ESSENTIALS OF FIRE FIGHTING

COURSE WORKBOOK

IFSTA
INTERNATIONAL FIRE SERVICE TRAINING ASSOCIATION

Firefighter Personal Protective Equipment

Terms

Write the definition of the terms below on the blanks provided.

1. **Personal Protective Equipment (PPE) (259)** _____

2. **Structural Fire Fighting (261)** _____

3. **Proximity Fire Fighting (261)** _____

4. **Helmet (264)** _____

5. **Protective Hood (266)** _____

6. **Protective Coat (266)** _____

7. **Protective Trousers (267)** _____

8. **Protective Gloves (267)** _____

9. **Fire Fighting Boots (267)** _____

10. **Hearing Protection (270)** _____

_____

11. **Personal Alert Safety System (PASS) (270)** _____

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12. **Respiratory Hazards (281)** _____

_____

13. **Oxygen-Deficient Atmosphere (282)** _____

_____

14. **Hypoxia (282)** _____

_____

15. **Pulmonary Edema (283)** _____

_____

16. **Asphyxiation (283)** _____

_____

17. **Particulate (283)** _____

_____

18. **Air-Purifying Respirator (APR) (284)** _____

_____

19. **Powered Air-Purifying Respirator (PAPR) (284)** _____

_____

20. **Gas (284)** _____

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21. **Vapor (284)** _____

_____

22. **Airborne pathogens (287)** _____

_____

23. **High-Efficiency Particulate Air (HEPA) Filter (287)** _____

_____

24. **Open-Circuit Self-Contained Breathing Apparatus (289)** _____

_____

25. **Closed-Circuit Self-Contained Breathing Apparatus (289)** _____

_____

26. **Qualitative Fit Test (QLFT) (292)** _____

_____

27. **Quantitative Fit Test (QNFT) (292)** _____

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28. ***Code of Federal Regulations (CFR)* (293)** _____

_____

29. **Hydrostatic Test (303)** _____

_____

30. **Cascade System (307)** _____

_____

31. **Permissible Exposure Limits (PEL) (314)** _____

_____

32. **Search Line (315)** _____

_____

True/False

Write True or False on the blanks provided; if False, write the correct statement on the lines provided.

_____ 1. PPE is designed to protect from hazards and minimize risk of injury and fatality. (259-261)

_____

_____

_____ 2. Inspecting, cleaning, and maintaining the condition of PPE is the responsibility of the shift supervisor.(277)

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_____

_____ 3. All cleaning of PPE is performed at the local station. (278)

_____

_____

_____ 4. Supplied air respirators (SARs) are used when a firefighter must be in a hazardous area for a long period of time and there is no danger that fire many damage the hose. (289)

_____

_____

_____ 5. Closed-circuit SCBAs use compressed air. (289)

_____

_____

_____ 6. In an open-circuit SCBA exhaled air stays in the system and is reused. (289)

_____

_____

_____ 7. Air-purifying respirators (APRs) remove contaminates by passing ambient air through the filter, canister, and cartridge. (293)

_____

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_____ 8. Taste and smell can be clues that an APR is losing its effectiveness. (295)

_____

_____

_____ 9. Storing requirements for respiratory equipment may depend on size, available compartments on apparatus, and manufacturer's instructions. (296)

_____

_____

_____ 10. SCBA stored in cases can only be donned using the over-the-coat method. (298)

_____

_____

_____ 11. The facepiece lens of protective breathing apparatus should be inspected for scratches, abrasions, holes, cracks, or heat-damage during daily/weekly inspections. (303)

_____

_____

_____ 12. The facepiece of protective breathing apparatus can be dried with paper towels. (305)

_____

_____

_____ 13. The type of material used to construct an SCBA air cylinder determines the frequency of hydrostatic testing of the cylinder. (306)

_____

_____

_____ 14. Replacing SCBA cylinders is always a two-person job. (311)

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_____ 15. In an IDLH atmosphere, firefighters are required to work in teams of two or more. (313)

_____

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_____ 16. Controlled breathing allows for efficient air use in an IDLH atmosphere. (315)

_____

_____

_____ 17. Egress paths are located once a firefighter is inside an IDLH atmosphere. (315)

_____

_____

Matching

Write the correct answers on the blanks provided.

Personal Protective Equipment

Match the type of personal protective equipment listed with the brief definition below. Each choice will only be used once.

_____ 1. Clothing designed to meet the needs of specific rescue operations, including: technical rescue, ice rescue, and hazardous materials incidents. (274-276)

_____ 2. Clothing designed according to the requirements of NFPA® 1977 and includes: gloves, goggles, jackets, jumpsuits, face/neck shrouds; as well as a fire shelter and other equipment. (270)

_____ 3. Clothing designed to increase visibility to motorists, includes traffic vests. (273)

_____ 4. Clothing worn to protect against exposure to infectious bodily fluids that must meet the requirements of NFPA® 1999. (274)

_____ 5. Clothing that according to the requirements of NFPA® 1971 must include: retroreflective trim, wristlets, collars, a closure system, and a drag rescue device. (276)

_____ 6. Clothing designed to meet the requirements of NFPA® 1975 and intended to identify wearer as a member of the organization and provide a layer of protection against direct flame contact. (276)

A. Structural fire fighting protective clothing
B. Wildland personal protective clothing
C. Roadway operations clothing
D. Emergency medical protective clothing
E. Special protective clothing
F. Station/work uniform

Respiratory Hazards

Match the respiratory hazard with the brief definition below. Each choice will only be used once.

