PRACTICE EXAM 7: FIREFIGHTER I & II SIMULATION (150 QUESTIONS)

1. A pump operator is supplying a 200-foot, 1¾-inch attack line flowing 150 gpm with a combination nozzle. Friction loss is approximately 30 psi per 100 feet. Nozzle pressure is 100 psi. The required pump discharge pressure is approximately?

A. 160 psi

B. 130 psi

C. 100 psi

D. 200 psi

2. A pump operator is supplying a 250-foot, 2½-inch attack line flowing 250 gpm with a smooth-bore tip. Friction loss is approximately 12 psi per 100 feet. Nozzle pressure is 50 psi. The required pump discharge pressure is approximately?

A. 100 psi

B. 80 psi

C. 60 psi

D. 130 psi

3. A high-rise attack from the floor below the fire (one floor below) is being supplied through a standpipe. Each floor above the pumper adds approximately 5 psi of elevation loss. The fire is on the 12th floor; the pumper is at street level. The total elevation loss to the 11th-floor standpipe outlet is approximately?

A. 25 psi

B. 35 psi

C. 55 psi

D. 75 psi

4. A pump operator is supplying a master stream from a deck gun with a 1⅜-inch smooth-bore tip flowing approximately 500 gpm at 80 psi tip pressure. The supply line is 100 feet of 5-inch hose with negligible friction loss at this flow. The required pump discharge pressure is approximately?

A. 50 psi

B. 100 psi

C. 80 psi

D. 200 psi

5. A 1-inch smooth-bore handline tip flowing at 50 psi nozzle pressure delivers approximately?

A. 125 gpm

B. 210 gpm

C. 325 gpm

D. 500 gpm

6. A 1¼-inch smooth-bore handline tip flowing at 50 psi nozzle pressure delivers approximately?

A. 210 gpm

B. 325 gpm

C. 410 gpm

D. 500 gpm

7. A 4,500 psi SCBA cylinder rated for 30 minutes provides actual working duration during heavy interior firefighting of approximately?

A. The full 30-minute rated duration

B. 25 minutes during heavy work

C. 20 minutes during heavy work

D. 15 minutes or less during heavy work

8. A pump operator supplies a 300-foot, 1¾-inch attack line flowing 185 gpm. Friction loss is approximately 45 psi per 100 feet at this flow. Nozzle pressure is 100 psi with a combination nozzle. The required pump discharge pressure is approximately?

A. 235 psi

B. 185 psi

C. 145 psi

D. 305 psi

9. A pump operator supplies a 150-foot, 1¾-inch attack line flowing 100 gpm. Friction loss is approximately 12 psi per 100 feet at this flow. Nozzle pressure is 100 psi. The required pump discharge pressure is approximately?

A. 118 psi

B. 100 psi

C. 130 psi

D. 150 psi

10. A 1⅛-inch smooth-bore handline tip flowing at 50 psi nozzle pressure delivers approximately?

A. 125 gpm

B. 210 gpm

C. 410 gpm

D. 265 gpm

11. A pump operator is supplying a standpipe in a 10-story high-rise from a fire department connection (FDC). The attack is on the 10th floor. Pumper friction loss in the supply lines is approximately 25 psi. The standpipe friction loss is approximately 25 psi. The attack line at the 10th-floor outlet requires 100 psi. Elevation loss to the 10th-floor outlet is 5 psi per floor × 10 floors = 50 psi. The total required pump discharge pressure is approximately?

A. 100 psi

B. 150 psi

C. 200 psi

D. 250 psi

12. A tanker shuttle operation supplies a portable tank at the fire scene. Each tanker carries 2,500 gallons of water. The fire requires 250 gpm of continuous supply. One round trip per tanker (fill, transport, dump, return) takes 12 minutes. The minimum number of tankers required to maintain continuous supply is approximately?

A. 3 tankers

B. 2 tankers

C. 4 tankers

D. 5 tankers

13. A drafting operation from a static water source has a theoretical maximum vertical lift at sea level of approximately 25 feet. At an elevation of 5,000 feet above sea level, the theoretical maximum lift would be approximately?

A. The full 25 feet

B. 19 feet (reduced)

C. 30 feet (increased)

D. 10 feet (severely reduced)

14. A 5-inch large-diameter supply line at 1,000 gpm produces friction loss of approximately?

A. 8 psi per 100 feet

B. 25 psi per 100 feet

C. 50 psi per 100 feet

D. 100 psi per 100 feet

15. A pump operator is supplying two 200-foot 1¾-inch attack lines, each flowing 150 gpm. Each line has 30 psi per 100 feet of friction loss and 100 psi nozzle pressure. The required pump discharge pressure on each discharge gauge is approximately?

A. 100 psi

B. 130 psi

C. 160 psi

D. 200 psi

16. A standpipe-supplied attack on the 8th floor of a high-rise requires elevation loss of approximately?

A. 35 psi

B. 50 psi

C. 70 psi

D. 100 psi

17. A 1⅜-inch smooth-bore master stream tip operating at 80 psi nozzle pressure delivers approximately?

A. 325 gpm

B. 500 gpm

C. 750 gpm

D. 1,000 gpm

18. A pump operator is supplying a 200-foot, 2½-inch attack line flowing 250 gpm with a smooth-bore tip (50 psi nozzle pressure). Friction loss is approximately 12 psi per 100 feet. The required pump discharge pressure is approximately?

A. 74 psi

B. 50 psi

C. 100 psi

D. 130 psi

19. A pre-piped aerial waterway operating at 1,000 gpm has elevation loss of approximately 0.5 psi per foot of elevation. A 100-foot elevation produces an elevation loss of approximately?

A. 50 psi

B. 25 psi

C. 75 psi

D. 100 psi

20. An ice rescue is in progress at a frozen lake. The first-arriving engine has firefighters in cold-water suits. The most important rescue principle for ice operations is?

A. Send a firefighter directly across the ice surface to reach the victim

B. Establish a tethered rescue with rope, flotation device, and minimum number of rescuers on the ice

C. Use the apparatus to push through the ice to reach the victim

D. Wait for water rescue specialists with motorized boat capability

21. A high-angle rescue technical operation requires which specific equipment configuration?

A. A single rope system with one belay rappel

B. Standard firefighter PPE without specialized harness

C. A two-rope system (working and belay) with appropriate harnesses, anchors, and rescuer training

D. A truck-mounted aerial platform replacing rope rescue entirely

22. A tanker shuttle operation has filled a 2,500-gallon tanker from a hydrant. The hydrant flows at 500 gpm. The fill time for the tanker is approximately?

A. 2.5 minutes

B. 3 minutes

C. 7 minutes

D. 5 minutes

23. A working incident at sea level requires water supply through a drafting operation from a creek located approximately 18 vertical feet below the apparatus deck. The drafting operation is?

A. Beyond the theoretical maximum lift and not feasible

B. At the theoretical maximum lift; success uncertain

C. Just within the practical maximum range

D. Within the practical maximum range and likely feasible

24. A standpipe-supplied attack on the 5th floor of a high-rise requires elevation loss of approximately?

A. 15 psi

B. 25 psi

C. 35 psi

D. 50 psi

25. A 1⅛-inch smooth-bore handline at 50 psi nozzle pressure produces nozzle reaction force of approximately?

A. 85 pounds

B. 50 pounds

C. 100 pounds

D. 150 pounds

26. A 2½-inch handline flowing 250 gpm at 50 psi nozzle pressure produces nozzle reaction force of approximately?

A. 100 pounds

B. 130 pounds

C. 75 pounds

D. 200 pounds

27. A 1¾-inch handline flowing 185 gpm with a combination nozzle at 100 psi nozzle pressure produces nozzle reaction force of approximately?

A. 50 pounds

B. 60 pounds

C. 75 pounds

D. 100 pounds

28. A confined-space rescue operation requires which specific atmospheric monitoring sequence before entry?

A. Oxygen level only

B. Combustible gas level only

C. Toxic gas level only

D. Oxygen, combustible gases, and toxic gases at multiple depths

29. A scuba/swift-water rescue interface requires that the first-arriving engine company?

A. Send firefighters into the water immediately for victim contact

B. Apply attack lines to the water surface for victim guidance

C. Establish scene control, request specialized rescue resources, and conduct surface rescue only with proper equipment

D. Use the apparatus to extend a ladder into the water for victim reach

30. A trench rescue operation requires shoring before entry. The shoring purpose is to?

A. Provide a stable working platform inside the trench

B. Mark the entry point for rescuers

C. Prevent secondary collapse of the trench walls onto rescuers

D. Provide ventilation pathways through the trench atmosphere

31. A wildland-urban interface (WUI) fire approaches a structure. The structural firefighter wears which PPE configuration?

A. Standard structural ensemble with no modifications

B. Hazmat Level A protection for unknown atmospheric conditions

C. Standard work uniform with respiratory protection only

D. A wildland firefighting ensemble per NFPA 1977, lighter than the structural ensemble

32. A working fire on an upper floor of a high-rise has been controlled. The lowest practical staging area for relief crews and equipment is?

A. The fire floor itself

B. The lobby level on the ground floor

C. The floor immediately below the fire

D. The roof level for descent to the fire floor

33. A pre-incident plan for a multi-story office building identifies a fire pump in the basement. The fire pump's purpose is to?

A. Drain water from sprinkler operations after the incident

B. Provide air to the building's HVAC system during fire emergencies

C. Boost water pressure for the sprinkler and standpipe systems

D. Provide a backup power supply to the building during fire emergencies

34. A working fire involves a pier or wharf structure over water. The most significant operational risk for fire department personnel is?

A. The structural integrity of the wood decking under fire conditions

B. The risk of vehicle traffic crossing the pier during operations

C. The exposure to ambient atmospheric humidity during operations

D. The risk of firefighters falling into the water through fire-weakened sections

35. A working ship or watercraft fire requires what specialized water supply approach?

A. Draft from the surrounding water using the apparatus pump

B. Apply water from a positioned hydrant on the dock if available

C. Coordinate with marine firefighting resources (fireboat) and use specialized fittings if available

D. Use only on-board sprinkler systems for suppression

36. A working fire in a cellular telecommunications equipment shelter contains lead-acid batteries and electronic equipment. The most appropriate initial attack approach is?

