

**Written Test  
Carlsbad  
2012**

1. Afterdamp is toxic, explosive, and can be oxygen deficient. It contains the following mixture of gasses.
  - a. Methane and air
  - b. Carbon dioxide, nitrogen, and air
  - c. Carbon monoxide, carbon dioxide, methane, oxygen, nitrogen, and hydrogen
  - d. Carbon monoxide and air
  
2. The \_\_\_\_\_ of a gas changes in response to any change in atmospheric pressure or \_\_\_\_\_.
  - a. Temperature; volume
  - b. Volume; temperature
  - c. Density; moisture
  - d. Volume; moisture
  
3. Sulfur dioxide will diffuse more rapidly than hydrogen.
  - a. True
  - b. False
  
4. Gasses can often be detected by odor, such as bitter, sweet, or sour. Hydrogen has an odor similar to \_\_\_\_\_.
  - a. Rotten eggs
  - b. Acidic
  - c. Garlic
  - d. No odor
  
5. Which of the following gasses has the highest specific gravity?
  - a. Methane
  - b. Carbon dioxide
  - c. Radon
  - d. Sulfur dioxide

6. The gas with the largest explosive range is \_\_\_\_\_.
  - a. Acetylene
  - b. Carbon monoxide
  - c. Hydrogen
  - d. Radon
  
7. When using a smoke tube you find it takes 30 seconds for the smoke to travel 20 feet. What is the volume of air in a heading that is 40 feet wide and 20 feet high?
  - a. 24,000 cfm
  - b. 32,000 cfm
  - c. 38,000 cfm
  - d. 44,000 cfm
  
8. What are pogo sticks and parachutes associated with?
  - a. Explosives
  - b. Seals
  - c. Temporary bulkheads
  - d. Permanent bulkheads
  
9. A monoammonium phosphate extinguisher is effective in fighting:
  - a. Class a Fires
  - b. Class b Fires
  - c. Class c Fires
  - d. All of the above
  
10. Air locking operations should never be undertaken until the oxygen content of the air behind the seals has been reduced to at least 10 percent.
  - a. True
  - b. False
  
11. Ethane (C<sub>2</sub>H<sub>6</sub>) is not toxic but at high concentrations it can
  - a. Spontaneously combust
  - b. Turn to liquid
  - c. Displace oxygen
  - d. Smell like rotten egg
  
12. If your team's communication system fails, the cable from the system can be used to communicate with the fresh air base as long as the cable meets the requirement's set forth in Title 30 CFR, Part 49.6.
  - a. True
  - b. False

13. The sorting of victims is commonly referred to as a \_\_\_\_\_ system.
- Selection
  - Categorizing
  - Triage
  - EMS
14. Before using \_\_\_\_\_ ventilation, there should be conclusive evidence that the fire has been extinguished.
- Mechanical
  - Direct
  - Natural
  - Progressive
15. Breathing large amounts of \_\_\_\_\_ causes rapid breathing and insufficient intake of oxygen. Too much of it in the bloodstream can cause loss of consciousness and even death.
- Carbon monoxide
  - Oxides of nitrogen
  - Carbon dioxide
  - Nitrogen dioxide
16. It doesn't take much CO to interfere with your blood's oxygen-carrying capacity because the gas combines with hemoglobin \_\_\_ to \_\_\_ times more readily than oxygen.
- 100 to 200
  - 200 to 300
  - 300 to 400
  - 400 to 500
17. The main objective of recovery work is to put the affected area of the mine back in operation as soon as conditions permit after a mine disaster.
- True
  - False
18. A person trained in the use and care of breathing apparatus shall inspect and test the apparatus at least once per week?
- True
  - False

19. Burning materials that give off extremely toxic gases in addition to carbon monoxide are:
- Timbers
  - Hydraulic fluids
  - Neoprene and other synthetic rubber compounds
  - All of the above
20. Methane has a specific gravity of 0.5 and seeks low places:
- True
  - False
21. By ensuring that there is never any unexplored area between the team and the \_\_\_\_\_, they are protecting their own safety.
- Return air
  - Intake air
  - Fresh air base
  - Last open crosscut
  - Command center
22. Under what conditions/situations might your team captain order your team to return to fresh air immediately?
- Malfunctioning equipment
  - Hazardous ground that cannot be secured
  - The presence of gases that produce an imminent explosion hazard
  - A fire that cannot be extinguished
  - All of the above
23. Portable communication systems used for mine rescue work must be approved under
- CFR 30, Part 49.6(a)
  - CFR 29, Part 47
  - CFR 30, Part 23
  - CFR 30, Part 47
  - NIOSH

24. Oxides of nitrogen, methane, carbon monoxide, and butane are all
- Highly soluble in water
  - Moderately soluble in water
  - Slightly soluble in water
  - Non-soluble in water
  - Explosive
25. Sulfur dioxide gas in concentrations as low as \_\_\_\_\_ is dangerous to life.
- .02 to .07 percent
  - .01 to .05 percent
  - .04 to .05 percent
  - .4 to .5 percent
  - .004 to .005 percent
26. One of the gases produced by burning rubber, neoprene, or PVC is phosgene. It has a maximum allowable TLV of
- .0001 percent
  - .0005 percent
  - .005 percent
  - .00001 percent
  - .01 PPM
27. To obtain the quantity of air current in cubic feet per minute
- The linear feet of air travel per minute is multiplied by the computed area of the airway in square feet
  - The air velocity in feet per minute is multiplied by the length times the height of the airway
  - The air velocity in square feet is multiplied by the area of the airway
  - None of the above
28. \_\_\_\_\_ is the process by which a team systematically explores all crosscuts and adjacent entries as they advance so they are never forward of an unexplored area.
- Cross checking
  - Tying in
  - Traveling
  - Pacing
  - None of the above

29. Oxygen deficiency causes tightness in forehead, headaches, and dizziness at \_\_\_\_\_.

- a. 14%
- b. 13%
- c. 15%
- d. 9%

30. The more obese an individual is; the quicker rigor mortis will develop.

- A. True
- B. False