_____ 1. Hazard which can cause superheated air to damage the respiratory tract, a serious decrease in blood pressure, and a failure of the circulatory system. (283)

_____ 2. Hazard which may be inhaled, ingested, or absorbed into the body; includes formaldehyde, phosgene, and nitrous gases. (284-285)

_____ 3. Hazard caused by disease-causing microorganisms suspended in the air. (287)

_____ 4. Hazard produced during incidents involving industrial occupancies, spills from transportation accidents, and leaks from storage containers. (285-286)

A. Oxygen deficiency
B. Elevated temperatures
C. Particulate contaminants
D. Gases and vapors
E. Nonfire gases and vapors
F. Airborne pathogens

_____ 5. Hazard most commonly caused by combustion which consumes and displaces oxygen present in the atmosphere. (282)

_____ 6. Hazard produced by vehicle exhaust emissions, chemical reactions, heated metals or metal compounds, and combustion. (283)

Multiple Choice

Write the correct answers on the blanks provided.

_____ 1. Which of the following BEST describes the purpose of an open-circuit SCBA facepiece assembly? (292)

A. It permits limited communication.
B. It holds the facepiece snugly against the face.
C. It provides fresh breathing air while protecting the eyes and face.
D. It deflects exhalations away from the lens, reducing fogging or condensation.

_____ 2. Which of the following is prohibited by NFPA® 1500 because it prevents a complete facepiece seal? (292)

A. Intercom devices
B. Ear protection devices
C. Beards or facial hair
D. Protective hoods that fold

_____ 3. As defined by the *Code of Federal Regulations,* the R in particle filter degradation means: (294)

A. resistant to oil.
B. not resistant to oil.
C. resistant to nitrogen based gases.
D. not resistant to nitrogen based gases.

_____ 4. Which of the following BEST describes how to offset wearer limitations of respiratory protection? (296)

A. Proper exercise and training
B. Proper maintenance and training
C. Through constant training and proper fit-testing of facepieces
D. Through frequent and proper inspections, care, and maintenance

_____ 5. What respiratory protection equipment limitation can proportionately reduce working time? (296)

A. Limited visibility
B. Decreased mobility
C. Decreased endurance
D. Low air cylinder pressure

_____ 6. Which of the following BEST describes differences that may be found in SCBA facepieces? (301)

A. The location of regulator may differ.
B. The chin cup and harness may be located differently.
C. The exhalation valve may be located in a different place.
D. Straps may need to be extended differently depending on model.

_____ 7. Which piece of protective breathing apparatus must be inspected for abrasions, cuts, tears, or heat or chemical-induced damage? (303)

A. Hose threads
B. Facepiece nosecup
C. Breathing air cylinder valve
D. Backplate and harness assembly

_____ 8. Which piece of protective respiratory equipment hardware must be inspected for cleanliness, proper attachment, and damage? (305)

A. Regulator
B. Low-pressure alarm
C. Stand-alone PASS device
D. Pressure indicator gauges

_____ 9. Which type of SCBA system provides an endless source of breathing air to any floor within a structure from a ground level connection? (310)

A. SCBA cylinder
B. Mobile fill station
C. Stationary fill station
D. Firefighting breathing air replenishment system (FBARS)

Short Answer

Write the correct answers on the blanks provided.

1. List three specific safety considerations a firefighter must be aware of when using PPE. (280)

2. Explain the three criteria that must be met to allow a rapid intervention crew or team (RIC/RIT) rescuing a trapped or incapacitated firefighter to refill an unshielded SCBA cylinder. (307)

3. Compare and contrast the difference between nonemergency exit indicators and emergency exit indicators. (313)

Crossword Puzzle

Across

3. Disease-causing microorganisms (viruses, bacteria, or fungi) that are suspended in the air

5. Activities required for rescue, fire suppression, and property conservation in structures, vehicles, vessels, and similar types of properties

9. Compressible substance, with no specific volume, that tends to assume the shape of the container

10. Accumulation of fluids in the lungs

12. Respirator that removes contaminants by passing ambient air through a filter, cartridge, or canister

13. Nonload-bearing rope that is anchored to a safe, exterior location and attached to a firefighter during search operations to act as a safety line

15. Fatal condition caused by severe oxygen deficiency and an excess of carbon monoxide and/or other gases in the blood

16. Respirator fit test that measures the wearer's response to a test agent, such as irritant smoke or odorous vapor

17. Gaseous form of a substance that is normally in a solid or liquid state at room temperature and pressure

19. Legal term for the maximum amount of a chemical substance or other hazard that an employee can be exposed to

20. Very small particle of solid material, such as dust, that is suspended in the atmosphere

21. Potentially fatal condition caused by lack of oxygen

22. Worn by firefighters to provide protection from falling objects, side blows, elevated temperatures, and heated water

23. Respiratory filter that is certified to remove at least 99.97 % of monodisperse particles of 0.3 micrometers in diameter