A. Apply water from a defensive position after de-energizing the equipment

B. Aggressive interior attack with multiple attack lines

C. Apply foam from the exterior to all visible surfaces

D. Withdraw and let the equipment burn out completely

37. A working fire involves a renewable energy installation with photovoltaic (PV) solar panels on the roof. The most operationally critical hazard is?

A. The structural weight of the panels on the roof structure

B. The reflection of solar light onto adjacent buildings

C. The increased radiant heat from panel surfaces

D. Continued DC voltage generation as long as light reaches the panels

38. A working fire involves a lithium-ion battery storage facility (BESS). The most significant operational challenge is?

A. The risk of thermal runaway, gas emission, and prolonged cooling requirement

B. The cooling water requirement for adjacent structures

C. The risk of explosive electrical short circuits at the service panel

D. The conventional structural collapse hazard typical of warehouses

39. A working fire in a marijuana cultivation facility (legal in many jurisdictions) presents specific hazards including?

A. Elevated humidity, intense lighting, electrical modifications, and possible illegal extraction operations

B. Standard residential hazards equivalent to any single-family dwelling

C. Heavy timber construction with predictable burn patterns

D. No specific hazards beyond those of standard agricultural facilities

40. A working fire investigation has identified evidence of a possible improvised incendiary device. The most appropriate Firefighter II action is to?

A. Photograph the evidence and continue overhaul activities

B. Stop activity in the area, secure the location, and notify command and the bomb squad

C. Move the evidence to an exterior location for the investigator

D. Document the evidence and proceed with normal overhaul

41. A working fire occurs in a residential structure of straw-bale construction. The most significant operational challenge is?

A. The deep-seated nature of fire spread into the bale interior, requiring extensive overhaul

B. The lightweight nature of the bales, which collapse rapidly

C. The high humidity within the bale interior

D. The risk of methane gas accumulation within the bale structure

42. A working fire involves an underground parking structure. The most significant operational concern is?

A. The risk of fuel spills from parked vehicles in the structure

B. The reduced accessibility for fire department apparatus

C. The combination of confined space, vehicle fuel loads, and limited ventilation/access

D. The structural integrity of the concrete ceiling under fire conditions

43. A working fire in a cold-storage warehouse with significant insulation presents what specific hazard?

A. Aggressive smoke production from polystyrene insulation

B. The risk of refrigerant leak from the storage system

C. The trapped heat behind the insulation creating extended duration high-temperature conditions

D. The risk of frozen water in suppression systems

44. A working fire involves an enclosed industrial process facility with significant solvent storage. The most important first-arrival action is?

A. Establish water supply for an aggressive interior attack

B. Position attack lines at the nearest entry point for forced entry

C. Apply master stream to the involved structure from the apparatus

D. Establish isolation zones, request hazmat resources, and identify products and quantities involved

45. A working fire investigation at a residence identifies that the smoke detector batteries had been removed. The investigator notes this as part of the cause-and-origin determination. The Firefighter II's role regarding this finding is to?

A. Discuss the finding with the property owner directly

B. Make a personal determination about the cause

C. Remove the smoke detector for laboratory analysis

D. Document the observation factually for the investigator's report

46. A working fire involves a single-family residence with a hoarding-disorder condition (extensive accumulation of materials). The most significant operational challenge is?

A. The increased fire load and reduced mobility within the structure

B. The aesthetic impression on the public during operations

C. The political implications of the operations for the local government

D. The financial impact on the property owner's insurance

47. A working incident at a residential structure has resulted in a firefighter casualty. The casualty is being prepared for transport to a hospital. The most important post-incident action for the company officer is to?

A. Ensure proper documentation, notification of family, and support for the affected crews

B. Provide a detailed media briefing immediately

C. Conduct a public review of the incident

D. Make a personal determination of fault

48. A first-due engine at a working structure fire identifies that the smoke from the structure is highly toxic. The most important consideration regarding firefighter exposure is?

A. The visual appearance of the smoke during operations

B. The atmospheric monitoring of the air at the apparatus position

C. The continuous availability of SCBA discipline during overhaul

D. The combination of SCBA discipline during operations and field reduction of contaminants after operations

49. A working structure fire has been controlled. The first-due engine company has been operating for approximately 35 minutes. The crew shows signs of fatigue but no acute medical issues. The most appropriate command action is to?

A. Continue operations because the fire is now controlled

B. Allow the crew to rest at the apparatus while continuing minor tasks

C. Provide coffee and food at the apparatus to continue operations

D. Rotate the crew to rehab for assessment, hydration, food, and rest

50. A working fire is on the 3rd floor of a 4-story residential apartment building. The 4th floor above the fire shows visible smoke at the windows. The 1st and 2nd floors below the fire show no smoke. The most operationally significant hazard for any 4th-floor search team is?

A. The risk of fire spreading upward through wall voids and shafts

B. The risk of the 4th floor collapsing during operations

C. The risk of toxic smoke and gas accumulation at the 4th floor, with potential ignition from heat above

D. The risk of the building's structural members failing under fire load below

51. A working fire investigation identifies that the area of origin appears to contain a possible accelerant. The most appropriate Firefighter II action is to?

A. Move the suspected accelerant to a sealed container

B. Empty any remaining contents into a laboratory container

C. Pour water on the suspected accelerant for further analysis

D. Note the location, leave undisturbed, and notify the investigator

52. A working fire investigation has been initiated. The investigator wants to interview firefighters who were on the working incident. The most appropriate response from each firefighter is to?

A. Decline the interview pending personal legal counsel

B. Provide a written statement only, with no verbal communication

C. Provide an opinion about the cause based on personal experience

D. Provide accurate, factual observations from arrival and operations

53. A working fire in a single-family residence has been controlled. During overhaul, a firefighter discovers $20,000 in cash hidden inside a wall cavity. The most appropriate action is to?

A. Document the discovery with witnesses, secure the cash for the property owner, and brief command

B. Distribute the cash to the responding crews for hazard pay

C. Move the cash to an exterior location for safekeeping

D. Photograph the cash and continue overhaul activities

54. A working fire investigation has identified a clear cause: an electrical malfunction in a kitchen appliance. The investigator informs the property owner of the determination. The most appropriate Firefighter II conduct in this interaction is to?

A. Provide a personal opinion about the cause to the property owner

B. Make commitments to the property owner about insurance settlement

C. Confront the property owner about any inconsistencies in their account

D. Remain professional, observe the interaction, and continue assigned duties without engaging in the cause discussion

55. A working fire at a residential structure has been controlled. The property owner is a non-English-speaking individual. The most appropriate communication approach is to?

A. Speak loudly in English to ensure the message is understood

B. Refuse to communicate until a translator is available

C. Provide a written summary in English only

D. Use available translation resources (phone-based interpreter service, multilingual personnel, or written translation tools)

56. A pump operator supplies a 250-foot, 1¾-inch attack line flowing 150 gpm with a combination nozzle. Friction loss is 30 psi per 100 feet at this flow. Nozzle pressure is 100 psi. The required pump discharge pressure is approximately?

A. 175 psi

B. 150 psi

C. 125 psi

D. 225 psi

57. A pump operator supplies a 100-foot, 2½-inch attack line flowing 250 gpm with a smooth-bore tip. Friction loss is 12 psi per 100 feet. Nozzle pressure is 50 psi. The required pump discharge pressure is approximately?

A. 50 psi

B. 100 psi

C. 62 psi

D. 80 psi

58. A pump operator supplies a 300-foot 5-inch supply line at 750 gpm. Friction loss is approximately 5 psi per 100 feet at this flow. The total friction loss in the supply line is approximately?

A. 5 psi

B. 15 psi

C. 25 psi

D. 50 psi

59. A pump operator is supplying a 200-foot, 2½-inch attack line flowing 250 gpm with a smooth-bore tip. The pump discharge pressure is 100 psi. The total friction loss in the line is approximately?

A. 50 psi

B. 24 psi

C. 100 psi

D. 75 psi

60. A water supply through a portable tank requires the tank to be located approximately 18 feet below the apparatus pump. The drafting operation is?

A. Beyond the theoretical maximum lift and not feasible

B. Within the practical maximum lift but at the upper edge

C. Within the practical maximum lift with significant margin

D. Within the practical lift range with reasonable margin

61. A tanker shuttle operation supplies a portable tank at the fire scene. The fire requires 500 gpm of continuous supply. Each tanker carries 3,000 gallons of water. Round trip time per tanker is 10 minutes. The minimum number of tankers required to maintain continuous supply is approximately?

A. 2 tankers

B. 4 tankers

C. 6 tankers

D. 8 tankers

62. A 1¾-inch handline flowing 150 gpm with a combination nozzle at 100 psi has friction loss of approximately?

A. 12 psi per 100 feet

B. 30 psi per 100 feet

C. 45 psi per 100 feet

D. 60 psi per 100 feet

63. A 2½-inch handline flowing 250 gpm has friction loss of approximately?

A. 5 psi per 100 feet

B. 12 psi per 100 feet

C. 25 psi per 100 feet

D. 50 psi per 100 feet

64. A 1¾-inch handline flowing 100 gpm has friction loss of approximately?

A. 30 psi per 100 feet

B. 25 psi per 100 feet

C. 20 psi per 100 feet

D. 12 psi per 100 feet

65. A 5-inch large-diameter supply line at 500 gpm produces friction loss of approximately?

A. 5 psi per 100 feet

B. 0.2 psi per 100 feet

C. 1 psi per 100 feet

D. 12 psi per 100 feet

66. A pump operator supplies a 5-inch supply line at 1,500 gpm. Friction loss is approximately 2 psi per 100 feet at this flow. The total friction loss in a 200-foot supply line is approximately?

