

**2013 Southwestern Mine Rescue Contest**  
**Taos, NM**  
**Written Test – Field Competition**

Name \_\_\_\_\_ Company \_\_\_\_\_

Team Name \_\_\_\_\_ Contest Position No. \_\_\_\_\_

Team Member No. \_\_\_\_\_

**Directions: Use answer sheet & fill in completely.**

1. Regulators are used to control and adjust the quality of airflow in the mine in order to ensure proper distribution.
  - a. True
  - b. False
  
2. If the team loses voice contact with the fresh air base, three tugs or pulls on the communication line will signify \_\_\_\_\_.
  - a. Advance
  - b. Retreat
  - c. Stop
  - d. Emergency or Distress
  
3. Reestablishing ventilation and bringing fresh air to an area damaged by fire or explosion is the main task of mine rescue teams in a rescue operation.
  - a. True
  - b. False
  
4. The most hazardous aspect of hydrogen is the fact that it can replace oxygen in air and act as an asphyxiant.
  - a. True
  - b. False
  
5. Sulfur dioxide will not burn or explode but it is a very toxic and irritating gas.
  - a. True
  - b. False
  
6. During exploration procedures, which of the below are not a reasons for the “team check”?
  - a. to make sure that the team is fit and ready to continue
  - b. give the team a chance to rest
  - c. they are required by contest rules
  - d. to make sure that each team member’s apparatus is functioning properly
  
7. You can allow a rescued miner to walk out of the mine alone if the miner appears to be in good shape?
  - a. True
  - b. False

8. What property is common to Carbon Dioxide, Nitrogen Dioxide and Sulfur Dioxide?
  - a. Heavier than air;
  - b. Non-explosive;
  - c. Both of the above;
  - d. Neither of the above.
  
9. When constructing a temporary bulkhead from a crosscut, the bulkhead should be \_\_\_\_ feet into the passageway?
  - a. 10 to 12
  - b. 1 to 2
  - c. 4 to 6
  - d. None of the above.
  
10. Which of the following is not a second priority condition?
  - a. Multiple fractures
  - b. Second degree burns involving 15 to 30% of body
  - c. Chest injuries
  - d. Moderate heat exhaustion
  
11. Exposure to Carbon Monoxide concentrations as low as \_\_\_\_% can kill you in three hours.
  - a. 0.5
  - b. 0.25
  - c. 0.05
  - d. 0.01
  
12. Breathing air containing 5% Carbon Dioxide can increase respiration \_\_\_\_%.
  - a. 500
  - b. 300
  - c. 150
  - d. None of the above.
  
13. This gas is hard to disperse; it is very toxic; as little as 0.04 to 0.05% is dangerous to life.
  - a. H<sub>2</sub>S
  - b. CO<sub>2</sub>
  - c. SO<sub>2</sub>
  - d. NO<sub>2</sub>
  
14. The recommended type of extinguisher for mine rescue teams is a multi-purpose dry chemical type that contains:
  - a. Sodium Bicarbonate
  - b. Potassium chloride
  - c. Carbon Tetrachloride
  - d. Monoammonium Diphosphate
  - e. None of the above
  
15. The press room and the family waiting room can be the same room.
  - a. True
  - b. False

16. Afterdamp is toxic, explosive, and can be oxygen deficient. It contains the following mixture of gases:
- Methane and Air;
  - Carbon Dioxide, Nitrogen, and Air;
  - Carbon Monoxide, Carbon Dioxide, Methane, Oxygen, Nitrogen, and Hydrogen;
  - Carbon Monoxide and Air.
17. The \_\_\_\_\_ of a gas changes in response to any change in atmospheric pressure or \_\_\_\_\_?
- Temperature; Volume
  - Volume; Temperature
  - Density; Moisture
  - Volume; Moisture
18. 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 by 20 feet high?
- 24,000 cfm
  - 32,000 cfm
  - 38,000 cfm
  - 44,000 cfm
19. 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 requirements set forth in Title 30 CFR, Part 49.6?
- True
  - False
20. Methane has a specific gravity of 0.5 and seeks low places?
- True
  - False.
21. Sulfur Dioxide gas in concentrations as low as \_\_\_\_\_ is dangerous to life.
- 0.02 to 0.07 percent;
  - 0.01 to 0.05 percent;
  - 0.04 to 0.05 percent;
  - 0.4 to 0.5 percent;
  - 0.004 to 0.005 percent.
22. One of the gases produced by burning rubber, neoprene, or PVC is phosgene. It has a maximum allowable TLV of:
- 0.0001 percent
  - 0.0005 percent
  - 0.005 percent
  - 0.00001 percent
  - .01 PPM.
23. The captain of the mine rescue team determines whether or not to alter ventilation?
- True
  - False

24. Factors that influence body deterioration are:
- Air temperature
  - Body size
  - Body fluid
  - All of the above
25. A main cause of oxygen deficiency in a mine is:
- Insufficient ventilation
  - Displacement by other gases
  - A fire or explosion
  - Consumption by workers
  - All of the above.
26. The location of personal items, such as lunch bucket, only needs to be marked on the side of the mine near where they are found?
- True
  - False
27. It is the duty of the mine supervisor to alert adjoining mines if they are connected underground with the affected mine?
- True
  - False
28. Only Federal officials can establish a command center and oversee all aspects of a rescue and recovery operation?
- True
  - False
29. \_\_\_\_\_ ventilation is the most common method of recovery in multi-level mines.
- Direct
  - Progressive
  - Indirect
  - Automatic
  - None of the above.
30. Oxygen deficiency causes tightness in forehead, headaches, and dizziness at \_\_\_\_\_.
- 9%
  - 13%
  - 14%
  - 15%