Down

1. Device that limits noise-induced hearing loss when firefighters are exposed to extremely loud environments

2. Three or more large, interconnected air cylinders, from which smaller SCBA cylinders are recharged

4. Exposure to conditions that create a hazard to the respiratory system

6. Fit test in which instruments measure the amount of a test agent that has leaked into the respirator from the ambient atmosphere

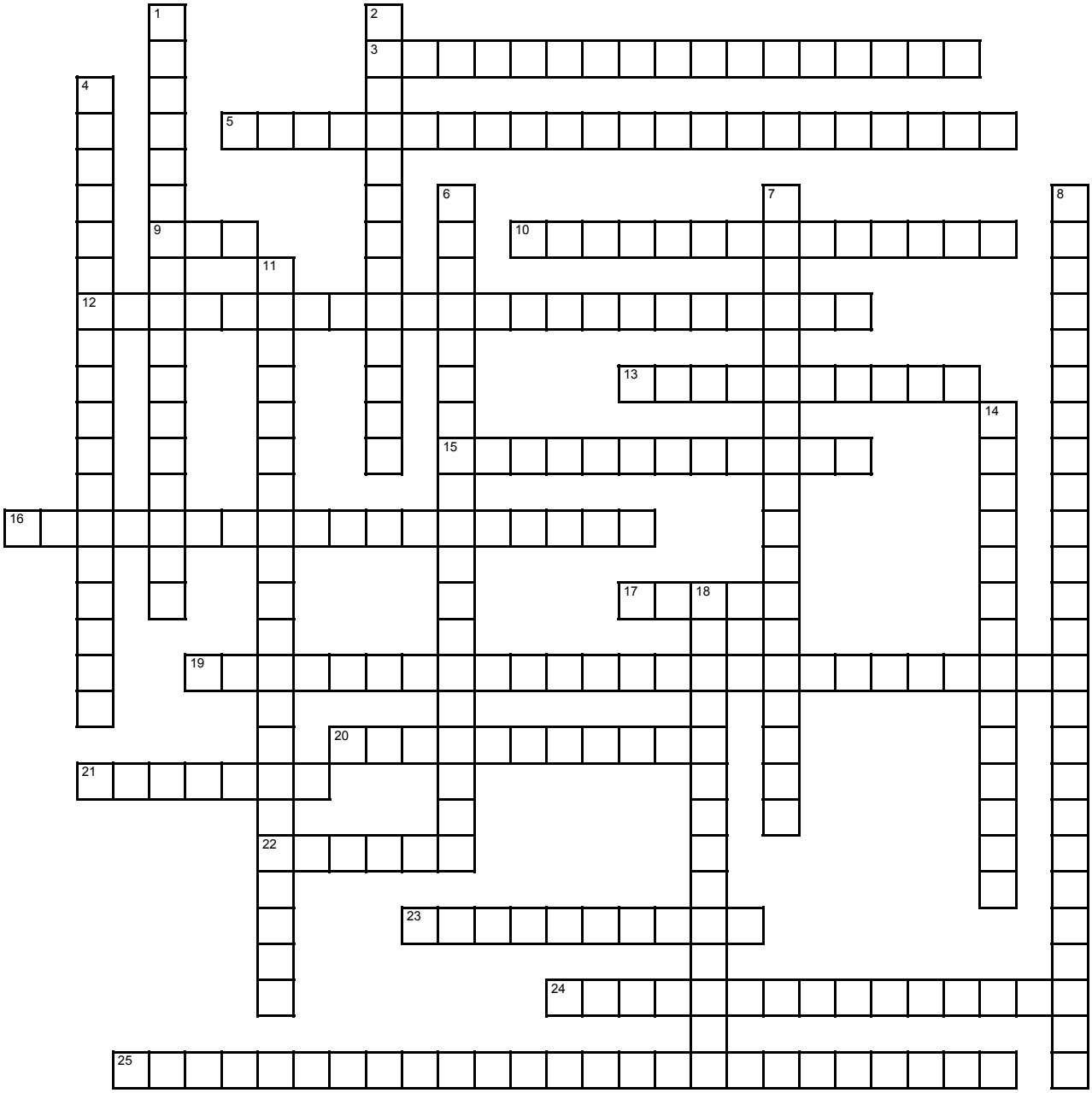
7. Worn to protect the lower torso and legs during emergency operations

8. Electronic lack-of-motion sensor that sounds a loud alarm when a firefighter becomes motionless

11. Activities required for rescue, fire suppression, and property conservation at fires that produce high radiant, conductive, or convective heat

14. Designed to protect the firefighter's ears, neck, and face from heat and debris

18. Worn during fire fighting, rescue, and extrication operations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