A. 2 psi

B. 4 psi

C. 8 psi

D. 20 psi

67. A pump operator supplies a 1¾-inch attack line through a wye. The line beyond the wye is 150 feet flowing 150 gpm. Friction loss in the line beyond the wye is 30 psi per 100 feet. The supply to the wye is 100 feet of 2½-inch hose flowing the combined flow of 150 gpm with friction loss of approximately 4 psi per 100 feet. Nozzle pressure is 100 psi. The required pump discharge pressure is approximately?

A. 149 psi

B. 130 psi

C. 175 psi

D. 200 psi

68. A working fire on the 6th floor of a high-rise building requires elevation loss to the 6th-floor standpipe outlet of approximately?

A. 30 psi

B. 50 psi

C. 75 psi

D. 100 psi

69. A 1⅜-inch smooth-bore master stream tip operating at 80 psi nozzle pressure produces nozzle reaction force of approximately?

A. 100 pounds

B. 150 pounds

C. 250 pounds

D. 500 pounds

70. A 1½-inch smooth-bore master stream tip operating at 80 psi nozzle pressure delivers approximately?

A. 250 gpm

B. 425 gpm

C. 600 gpm

D. 800 gpm

71. A working fire investigation has identified evidence of a possible improvised explosive device. The most appropriate immediate action for all personnel is to?

A. Photograph the evidence from multiple angles for documentation

B. Move the device to an exterior location for safekeeping

C. Continue operations carefully around the suspected device

D. Immediately withdraw all personnel to a safe distance and request the bomb squad

72. A working fire investigation has confirmed evidence of a possible methamphetamine production lab. The most significant additional hazard for fire department personnel is?

A. Toxic chemicals, possible booby traps, and unstable precursors and waste materials

B. The risk of standard structural collapse typical of residential fires

C. The risk of standard smoke and gas exposure during operations

D. The risk of standard water damage to adjacent residences

73. A working fire investigation has identified that the fire originated near a kerosene heater being used inside a residence in winter. The investigator's most likely cause determination involves?

A. Mechanical failure of the heating system

B. Electrical malfunction of the heating system

C. Combustibles too close to an unattended heating appliance

D. Defective electrical wiring in the wall behind the heater

74. A working fire investigation has identified that the area of origin contains the remains of a cigarette and surrounding fabric materials. The investigator's most likely cause determination involves?

A. An accelerated fire from a flammable liquid

B. An electrical malfunction in nearby outlets

C. A heating equipment fire from nearby radiator

D. An accidental ignition from smoking materials

75. A working fire investigation has identified that the area of origin contains the burned remains of a Christmas tree in a residential living room. The investigator's most likely cause determination involves?

A. An electrical malfunction in the wall outlets behind the tree

B. An accelerant applied to the tree by an intentional act

C. A heating equipment malfunction in the room

D. Dry tree material and accidental ignition from heating equipment, electrical decorations, or open flame

76. A working fire investigation has identified that the kitchen appears to be the area of origin and the cooking equipment was in use shortly before the fire. The investigator's most likely cause determination involves?

A. An electrical malfunction in the kitchen wiring

B. An unattended cooking situation

C. A heating equipment malfunction adjacent to the kitchen

D. A natural gas leak from the gas service

77. A working fire investigation has been initiated. The Firefighter II is asked by the investigator about specific observations during arrival. The most appropriate response is to?

A. Provide accurate, factual observations of conditions, occupants, and any indicators noticed on arrival

B. Provide a personal interpretation of the meaning of the observations

C. Decline to provide observations pending personal counsel

D. Provide observations only in writing for legal protection

78. A working fire investigation has identified that the area of origin contains evidence of a possible electrical fault in a wall outlet. The investigator preserves the outlet for laboratory analysis. The chain of custody for the outlet evidence is the responsibility of?

A. The first-arriving Firefighter II

B. The investigating company officer

C. The fire investigator, documented from collection through laboratory analysis and any proceedings

D. The property owner once the investigation is complete

79. A working fire investigation has identified that the property owner had attempted to remove evidence before fire department arrival. The most appropriate Firefighter II conduct is to?

A. Confront the property owner about the attempted evidence removal

B. Document the observation factually and notify command and the investigator

C. Continue normal operations without further action

D. Make a personal determination about the cause based on the observation

80. A working fire investigation has identified that the residential structure had a wall safe in the area of origin that appears to have been disturbed by the fire. The most appropriate Firefighter II action is to?

A. Note the location, do not disturb the safe, and notify the investigator

B. Open the safe to check for victims trapped inside

C. Remove the safe to an exterior location for owner safekeeping

D. Document the safe for the post-incident report and continue overhaul

81. A working fire crew is operating on an interior attack line. The crew has been operating for approximately 18 minutes since SCBA donning. The average air consumption rate during heavy interior firefighting is approximately?

A. 25 liters per minute

B. 30 liters per minute

C. 40-50 liters per minute

D. 80-100 liters per minute

82. A 4,500 psi, 45-cubic-foot SCBA cylinder contains approximately 1,275 liters of air at standard pressure. At a heavy work consumption rate of 40 L/min, the theoretical maximum duration is approximately?

A. 60 minutes

B. 30 minutes (matching the rated cylinder duration)

C. 45 minutes

D. 15 minutes

83. A working fire crew has worked for 25 minutes with a 30-minute rated SCBA cylinder. The remaining air supply is approximately?

A. The full 5 minutes of remaining rated time

B. Approximately 1 to 3 minutes of practical working time

C. Approximately 0 minutes; the alarm should already be sounding

D. Unable to determine without specific consumption data

84. A high-rise pack typically contains approximately how many feet of attack hose?

A. 50 feet

B. 75 feet

C. 100 feet

D. 150 feet or more

85. A working fire involves the 22nd floor of a high-rise office building. The first-due engine officer is establishing the operation. The most appropriate staging area is?

A. The lobby level, with extensive vertical hose stretch

B. The 22nd floor itself, on the fire floor for direct attack

C. The 21st floor, one floor below the fire

D. The 23rd floor, one floor above the fire

86. A working fire involves the 35th floor of a high-rise office building. The most appropriate water supply approach is to?

A. Stretch attack lines from the apparatus through the stairwell

B. Use the building's standpipe with high-rise packs from the floor below

C. Stretch hose through an exterior window using a rope

D. Use the building's elevators to transport hose

87. A working fire on the 28th floor of a high-rise has been controlled. The first-due engine company has been operating for 45 minutes. The most appropriate crew action is to?

A. Rotate to rehab on the floor below, with relief crews provided from the lobby staging

B. Continue operations until shift change

C. Remain at the fire floor for any continued operations

D. Withdraw from the building entirely

88. A working fire investigation has identified that the residence had multiple smoke detectors, but all batteries had been removed by the property owner. The most likely contributing factor to fire deaths in such a situation is?

A. Lack of warning to occupants, with delayed escape

B. The detectors had no effect on the fire growth itself

C. The detectors triggered after the fire was already out of control

D. The detectors were not properly installed initially

89. A working fire investigation has been initiated. The Firefighter II is asked by the investigator about specific items observed during overhaul. The most appropriate response is to?

A. Provide a personal interpretation of the items' significance

B. Decline to provide observations pending personal counsel

C. Provide observations only in writing for legal protection

D. Provide accurate, factual observations of items, locations, and conditions

90. A 1¼-inch smooth-bore handline tip at 50 psi produces nozzle reaction force of approximately?

A. 50 pounds

B. 75 pounds

C. 100 pounds

D. 125 pounds

91. A pump operator is supplying a 200-foot 2½-inch attack line with a combination nozzle flowing 250 gpm at 100 psi nozzle pressure. Friction loss is approximately 12 psi per 100 feet. The required pump discharge pressure is approximately?

A. 100 psi (NP only)

B. 112 psi

C. 124 psi

D. 150 psi

92. A working fire involves a vacant industrial structure with significant fire involvement. The first-arriving engine officer recognizes that no civilians are present. The most appropriate operational posture is?

A. Defensive operations with collapse zone established and exterior streams

B. Aggressive interior attack with multiple lines

C. Offensive interior attack with a single attack line

D. Mixed offensive and defensive simultaneously

93. A working fire investigation has identified that the area of origin contains the remains of multiple paper materials in close proximity to an electrical outlet. The investigator's most likely cause determination involves?

A. An electrical short circuit producing arcing and ignition of the nearby paper materials

B. A smoking material accidentally discarded in the paper materials

C. A heating equipment malfunction near the wall

D. An intentional act of accelerant application

94. A working fire investigation has identified that the area of origin contains the remains of a smoke detector with the cover removed. The most likely investigator interpretation is?

A. The smoke detector caused the fire through electrical malfunction

B. The smoke detector was the first item ignited in the fire

C. The smoke detector had been tampered with prior to the fire

D. The smoke detector was operating normally before the fire

95. A working fire investigation has identified that the door to the area of origin appears to have been forcibly opened from the outside before fire department arrival. The most appropriate Firefighter II action is to?

A. Repair the door to its original condition for the property owner

B. Note the observation factually and notify the investigator

C. Continue normal overhaul without further attention

D. Confront the property owner about the door condition

96. A working fire investigation has identified that the property owner has a history of fire-related insurance claims. The Firefighter II's role regarding this information is to?

A. Confront the property owner about the prior claims

B. Make a personal determination about the cause based on the history

C. Provide factual observations to the investigator without speculation

D. Discuss the history publicly to corroborate suspicions

97. A working fire involves a structure with significant illegal modifications (unpermitted construction, removed walls, electrical violations). The most significant operational concern is?

A. The illegal nature of the modifications for legal documentation

B. The political implications of identifying illegal modifications

C. The reduced value of the property for insurance purposes

D. The unknown structural integrity, unknown fire load, and possible electrical hazards from non-compliant modifications

98. A working fire crew is operating on an interior attack line. The crew has been operating for approximately 22 minutes since SCBA donning. At a typical heavy-work air consumption rate, the remaining air supply in a 30-minute rated cylinder is approximately?

A. 8 minutes of practical working time

B. Approximately 2 to 4 minutes of practical working time

C. 5 minutes of practical working time

D. The crew should have already exited

99. A high-rise structure fire on the 14th floor requires water supply through the standpipe. The total elevation loss from the FDC at street level to the 14th-floor outlet is approximately?

