritized over fire suppression. When an occupant remains unaccounted for, life safety drives the tactical priority and the primary search has the highest probability of finding a viable victim. Search and suppression proceed concurrently when staffing allows.