

Welcome Contestants  
Central Mine Rescue Contest  
May 12 through May 14, 2016  
Kellogg, Idaho

**Field** Written Examination

Choose the most appropriate answer or answers for the questions that follow. Use the supplied score card to record your answers. Please ensure the marks you make are **dark** and **completely fill the box**. If you make a mistake you must completely erase the mark you've made. Improperly marked sheets can result in an incorrect answer.

1. When determining where to set up a bench area, the availability of water should be taken into consideration.
  - a. True
  - b. False
2. According to 30 CFR 49.6(a)(6), gas detectors must measure concentrations of methane in parts per million (ppm).
  - a. True
  - b. False
3. Gasses issuing into still air without mixing tend to \_\_\_\_\_.
  - a. Liquefy
  - b. Stink
  - c. Coagulate
  - d. Stratify
4. The term used to express the range within which a gas will explode is the \_\_\_\_\_.
  - a. Detonation range
  - b. Compression range
  - c. Conflagration factor
  - d. None of the above
5. The amount of oxygen that must be present of an explosion to occur is typically expressed in parts per million (ppm).
  - a. True
  - b. False
6. Some of the gases found in normal air are soluble in water.
  - a. True
  - b. False

7. The specific gravity of Nitrogen is:
- 1.1
  - 0.8531
  - 1.34
  - 0.9674
8. When testing for carbon dioxide, you should test \_\_\_\_\_.
- At shoulder level
  - Above your head
  - At waist level
  - Down low, near the floor/ground/ sill
9. In concentrations of 2 percent or higher carbon dioxide \_\_\_\_\_.
- Will burn and/or explode
  - Will cause you to breathe deeper and faster
  - Will cause oxidation of steel
  - None of the above
10. The explosive range for carbon monoxide in normal air is:
- 5 to 15%
  - 1 to 10%
  - 12.5 to 74.2%
  - None of the above
11. When testing for carbon monoxide, you should hold your detector \_\_\_\_\_.
- At chest level
  - Near your knees
  - Close to the back
12. In higher concentrations, oxides of nitrogen can have a smell and a taste.
- True
  - False
13. The specific gravity of hydrogen is:
- 0.0925
  - 0.0695
  - 1.1
  - 1.657

14. Hydrogen Sulfide is most explosive at \_\_\_\_\_.  
a. 14.5 parts per million  
b. 46.5 percent  
c. 4.2 parts per million  
d. 14.2 percent
15. The specific gravity of Hydrogen Sulfide is:  
a. 1.1906  
b. 1.321  
c. 1.1001  
d. 0.9101
16. Choose the **incorrect** statement below:  
a. Methane is explosive where there is at least 12.1 percent oxygen  
b. Methane is toxic  
c. The explosive range of Methane is 5 to 15 percent.  
d. Methane is a gas
17. Temporary bulkheads can sometimes be made out of wood or metal.  
a. True  
b. False
18. Mine doors are generally used to:  
a. Keep air from flowing to areas where it's not needed  
b. Isolate separate splits of air  
c. Form an airlock to allow equipment and people to pass through  
d. All of the above
19. The command center should be consulted before making changes to ventilation because making the wrong alterations can \_\_\_\_\_.  
a. Cause changes in the air at the fresh air base  
b. Force explosive gas over a fire or hot spot  
c. Redirect and feed air to a fire  
d. All of the above
20. A smoke tube is useful in determining the \_\_\_\_\_ of air.  
a. Direction  
b. Velocity  
c. A & B  
d. Moisture content  
e. None of the above

21. A mine rescue team exploring a mine barefaced should \_\_\_\_\_.
- Continue exploring barefaced as long as smoke encountered is light brown & there isn't too much oxygen present.
  - Continue exploration through an area that shows explosion damage to ventilation controls and some smoke, but SO<sub>2</sub> isn't present.
  - Stop exploration if they encounter smoke or damage.
  - All of the above
22. The fresh air base coordinator has 3 basic responsibilities: Communication between the team and command center, \_\_\_\_\_, and coordinating & overseeing the activities of all personnel who are at the fresh air base.
- Making the decision on when to erect ventilation controls
  - Following the team's progress & marking the findings on the map
  - Contacting the next of kin when any injured miners are found
23. The team captain should make sure each team member's apparatus has been properly prepared and tested before going underground.
- True
  - False
24. If transportation is available and conditions permit, transportation should be used. It's important that you find and take only one to reduce traffic.
- True
  - False
25. The captain should check the back before building an airlock and before fighting a fire.
- True
  - False
26. Dry chemical fire extinguishers function to remove heat from a fire.
- True
  - False
27. When using a hand-held fire extinguisher, you should direct the stream of dry chemical about \_\_\_\_\_ of the flame edge.
- 6 inches ahead
  - 2 feet ahead
  - 2 feet behind
  - Into the center

28. Before going underground to explore or fight a fire the team should make sure that:
- a. The main fan is turned off
  - b. A guard is monitoring the operation of the fan
  - c. Gases are being monitored at the intake
  - d. All of the above
29. The explosive gas hydrogen can be liberated when foam is used to fight a fire.
- a. True
  - b. False
30. When using the "triage" system to sort victims there are \_\_\_ priority groups.
- a. 5
  - b. 2
  - c. 3
  - d. 4