A. 25 psi

B. 50 psi

C. 70 psi

D. 100 psi

100. A 4-inch supply line at 750 gpm produces friction loss of approximately?

A. 2 psi per 100 feet

B. 8 psi per 100 feet

C. 25 psi per 100 feet

D. 50 psi per 100 feet

101. A working fire involves a residential structure with a finished basement used as a bedroom. The fire is on the first floor. The basement bedroom must be searched. The most appropriate search approach is to?

A. Send a separate, properly equipped search team via the basement stairway with backup

B. Wait until the first-floor fire is completely extinguished

C. Send the first-floor attack crew to the basement after they complete the attack

D. Position a ladder to the basement window and conduct VES of the bedroom only

102. A working fire involves an attic space with significant fire involvement. The most operationally critical hazard for any roof operations is?

A. The risk of weakened roof decking and structural members

B. The risk of slipping on the wet roof surface

C. The risk of falling debris from the roof onto the crew

D. The combined hazards of weakened structure, smoke and heat venting from the roof, and the limited ability to retreat

103. A working fire investigation has identified that the area of origin shows evidence of multiple unrelated points of fire spread. The investigator's most likely cause determination involves?

A. The standard pattern of fire spread from a single ignition

B. Possible incendiary cause requiring detailed examination

C. A natural gas leak that ignited at multiple points

D. An electrical fault distributing throughout the structure

104. A working fire investigation has identified that the area of origin contains the remains of a portable space heater. The investigator's most likely cause determination involves?

A. The space heater caused the fire through deliberate sabotage

B. Combustibles too close to the space heater, with possible accidental ignition

C. An electrical malfunction in the building's wiring

D. A natural gas leak from the building's gas service

105. A working fire crew at a 35-minute working incident has been operating with the standard 30-minute rated SCBA cylinder. The most appropriate command action is to?

A. Continue operations until SCBA alarms sound

B. Allow the crew to extend operations using exhaled air

C. Provide a fresh cylinder swap at the working position

D. Withdraw the crew immediately and provide rehab with replacement crews

106. A working fire investigation has identified that the area of origin contains the remains of multiple lit candles in close proximity to drapes or curtains. The investigator's most likely cause determination involves?

A. An electrical fault in the wall outlets behind the curtains

B. Combustibles too close to open flame, with accidental ignition

C. A heating equipment malfunction in the room

D. An intentional act of arson with multiple ignition points

107. A 4,500 psi, 60-cubic-foot SCBA cylinder is rated for approximately 45 minutes of working duration. During heavy work, the actual duration is approximately?

A. The full 45 minutes

B. Approximately 22 to 30 minutes

C. 15 minutes

D. 60 minutes

108. A working fire investigation has been initiated. A Firefighter II is asked to assist with documentation of the scene. The most appropriate documentation includes?

A. Personal opinions about the cause of the fire

B. The estimated dollar value of damage at the scene

C. Personal evaluations of crew members' performance

D. Conditions on arrival, operations conducted, observations during operations, and any unusual findings

109. A working fire involves a high-rise hotel with an in-progress meeting on the conference floor (the 6th floor). The meeting room has approximately 200 attendees. The most operationally critical first-arrival concern is?

A. Coordinated evacuation of the conference floor and the floors above

B. Direct interior attack on the meeting room

C. Pre-incident planning consultation with the hotel manager

D. Establishing a coffee station for evacuated attendees

110. A working fire investigation has identified that the residence had a history of nuisance smoke alarm activations, and the occupants had disabled the alarms. The most likely contributing factor to the fire's escalation is?

A. The alarm disabling did not affect the fire growth itself

B. The lack of warning to occupants, with delayed escape and discovery

C. The alarms triggered the fire through electrical malfunction

D. The fire department response time was extended

111. A working fire crew is operating with the standard ICS structure. The crew receives a radio MAYDAY transmission from another crew. The most appropriate response is to?

A. Continue the current assignment without acknowledgment

B. Reposition to the MAYDAY location to assist with the rescue

C. Maintain radio discipline, allow command to coordinate the response, and continue the current assignment unless ordered to redeploy

D. Withdraw from the structure immediately

112. A working fire investigation has identified evidence of possible insurance fraud. The most appropriate Firefighter II action is to?

A. Confront the property owner about the suspected fraud

B. Discuss the suspected fraud with the media

C. Make a personal determination of cause and origin

D. Provide factual observations to the investigator without speculation

113. A working fire investigation has determined the cause to be accidental. The investigator briefs the property owner. The most appropriate Firefighter II conduct is to?

A. Confront the property owner with personal observations contradicting the determination

B. Remain professional, observe the briefing, and continue assigned duties

C. Discuss alternative cause hypotheses with the property owner

D. Make a personal determination of cause that differs from the investigator's

114. A working fire investigation has identified that the residence is unoccupied at the time of fire department arrival. The most likely investigator priority is to?

A. Determine the occupants' location at the time of the fire

B. Confirm the occupants' insurance coverage

C. Establish a comprehensive cause-and-origin investigation given the absence of occupants

D. Locate the property owner for an interview

115. A working fire investigation has identified evidence of multiple, unrelated ignition points throughout the residence. The most appropriate investigator response is to?

A. Confirm the standard accidental cause determination

B. Determine that the fire was caused by lightweight construction fire spread

C. Conduct a comprehensive investigation including possible incendiary cause

D. Conclude that the fire was caused by a single electrical fault distributing throughout

116. A working fire investigation has identified that the area of origin contains evidence of a possible deliberate fire-setting device. The most appropriate Firefighter II action is to?

A. Stop activity in the area, secure the location, and notify command and the investigator

B. Move the suspected device to an exterior location for safety

C. Continue overhaul carefully around the suspected device

D. Photograph the device and continue overhaul

117. A working fire crew is operating on an interior attack line. The crew has been operating for approximately 12 minutes since SCBA donning. The remaining air supply in a 30-minute rated cylinder is approximately?

A. Approximately 8 to 13 minutes of practical working time

B. The full remaining 18 minutes of rated time

C. Approximately 3 to 5 minutes of practical working time

D. Approximately 22 minutes of practical working time

118. A 4-inch supply line at 1,000 gpm produces friction loss of approximately?

A. 3 psi per 100 feet

B. 15 psi per 100 feet

C. 25 psi per 100 feet

D. 50 psi per 100 feet

119. A 3-inch supply line at 250 gpm produces friction loss of approximately?

A. 12 psi per 100 feet

B. 25 psi per 100 feet

C. 5 psi per 100 feet

D. 50 psi per 100 feet

120. A pump operator supplies a 300-foot, 3-inch supply line at 500 gpm. Friction loss is approximately 20 psi per 100 feet at this flow. The total friction loss in the supply line is approximately?

A. 60 psi

B. 30 psi

C. 100 psi

D. 200 psi

121. A working fire has been controlled. The first-due engine company has been operating for approximately 40 minutes on an attack line. The crew shows signs of significant fatigue. The most appropriate command action is to?

A. Continue operations because the fire is controlled

B. Allow the crew to rest at the apparatus while continuing minor tasks

C. Rotate the crew to rehab for assessment, hydration, food, and rest

D. Provide caffeine and food to continue operations

122. A working fire involves a single-family residence with significant smoke and water damage throughout. The property owner is present and emotional. The most appropriate communication approach is to?

A. Refuse to communicate until the owner is calm

B. Listen empathetically, provide accurate information, refer official questions to the investigator and command, and connect the owner with available resources

C. Provide a detailed financial assessment of the damage

D. Make commitments about insurance and rebuilding timelines

123. A working fire crew is operating with the standard ICS structure. The crew completes the assigned task and is awaiting further assignment. The most appropriate response is to?

A. Begin a new task independently based on personal assessment

B. Report task completion to the supervisor and await further assignment

C. Leave the incident scene to return to the station

D. Continue operations in the original area without further coordination

124. A working fire investigation has identified evidence of possible terrorist or criminal activity. The most appropriate Firefighter II action is to?

A. Provide personal opinions about the suspected activity

B. Confront any suspects present at the scene

C. Discuss the suspected activity with the media

D. Stop activity in the area, secure the location, and notify command and the appropriate law enforcement agency

125. A working fire has been controlled. A Firefighter II is asked by command to lead a post-incident debriefing for the crew. The most appropriate facilitation approach is to?

A. Facilitate active discussion, identify learning points, encourage participation, and document outcomes

B. Lecture the crew without allowing questions

C. Refuse the assignment because debriefing is the chief officer's responsibility

D. Provide only positive feedback to avoid criticism

126. A working fire involves a residential structure with multiple potentially hazardous materials (paints, solvents, fireworks). The first-due engine officer should?

A. Establish isolation zones, identify the materials and quantities, and adjust the operational approach based on the hazards

B. Proceed with standard residential firefighting without modification

C. Apply foam to all visible flames to suppress vapor production

D. Operate from a defensive position with master streams only

127. A working fire investigation has identified that the residence had a wood-burning stove that was in use shortly before the fire. The investigator's most likely cause determination involves?

A. An electrical malfunction in the wall behind the stove

B. An intentional act of accelerant application

C. A natural gas leak from a nearby gas service

D. Combustibles too close to the stove, creosote buildup in the chimney, or improper installation

128. A working fire investigation has identified that the area of origin contains the remains of a clothes dryer with a lint accumulation. The investigator's most likely cause determination involves?

A. An electrical malfunction in the dryer's wiring

B. Lint accumulation creating a thermal hazard, with accidental ignition during dryer operation

C. A water connection failure at the dryer

D. An intentional act of arson with the dryer as the target

129. A working fire investigation has identified that the area of origin contains a barbecue grill on a wooden deck against a vinyl-sided residence. The investigator's most likely cause determination involves?

A. A natural gas leak from the grill's connection

B. Heat transfer from the grill to the wooden deck and vinyl siding, with possible accidental ignition

C. An electrical malfunction in the grill's ignition system

D. An intentional act of arson with the grill as the cause

130. A working fire investigation has identified that the residence had an unsecured firearm in a closet that was discharged during the fire by exposure to heat. The most appropriate Firefighter II action regarding this finding is to?

A. Note the location of the firearm and ammunition, do not disturb, and notify the investigator and law enforcement

B. Remove the firearm to a secure location for safekeeping

C. Discharge the remaining ammunition for safety

D. Discuss the firearm with the media as a public safety message

131. A working fire has been controlled. The first-due engine company has been operating for approximately 50 minutes. The crew shows signs of fatigue and one member reports chest discomfort. The most appropriate command action is to?

A. Continue operations because the fire is controlled

B. Allow the affected member to rest at the apparatus

C. Provide coffee and food to the crew to continue operations

D. Withdraw the affected member to immediate medical assessment, rotate the crew to rehab, and request a fresh crew

132. A working fire involves a structure with significant smoke production. The first-arriving engine officer establishes operations. The most operationally critical consideration regarding crew exposure during overhaul is?

A. The visual appearance of the smoke during operations

B. The atmospheric monitoring of the area at the apparatus position

C. The continuous availability of SCBA discipline during overhaul

D. The combination of SCBA discipline during operations, gross decontamination on scene, and showering after return

133. A working fire involves a structure with a fire pump in the basement. The pump is part of the building's fire protection system. The first-due engine officer should?

A. Disconnect the fire pump immediately to prevent damage

B. Use the building's fire pump to support the building's sprinkler and standpipe systems, while supplementing through the FDC as needed

C. Bypass the fire pump entirely and operate from the apparatus pump only

D. Replace the fire pump with the apparatus pump for the duration of the incident

134. A working fire investigation has identified that the residence had multiple electrical extension cords powering high-wattage appliances. The investigator's most likely cause determination involves?

A. Electrical overload of the extension cords, possibly with overheating and ignition of surrounding materials

B. A natural gas leak from the building's gas service

C. An intentional act of arson with the extension cords

D. A standard residential electrical malfunction in the wall outlets

135. A working fire investigation has identified that the area of origin contains the remains of a halogen lamp on or near a fabric surface. The investigator's most likely cause determination involves?

A. The halogen lamp's heat causing ignition of nearby fabric materials

B. An electrical malfunction in the lamp's wiring

C. An intentional act of arson with the lamp

D. A natural gas leak in the area

136. A working fire investigation has identified that the area of origin contains a wall outlet with evidence of arcing damage. The investigator's most likely cause determination involves?

A. An intentional act of arson at the outlet

B. A natural gas leak near the outlet

C. An electrical fault at the outlet producing arcing, possibly with ignition of nearby combustibles

D. A heating equipment malfunction near the outlet

137. A working fire investigation has identified that the residence had a self-contained gas grill being used inside an enclosed garage. The investigator's most likely cause determination involves?

A. Carbon monoxide buildup and possible flash fire from grill ignition in the enclosed space

B. An electrical malfunction in the garage

C. A water heater malfunction in the garage

D. An intentional act of arson with the grill

138. A 5-inch supply line at 750 gpm produces friction loss of approximately?

A. 2 psi per 100 feet

B. 4 psi per 100 feet

C. 8 psi per 100 feet

D. 12 psi per 100 feet

139. A 4-inch supply line at 500 gpm produces friction loss of approximately?

A. 30 psi per 100 feet

B. 20 psi per 100 feet

C. 12 psi per 100 feet

D. 5 psi per 100 feet

140. A 3-inch supply line at 500 gpm produces friction loss of approximately?

A. 5 psi per 100 feet

B. 20 psi per 100 feet

C. 50 psi per 100 feet

D. 75 psi per 100 feet

141. A pump operator is supplying a 400-foot 5-inch supply line at 1,000 gpm. Friction loss is approximately 0.8 psi per 100 feet at this flow. The total friction loss in the supply line is approximately?

A. 1 psi

B. 3 psi

C. 8 psi

D. 25 psi

142. A pump operator supplies a 200-foot, 1¾-inch attack line with a combination nozzle flowing 185 gpm. Friction loss is approximately 45 psi per 100 feet at this flow. Nozzle pressure is 100 psi. The required pump discharge pressure is approximately?

A. 190 psi

B. 145 psi

C. 100 psi

D. 250 psi

143. A pump operator supplies a 250-foot, 2½-inch attack line flowing 250 gpm at 50 psi smooth-bore nozzle pressure. Friction loss is approximately 12 psi per 100 feet. The required pump discharge pressure is approximately?

A. 80 psi

B. 50 psi

C. 100 psi

D. 130 psi

144. A pump operator supplies a 200-foot 5-inch supply line at 500 gpm. Friction loss is approximately 0.2 psi per 100 feet at this flow. The total friction loss in the supply line is approximately?

A. 5 psi

B. 1 psi

C. 0.2 psi

D. Less than 1 psi (essentially negligible)

145. A working fire crew is operating with the standard ICS structure. The crew receives a radio order from the supervisor to transition from interior attack to roof ventilation. The most appropriate response is to?

A. Comply with the supervisor's order and transition to the new assignment

B. Decline the order and continue the current assignment

C. Acknowledge the order, complete the current task safely, and transition to the new assignment per the supervisor's direction

D. Request the order through a different supervisor for verification

146. A working fire investigation has identified that the residence had multiple cooking surfaces in use simultaneously and unattended. The investigator's most likely cause determination involves?

A. An electrical malfunction in the kitchen wiring

B. An intentional act of arson in the kitchen

C. Unattended cooking with multiple ignition sources active

D. A natural gas leak from the gas service

147. A working fire investigation has identified that the area of origin contains the remains of multiple lithium-ion batteries in a charging dock. The investigator's most likely cause determination involves?

A. An electrical fault in the building's wiring near the dock

B. Lithium-ion battery thermal runaway with possible ignition during charging

C. An intentional act of arson with the batteries

D. A natural gas leak in the area of the dock

148. A working fire investigation has identified that the residence had multiple unauthorized electrical modifications visible in the basement panel. The investigator's most likely cause determination involves?

A. An intentional act of arson by the property owner

B. A natural gas leak in the basement

C. Cooking equipment malfunction in the kitchen

D. Electrical fault from the unauthorized modifications, possibly with overheating and ignition

149. A working fire investigation has identified that the residence had recent electrical work performed by a non-licensed individual. The investigator's most likely line of inquiry involves?

A. The financial implications of the work for the property owner

B. The political affiliations of the non-licensed individual

C. The personal background of the non-licensed individual

D. The quality of the electrical work and possible code violations contributing to the fire

150. A working fire crew has completed interior operations. Overhaul has begun. A Firefighter II is asked to lead the crew through the next operational sequence. The most appropriate sequence is to?

A. Skip overhaul to clear the scene quickly

B. Begin overhaul throughout the structure simultaneously

C. Conduct PAR, rehab as needed, continue overhaul preserving evidence, support salvage operations, and support the investigator

D. Allow the property owner to direct the next operational sequence

PRACTICE EXAM 7 – ANSWER KEY AND EXPLANATIONS

1. A — 160 psi. PDP = nozzle pressure + friction loss = 100 psi + (30 psi/100 ft × 2 = 60 psi) = 160 psi. Standard 1¾-inch attack line calculation for typical interior operations.

2. B — 80 psi. PDP = 50 psi NP + (12 psi/100 ft × 2.5 = 30 psi friction loss) = 80 psi. Standard 2½-inch smooth-bore handline supply calculation.

3. C — 55 psi. Elevation loss = 5 psi per floor × 11 floors (from street to the 11th-floor outlet) = 55 psi. The standpipe outlet for a 12th-floor fire is on the 11th floor (the floor below the fire).

4. C — 80 psi. The 1⅜-inch smooth-bore master stream tip operates at 80 psi nozzle pressure; friction loss in 100 ft of 5-inch hose at 500 gpm is negligible (less than 1 psi). PDP equals the nozzle pressure of 80 psi.

5. B — 210 gpm. GPM = 29.7 × d^2 × √NP = 29.7 × 1^2 × √50 = 29.7 × 7.07 ≈ 210 gpm. Standard smooth-bore handline tip discharge calculation.

6. B — 325 gpm. GPM = 29.7 × (1.25)² × √50 = 29.7 × 1.5625 × 7.07 ≈ 328 gpm, rounded to 325. Standard 1¼-inch smooth-bore tip discharge.

7. D — 15 minutes or less during heavy work. The 30-minute rating is a laboratory work-rate value; heavy interior firefighting consumes air at roughly twice the rated rate, reducing actual duration to approximately 15 minutes or less.

8. A — 235 psi. PDP = 100 psi NP + (45 psi/100 ft × 3 = 135 psi friction loss) = 235 psi. Long-stretch, high-flow 1¾-inch operation requires substantial PDP.

9. A — 118 psi. PDP = 100 psi NP + (12 psi/100 ft × 1.5 = 18 psi friction loss) = 118 psi. Lower flow on a 1¾-inch line produces lower friction loss and lower PDP.

10. D — 265 gpm. GPM = 29.7 × (1.125)² × √50 = 29.7 × 1.266 × 7.07 ≈ 266 gpm, rounded to 265. Standard 1⅛-inch smooth-bore handline tip discharge.

11. C — 200 psi. PDP = 100 psi (attack line NP) + 25 psi (supply line FL) + 25 psi (standpipe FL) + 50 psi (elevation, 5 psi × 10 floors) = 200 psi. Standard high-rise standpipe supply calculation.

12. A — 3 tankers. Required delivery = 250 gpm × 12 min = 3,000 gallons per 12-minute cycle. Each tanker delivers 2,500 gallons per 12 min (round trip), producing 208 gpm per tanker; 3 tankers in continuous rotation deliver approximately 625 gpm capacity, covering the 250 gpm demand with margin and continuity.

13. B — 19 feet (reduced). Atmospheric pressure decreases with altitude (approximately 12.2 psi at 5,000 ft vs 14.7 psi at sea level), reducing theoretical maximum lift proportionally. At 5,000 ft the theoretical maximum lift is roughly 19 feet rather than 25.

14. A — 8 psi per 100 feet. FL = C × Q² × L = 0.08 × (10)² × 1 = 8 psi/100 ft. Standard 5-inch large-diameter hose friction loss at 1,000 gpm.

15. C — 160 psi. Each 200-foot, 1¾-inch attack line at 150 gpm requires PDP = 100 + 60 = 160 psi (per Q1 calculation). Each discharge gauge reads 160 psi independently.

16. A — 35 psi. Elevation loss = 5 psi per floor × 7 floors (street to 7th-floor outlet for 8th-floor fire) = 35 psi. The standpipe outlet for an 8th-floor fire is on the floor below.

17. B — 500 gpm. GPM = 29.7 × (1.375)² × √80 = 29.7 × 1.891 × 8.94 ≈ 502 gpm, rounded to 500. Standard 1⅜-inch smooth-bore master stream tip at 80 psi tip pressure.

18. A — 74 psi. PDP = 50 psi NP + (12 psi/100 ft × 2 = 24 psi friction loss) = 74 psi. Standard 2½-inch smooth-bore handline supply calculation.

19. A — 50 psi. Elevation loss = 0.5 psi per foot × 100 ft = 50 psi. Standard elevation calculation for aerial waterway operations.

20. B — Establish a tethered rescue with rope, flotation device, and minimum number of rescuers on the ice. Ice rescue uses tethered approaches with flotation to recover the victim while limiting weight on the unstable ice. Sending untethered firefighters or vehicles creates additional victims.

21. C — A two-rope system (working and belay) with appropriate harnesses, anchors, and rescuer training. High-angle rescue requires redundant rope systems (working line + belay), proper harnesses and anchors, and specialized training. Single-rope, standard PPE, or aerial substitution does not meet the standard.

22. D — 5 minutes. Fill time = 2,500 gallons ÷ 500 gpm = 5 minutes. Standard tanker shuttle calculation for hydrant fill operations.

23. D — Within the practical maximum range and likely feasible. Practical maximum lift at sea level is approximately 20–22 feet; an 18-foot lift is within this range with reasonable margin. Atmospheric pressure supports drafting operations at this depth.

24. B — 25 psi. Elevation loss = 5 psi per floor × 5 floors (to the 5th-floor outlet) = 25 psi. Calculated from the FDC at street level to the outlet on the 5th floor.

25. A — 85 pounds. Standard 1⅛-inch smooth-bore handline at 50 psi nozzle pressure produces approximately 75–85 pounds of nozzle reaction in fire service reference tables. Nozzle firefighter and backup must be braced to manage this force.

26. B — 130 pounds. Standard 2½-inch handline operations at 250 gpm produce approximately 125–130 pounds of nozzle reaction in fire service reference tables. The flow rate and total momentum produce this significant reaction force.

27. C — 75 pounds. A 1¾-inch handline at 185 gpm with a 100-psi combination nozzle produces approximately 75 pounds of nozzle reaction. Higher flow on the same hose increases reaction force proportionally.

28. D — Oxygen, combustible gases, and toxic gases at multiple depths. Permit-required confined space entry under OSHA 1910.146 requires atmospheric monitoring for oxygen content, combustible gases, and toxic gases at multiple depths before any entry.

29. C — Establish scene control, request specialized rescue resources, and conduct surface rescue only with proper equipment. Surface rescue without specialized water/dive training and equipment is the appropriate initial action; sending firefighters into the water creates additional victims.

30. C — Prevent secondary collapse of the trench walls onto rescuers. Shoring systems stabilize trench walls during rescue operations; the primary purpose is preventing secondary collapse onto rescuers, which is the leading mechanism of rescuer death in trench operations.

31. D — A wildland firefighting ensemble per NFPA 1977, lighter than the structural ensemble. WUI operations transition between wildland and structural environments; wildland PPE per NFPA 1977 is lighter and designed for extended-duration, lower-intensity thermal exposure.

32. C — The floor immediately below the fire. High-rise relief crew staging on the floor below the fire allows standpipe connection, crew preparation, and protected positioning. The lobby is too distant; the fire floor itself is unsafe.

33. C — Boost water pressure for the sprinkler and standpipe systems. Building fire pumps boost incoming water pressure to meet sprinkler and standpipe design pressures, particularly for upper floors where elevation losses are significant.

34. D — The risk of firefighters falling into the water through fire-weakened sections. Pier and wharf structures are typically wood-decked over water; fire weakens the decking unpredictably, creating fall-through hazards. Personnel may fall into the water through compromised sections.

35. C — Coordinate with marine firefighting resources (fireboat) and use specialized fittings if available. Ship and watercraft fires require marine firefighting resources; standard fittings may not match ship connections. Drafting from surrounding water is theoretically possible but not the standard approach.

36. A — Apply water from a defensive position after de-energizing the equipment. Cellular telecommunications shelters contain energized electrical equipment and battery banks; de-energization precedes water application. Aggressive interior attack risks electrical contact; foam and burn-out approaches are not standard.

37. D — Continued DC voltage generation as long as light reaches the panels. PV solar panels continue producing DC voltage whenever exposed to light, including ambient daylight and overhaul-period light. The voltage cannot be shut off at a single point; covering, blackout, or specialized procedures are required.

38. C — The risk of thermal runaway, gas emission, and prolonged cooling requirement. Lithium-ion BESS fires can enter thermal runaway with gas emission (flammable and toxic) and require extended cooling water application. Re-ignition is possible days after apparent extinguishment.

39. A — Elevated humidity, intense lighting, electrical modifications, and possible illegal extraction operations. Marijuana cultivation facilities present elevated humidity (mold risk), intense grow lighting (electrical and heat hazards), often non-permitted electrical modifications, and possible illegal extraction operations (hash oil with explosive solvent vapors).

40. B — Stop activity in the area, secure the location, and notify command and the bomb squad. Possible improvised incendiary devices are critical evidence and potential ongoing hazards; immediate stoppage, securing the area, and notifying command and the bomb squad are the standard response. Photography or movement compromises both safety and evidence.

41. A — The deep-seated nature of fire spread into the bale interior, requiring extensive overhaul. Straw-bale construction's dense interior conceals deep-seated fire that smolders extensively and requires aggressive overhaul to fully extinguish. The bales do not collapse rapidly like lightweight wood.

42. C — The combination of confined space, vehicle fuel loads, and limited ventilation/access. Underground parking structures combine the hazards of confined space (smoke and heat accumulation),

vehicle fuel loads (gasoline, lithium-ion batteries), and limited ventilation and apparatus access. The combined hazards drive the operational complexity.

43. C — The trapped heat behind the insulation creating extended duration high-temperature conditions. Cold-storage insulation retains heat after suppression, creating extended duration high-temperature conditions that can cause re-ignition or hidden fire. Polystyrene smoke and refrigerant leaks are secondary concerns.

44. D — Establish isolation zones, request hazmat resources, and identify products and quantities involved. Industrial solvent facilities require initial isolation, identification, and hazmat resource integration before tactical commitment. Aggressive interior attack, forced entry, or master streams without identification introduce unacceptable hazards.

45. D — Document the observation factually for the investigator's report. The Firefighter II documents observations factually for the investigator; direct discussion with the owner, personal determinations, and evidence removal are not the firefighter's role.

46. B — The increased fire load and reduced mobility within the structure. Hoarding-disorder residences contain substantial combustible fire load and create reduced mobility for both occupants and firefighters. The conditions also obscure standard search and attack patterns.

47. A — Ensure proper documentation, notification of family, and support for the affected crews. Firefighter casualty events require documentation, family notification, and crew support as immediate priorities. Media briefings, public reviews, and fault determinations are not appropriate immediate actions.

48. D — The combination of SCBA discipline during operations and field reduction of contaminants after operations. Toxic smoke exposure requires SCBA during operations (including overhaul until atmospheric monitoring confirms safe air) plus field reduction of contaminants (gross decon, shower) to reduce occupational cancer risk.

49. D — Rotate the crew to rehab for assessment, hydration, food, and rest. Crews operating 35 minutes require rotation to rehab per NFPA 1584. Continuing operations, in-place rest, or caffeine-based stimulation does not meet the rehab standard.

50. C — The risk of toxic smoke and gas accumulation at the 4th floor, with potential ignition from heat above. Upper floors above a working fire accumulate hot toxic smoke and gases; the floor above the fire is at risk of ignition from the heat below and from accumulated unburned gas. Search must address this hazard with appropriate ventilation coordination.

51. D — Note the location, leave undisturbed, and notify the investigator. Suspected accelerants are critical evidence; the Firefighter II notes the location, preserves undisturbed, and notifies the investigator. Moving, emptying, or water application destroys evidence.

52. D — Provide accurate, factual observations from arrival and operations. Investigator interviews capture firefighter observations as factual contributions to the investigation. Declining, written-only, or opinion-based responses do not serve the investigation.

53. A — Document the discovery with witnesses, secure the cash for the property owner, and brief command. Valuable items discovered during overhaul are documented with witnesses, secured for the property owner, and reported to command. Distribution, exterior relocation, or photography without securing the cash is not appropriate.

54. D — Remain professional, observe the interaction, and continue assigned duties without engaging in the cause discussion. The Firefighter II observes the investigator-owner interaction professionally without engaging in cause discussion. Personal opinions, commitments, or confrontation are not appropriate.

55. D — Use available translation resources (phone-based interpreter service, multilingual personnel, or written translation tools). Effective communication with non-English speakers uses available translation resources. Speaking loudly in English, refusing to communicate, or English-only documents do not deliver the message effectively.

56. A — 175 psi. PDP = 100 psi NP + (30 psi/100 ft × 2.5 = 75 psi friction loss) = 175 psi. Standard 1¾-inch attack line calculation at 250-foot stretch.

57. C — 62 psi. PDP = 50 psi NP + (12 psi/100 ft × 1 = 12 psi friction loss) = 62 psi. Short-stretch 2½-inch smooth-bore handline calculation.

58. B — 15 psi. FL = 5 psi/100 ft × 3 = 15 psi. Standard 5-inch supply line friction loss calculation at 750 gpm.

59. B — Approximately 24 psi. Friction loss in 200 feet of 2½-inch hose at 250 gpm = 12 psi/100 ft × 2 = 24 psi. The friction loss in the line is calculated independent of the total PDP using the flow rate and length.

60. D — Within the practical lift range with reasonable margin. 18 feet below the apparatus pump is within the practical drafting lift range (typically 20–22 feet at sea level). The operation is feasible with reasonable margin.

61. A — 2 tankers. Required delivery = 500 gpm × 10 min = 5,000 gallons per 10-minute cycle. Each tanker delivers 3,000 gallons per 10-minute round trip = 300 gpm per tanker. 5,000 ÷ 3,000 = 1.67 tankers; rounded up to 2 tankers in rotation to maintain continuous supply.

62. B — 30 psi per 100 feet. Standard friction loss for 1¾-inch hose at 150 gpm is approximately 30 psi/100 ft. Used for standard interior attack line calculations.

63. B — 12 psi per 100 feet. Standard friction loss for 2½-inch hose at 250 gpm is approximately 12 psi/100 ft. Standard reference value for 2½-inch handline calculations.

64. D — 12 psi per 100 feet. Friction loss for 1¾-inch hose at 100 gpm is approximately 12 psi/100 ft. Lower flow on the same hose produces lower friction loss.

65. B — 0.2 psi per 100 feet. Standard friction loss for 5-inch supply hose at 500 gpm is approximately 0.2 psi/100 ft. Large-diameter supply hose produces minimal friction loss at moderate flow rates.

66. B — 4 psi. FL = 2 psi/100 ft × 2 = 4 psi. Standard 5-inch supply line friction loss calculation at 1,500 gpm over 200 feet.

67. A — 149 psi. PDP = 100 NP + 45 (FL in 150 ft 1¾" beyond wye at 30 psi/100 ft) + 4 (FL in 100 ft 2½" supply at 4 psi/100 ft) = 149 psi. Standard wye-supply calculation summing supply and attack line losses.

68. A — 30 psi. Elevation loss = 5 psi per floor × 6 floors = 30 psi to the 6th-floor outlet. Standard high-rise elevation loss calculation.

69. C — 250 pounds. A 1⅜-inch smooth-bore master stream tip at 80 psi produces approximately 250 pounds of nozzle reaction. Master stream nozzles produce substantial reaction force requiring secure mounting.

70. C — 600 gpm. GPM = $29.7 \times (1.5)^2 \times \sqrt{80} = 29.7 \times 2.25 \times 8.94 \approx 597$ gpm, rounded to 600. Standard 1½-inch smooth-bore master stream tip discharge at 80 psi.

71. D — Immediately withdraw all personnel to a safe distance and request the bomb squad. Possible improvised explosive devices require immediate withdrawal and bomb squad response. Photography, movement, and continued operations create unacceptable risk to personnel.

72. A — Toxic chemicals, possible booby traps, and unstable precursors and waste materials. Methamphetamine production sites combine toxic chemicals, possible booby traps, and unstable precursors and waste, in addition to standard fire hazards. The unique hazards drive the response approach.

73. C — Combustibles too close to an unattended heating appliance. The most common kerosene-heater fire cause is combustibles placed or fallen too close to the appliance. Investigation focuses on the proximity relationship and unattended condition.

74. D — An accidental ignition from smoking materials. Cigarettes and fabric materials in the area of origin are consistent with accidental ignition from smoking materials. The investigator confirms the determination through additional examination.

75. D — Dry tree material and accidental ignition from heating equipment, electrical decorations, or open flame. Christmas tree fires typically involve dry tree material ignited accidentally by heating, decorations, or open flame. Multiple potential ignition sources are common.

76. B — An unattended cooking situation. Cooking is the leading cause of home structure fires, with unattended cooking the dominant scenario. The kitchen as area of origin with recent cooking activity strongly indicates this cause.

77. A — Provide accurate, factual observations of conditions, occupants, and any indicators noticed on arrival. Investigator interviews capture firefighter observations as factual contributions. Personal interpretation, refused responses, and written-only responses do not effectively serve the investigation.

78. C — The fire investigator, documented from collection through laboratory analysis and any proceedings. The investigator manages chain of custody from collection through legal proceedings. The Firefighter II's role is preservation and reporting to the investigator.

79. B — Document the observation factually and notify command and the investigator. Observed attempted evidence removal is documented factually and reported to command and the investigator. Confrontation, personal determination, and ignoring the observation are not appropriate.

80. A — Note the location, do not disturb the safe, and notify the investigator. The wall safe is documented in place for the investigator. Opening, removal, and continued overhaul are not the Firefighter II's role.

81. C — 40–50 liters per minute. Heavy interior firefighting consumes air at approximately 40–50 L/min. This rate reduces the practical SCBA duration to about half the cylinder's laboratory-rated duration.

82. B — 30 minutes (matching the rated cylinder duration). Cylinder volume 1,275 L ÷ 40 L/min = approximately 32 minutes theoretical maximum. The 30-minute rating reflects typical work-rate consumption; actual heavy-work duration is shorter.

83. C — Approximately 0 minutes; the alarm should already be sounding. Heavy-work consumption of a 30-minute rated cylinder at 25 minutes elapsed has consumed most of the air; the alarm should already be sounding, indicating reserve and immediate exit needed.

84. D — 150 feet or more. High-rise packs typically contain 100–150 feet (or more) of attack hose, plus nozzle, fittings, and tools, organized for vertical transport to upper floors. Standpipe operations require this length to reach the fire room from the standpipe outlet.

85. C — The 21st floor, one floor below the fire. High-rise attack staging on the floor immediately below the fire allows standpipe connection and crew preparation in an uninvolved area. The 22nd-floor staging is in the fire's flow path; lobby staging is too distant.

86. B — Use the building's standpipe with high-rise packs from the floor below. The 35th-floor fire requires standpipe-supplied operations with high-rise packs. Direct hose stretches, rope-window stretches, or elevator use are not practical or safe at this elevation.

87. A — Rotate to rehab on the floor below, with relief crews provided from the lobby staging. Extended high-rise operations require crew rotation through rehab on the floor below the fire, with relief crews supplied through lobby staging. Continuing operations, fire-floor rest, and building withdrawal do not maintain operational continuity.

88. A — Lack of warning to occupants, with delayed escape. Removed smoke detector batteries eliminate the early warning function; occupants do not receive notification of fire and have delayed escape opportunities. The mechanism is well established in NFPA fire-death investigations.

89. D — Provide accurate, factual observations of items, locations, and conditions. Investigator interviews capture firefighter observations as factual contributions. Personal interpretation, refused responses, and written-only responses do not effectively serve the investigation.

90. D — 125 pounds. A 1¼-inch smooth-bore handline at 50 psi produces approximately 125 pounds of nozzle reaction. Larger tip diameter increases reaction force proportionally.

91. C — 124 psi. PDP = 100 psi NP + (12 psi/100 ft × 2 = 24 psi friction loss) = 124 psi. Standard 2½-inch combination handline calculation.

92. A — Defensive operations with collapse zone established and exterior streams. Vacant structures with no civilians and significant fire involvement do not justify aggressive interior attack. The risk-management doctrine prohibits risk for what is already lost.

93. A — An electrical short circuit producing arcing and ignition of the nearby paper materials. Paper materials in close proximity to an electrical outlet showing damage are consistent with electrical arcing ignition. The investigator confirms through detailed examination of the wiring.

94. C — The smoke detector had been tampered with prior to the fire. A smoke detector with the cover removed before the fire suggests pre-fire tampering. The investigator documents this finding as part of the cause-and-origin determination.

95. B — Note the observation factually and notify the investigator. Pre-arrival door damage is documented factually and reported to the investigator. Repair, ignoring, or confrontation are not appropriate Firefighter II actions.

96. C — Provide factual observations to the investigator without speculation. The Firefighter II provides factual observations to the investigator without speculating about prior history. Confrontation, personal determinations, and public discussion are not appropriate.

97. D — The unknown structural integrity, unknown fire load, and possible electrical hazards from non-compliant modifications. Illegal modifications create unknown structural integrity, unknown fire load, and unknown electrical hazards. The operational risks drive the tactical approach.

98. B — Approximately 2 to 4 minutes of practical working time. Heavy-work consumption of a 30-minute rated cylinder at 22 minutes elapsed has consumed most of the rated air; approximately 2 to 4 minutes of practical working time remain before the alarm sounds.

99. C — 70 psi. Elevation loss = 5 psi per floor × 14 floors = 70 psi to the 14th-floor outlet from the street-level FDC. Standard high-rise elevation loss calculation.

100. C — 25 psi per 100 feet. Standard friction loss for 4-inch supply hose at 750 gpm is approximately 25 psi/100 ft. The smaller diameter compared to 5-inch hose produces substantially higher friction loss.

101. A — Send a separate, properly equipped search team via the basement stairway with backup. Basement bedroom search with first-floor fire active requires a separate, equipped search team with attack-line backup. Waiting, sending the first-floor crew after attack, or VES of basement window are not appropriate.

102. D — The combined hazards of weakened structure, smoke and heat venting from the roof, and the limited ability to retreat. Roof operations over involved attic spaces combine weakened structure, venting heat/smoke, and limited egress routes. All four hazards together drive the operational risk assessment.

103. B — Possible incendiary cause requiring detailed examination. Multiple unrelated points of fire spread cannot be explained by single-ignition spread; the pattern indicates possible incendiary cause requiring detailed investigation.

104. B — Combustibles too close to the space heater, with possible accidental ignition. Space heater fires commonly involve combustibles placed too close to the appliance. The investigator confirms through examination of the materials and heater condition.

105. D — Withdraw the crew immediately and provide rehab with replacement crews. Working past the 30-minute rated cylinder duration on heavy work is unsafe; the crew is withdrawn for rehab and replaced. Continuing operations, extension techniques, or fresh-cylinder swap at the working position are not the appropriate response.

106. B — Combustibles too close to open flame, with accidental ignition. Candles near combustibles (drapes, curtains) are a common accidental ignition source. The investigator confirms through examination of the candle remains and surrounding materials.

107. B — Approximately 22 to 30 minutes. A 45-minute rated cylinder provides approximately half its rated duration during heavy work, yielding 22–30 minutes of practical working duration. Air consumption rates vary with workload.

108. D — Conditions on arrival, operations conducted, observations during operations, and any unusual findings. Documentation captures factual operational information. Personal opinions, damage estimates, and crew evaluations are not appropriate documentation content.

109. A — Coordinated evacuation of the conference floor and the floors above. The 200-person conference floor with fire on the same floor requires coordinated evacuation as the immediate priority. Direct attack, pre-incident planning consultation, and accommodation arrangements are not first-arrival priorities.

110. B — The lack of warning to occupants, with delayed escape and discovery. Disabled smoke alarms eliminate early warning; occupants experience delayed escape and discovery, contributing to fire escalation and casualties.

111. C — Maintain radio discipline, allow command to coordinate the response, and continue the current assignment unless ordered to redeploy. MAYDAY response is coordinated by command; individual crews maintain radio discipline and continue assignments unless redeployed. Unannounced repositioning compounds the situation.

112. D — Provide factual observations to the investigator without speculation. The Firefighter II provides factual observations to the investigator without speculation about fraud or motive. Confrontation, media discussion, and personal determination are not appropriate.

113. B — Remain professional, observe the briefing, and continue assigned duties. The Firefighter II observes the investigator-owner briefing professionally and continues assigned duties. Confrontation, alternative hypotheses, and personal determinations are not appropriate.

114. C — Establish a comprehensive cause-and-origin investigation given the absence of occupants. Unoccupied residences at fire arrival warrant comprehensive investigation because the absence of occupants is itself a potential indicator requiring examination. Standard cause-and-origin determination proceeds with this priority.

115. C — Conduct a comprehensive investigation including possible incendiary cause. Multiple unrelated ignition points require comprehensive investigation including incendiary cause consideration. Confirmed accidental, lightweight construction, and single-fault determinations do not fit this pattern.

116. A — Stop activity in the area, secure the location, and notify command and the investigator. Possible deliberate fire-setting devices are critical evidence and potential ongoing hazards; immediate stoppage, securing the area, and notification are the standard response.

117. A — Approximately 8 to 13 minutes of practical working time. Heavy-work consumption of a 30-minute rated cylinder at 12 minutes elapsed leaves approximately 8 to 13 minutes of practical working time before the alarm sounds.

118. B — Approximately 15 psi per 100 feet. Standard friction loss for 4-inch supply hose at 1,000 gpm is approximately 15 psi/100 ft (some reference tables cite 12–20 psi/100 ft depending on the coefficient used).

119. C — 5 psi per 100 feet. Standard friction loss for 3-inch supply hose at 250 gpm is approximately 4–5 psi/100 ft. Used for moderate-flow supply line calculations.

120. A — 60 psi. FL = 20 psi/100 ft × 3 = 60 psi. Standard 3-inch supply line friction loss calculation at 500 gpm over 300 feet.

121. C — Rotate the crew to rehab for assessment, hydration, food, and rest. Significant crew fatigue at 40 minutes requires rotation to rehab per NFPA 1584. Continuing operations, in-place rest, and caffeine-based stimulation do not meet the rehab standard.

122. B — Listen empathetically, provide accurate information, refer official questions to the investigator and command, and connect the owner with available resources. Emotional property owners require empathetic listening, accurate information, appropriate referrals, and resource connection. Refusal, financial assessments, and commitments are not appropriate.

123. B — Report task completion to the supervisor and await further assignment. Task completion is reported through the chain of command for further assignment. Independent task initiation, scene departure, and continued unauthorized operations are not appropriate.

124. D — Stop activity in the area, secure the location, and notify command and the appropriate law enforcement agency. Possible terrorist or criminal activity requires immediate stoppage, securing of

location, and notification of command and law enforcement. Personal opinions, confrontation, and media discussion are not appropriate.

125. A — Facilitate active discussion, identify learning points, encourage participation, and document outcomes. Effective post-incident debriefings combine active facilitation, learning point identification, participation encouragement, and documentation. Lectures, refusal, and uniformly positive feedback do not develop learning.

126. A — Establish isolation zones, identify the materials and quantities, and adjust the operational approach based on the hazards. Multiple hazardous materials require isolation, identification, and tactical adjustment. Standard residential firefighting, exterior foam, and defensive-only operations may not be appropriate depending on the specific hazards.

127. D — Combustibles too close to the stove, creosote buildup in the chimney, or improper installation. Wood-burning stove fires commonly involve combustibles too close to the stove, chimney creosote buildup, or installation problems. The investigator examines all three potential causes.

128. B — Lint accumulation creating a thermal hazard, with accidental ignition during dryer operation. Clothes dryer fires commonly involve lint accumulation creating a thermal hazard with accidental ignition during operation. Lint cleanup is a standard public education message.

129. B — Heat transfer from the grill to the wooden deck and vinyl siding, with possible accidental ignition. Outdoor grill fires on wooden decks against vinyl siding involve heat transfer from the grill to the combustible surfaces. The proximity relationship is the typical cause.

130. A — Note the location of the firearm and ammunition, do not disturb, and notify the investigator and law enforcement. Firearms involved in fires are documented in place and reported to the investigator and law enforcement. Removal, ammunition discharge, and media discussion are not appropriate.

131. D — Withdraw the affected member to immediate medical assessment, rotate the crew to rehab, and request a fresh crew. Chest discomfort during operations requires immediate medical assessment; cardiovascular events are the leading cause of firefighter line-of-duty deaths. The crew rotates to rehab and is replaced.

132. D — The combination of SCBA discipline during operations, gross decontamination on scene, and showering after return. Toxic combustion product exposure requires SCBA discipline, gross decon on scene, and shower after return as the integrated practice. Visual appearance, single-monitoring approaches, and SCBA-only approaches are not sufficient.

133. B — Use the building's fire pump to support the building's sprinkler and standpipe systems, while supplementing through the FDC as needed. Building fire pumps support sprinkler and standpipe systems; the FDC provides supplementary supply as needed. Disconnection, bypass, and replacement are not appropriate.

134. A — Electrical overload of the extension cords, possibly with overheating and ignition of surrounding materials. Multiple extension cords powering high-wattage appliances overload the cords' capacity, with

possible overheating and ignition of nearby materials. The investigator examines the cords and surrounding materials.

135. A — The halogen lamp's heat causing ignition of nearby fabric materials. Halogen lamps produce intense heat that can ignite nearby fabric materials. The proximity relationship and heat source are the typical cause.

136. C — An electrical fault at the outlet producing arcing, possibly with ignition of nearby combustibles. Arcing damage at a wall outlet indicates an electrical fault that may have ignited nearby combustibles. The investigator examines the outlet and surrounding materials.

137. A — Carbon monoxide buildup and possible flash fire from grill ignition in the enclosed space. A gas grill in an enclosed garage produces carbon monoxide buildup with possible flash fire from ignition. The enclosed-space conditions and combustible products create the hazard.

138. B — Approximately 4 psi per 100 feet. Standard friction loss for 5-inch supply hose at 750 gpm is approximately 4 psi/100 ft (FL = $0.08 \times 7.5^2 \times 1 \approx 4.5$ psi/100 ft). Large-diameter supply hose produces low friction loss at moderate flows.

139. D — 5 psi per 100 feet. Standard friction loss for 4-inch supply hose at 500 gpm is approximately 5 psi/100 ft (FL = $0.2 \times 5^2 \times 1 = 5$ psi/100 ft). Used for moderate-flow 4-inch supply calculations.

140. B — 20 psi per 100 feet. Standard friction loss for 3-inch supply hose at 500 gpm is approximately 17–20 psi/100 ft. The smaller diameter produces substantially higher friction loss than 4-inch hose.

141. B — 3 psi. FL = 0.8 psi/100 ft × 4 = 3.2 psi, rounded to 3. Standard 5-inch supply line friction loss calculation at 1,000 gpm over 400 feet.

142. A — 190 psi. PDP = 100 psi NP + (45 psi/100 ft × 2 = 90 psi friction loss) = 190 psi. Standard 1¾-inch attack line calculation at high flow.

143. A — 80 psi. PDP = 50 psi NP + (12 psi/100 ft × 2.5 = 30 psi friction loss) = 80 psi. Standard 2½-inch smooth-bore handline supply calculation at 250-foot stretch.

144. D — Less than 1 psi (essentially negligible). FL = 0.2 psi/100 ft × 2 = 0.4 psi, essentially negligible for operational calculation. Large-diameter supply hose produces minimal friction loss at moderate flow over short distances.

145. C — Acknowledge the order, complete the current task safely, and transition to the new assignment per the supervisor's direction. Tactical transition orders are acknowledged, current tasks completed safely, then the transition is made. Immediate compliance without completing current task, declining the order, or seeking verification through other supervisors is not appropriate.

146. C — Unattended cooking with multiple ignition sources active. Multiple cooking surfaces in use simultaneously and unattended is the classic unattended cooking scenario, the leading cause of home structure fires. The investigator confirms through examination of the kitchen.

147. B — Lithium-ion battery thermal runaway with possible ignition during charging. Multiple lithium-ion batteries in a charging dock can enter thermal runaway, with ignition during the charging process. The investigator examines the batteries and charging system.

148. D — Electrical fault from the unauthorized modifications, possibly with overheating and ignition. Unauthorized electrical modifications often violate code, creating electrical faults with potential overheating and ignition. The investigator examines the modifications for the specific cause.

149. D — The quality of the electrical work and possible code violations contributing to the fire. Recent non-licensed electrical work warrants examination of work quality and code violations as potential contributing factors to the fire. The investigator's line of inquiry focuses on these technical concerns.

150. C — Conduct PAR, rehab as needed, continue overhaul preserving evidence, support salvage operations, and support the investigator. The post-incident sequence prioritizes accountability and rehab, continues overhaul with evidence preservation, supports salvage, and assists the investigator. Skipping overhaul, simultaneous-everywhere overhaul, and owner-directed sequences do not meet operational standards.