

**2012 Northern Mine Rescue Contest
Rochester, NY
Written Test – Field Competition**

Name _____ Company _____

Team Name _____ Contest Position No. _____

Team Member No. _____

Directions: Circle the letter preceding the correct answer to each of the following questions. Circle only one answer per question.

1. The mine superintendent or other designated person, as part of the mine emergency command group (Command Center), will likely oversee numerous aspects of rescue and recovery operations.
 - a. True*
 - b. False

2. The degree to which a toxic gas will affect you depends on three factors: (1) how concentrated the gas is; (2) how toxic the gas is; and (3) _____.
 - a. the Threshold Limit Value of the gas.
 - b. whether the gas has an IDLH limit.
 - c. how well the gas interacts with oxygen.
 - d. how long you are exposed to the gas. *

3. Some toxic gases harm the skin or can be absorbed by the skin. An SCBA will protect you from these gases.
 - a. True
 - b. False*

4. It is much more difficult to remove a concentration of a light gas like hydrogen by ventilation than it is to remove the same concentration of a heavier gas like sulfur dioxide.
 - a. True
 - b. False*

5. Atmospheric pressure is measured _____.
 - a. on the litmus scale
 - b. using an anemometer
 - c. on a barometer*
 - d. with a sling psychrometer

6. Gases respond to cold temperatures by expanding and diffusing more readily.
 - a. True
 - b. False*

7. _____ determines where a gas will stratify in still air in the mine (whether it will rise or fall).
- The atomic number
 - The chemical index
 - Poisson's Ratio
 - Specific gravity***
 - None of the above
8. The basic principle underlying mine ventilation is that air always moves _____.
- when the fan is operating
 - wherever the permanent controls direct it to go
 - from high pressure regions to low pressure regions***
 - toward the working faces
 - None of the above
9. With mechanical ventilation, mine fans are used to create the _____ by changing the air pressure at specified points in the mine.
- pressure differential***
 - constant flow paths
 - volumetric airflow
 - inertial distribution
10. Regulators are used to control and adjust the quality of airflow in the mine in order to ensure proper distribution.
- True
 - False***
11. Barefaced exploration should stop at any point _____.
- when the team encounters smoke or damage
 - when gas tests indicate the presence carbon monoxide or other toxic gases
 - when there are elevated readings of explosive gases
 - when an oxygen deficiency is detected
 - All of the above***
12. The fresh air base is the base of operations and starting point for rescue and recovery work into respirable atmospheres.
- True
 - False***
13. When conducting rescue work, it is a good idea to limit intake of stimulants such as coffee and colas, because _____.
- they keep you awake
 - they increase your heart rate
 - they increase your respiration rate
 - Both b. and c. ***

14. Before your team proceeds to the fresh air base, it is the _____ responsibility to make sure the team, its equipment, and its apparatuses are ready to go.
- fresh air base coordinator's
 - captain's***
 - team technician's
 - safety director's
 - mine emergency coordinator's
15. If the team loses voice contact with the fresh air base, three tugs or pulls on the communication line will signify _____.
- Advance
 - Retreat***
 - Stop
 - Emergency or Distress
16. Information the team relays to the fresh air base as it proceeds is known as the "_____."
- systematic update
 - debriefing information
 - exploratory data
 - progress report***
17. Think of Class B fires as those that involve contents that will _____.
- Burn
 - Blister
 - Boil***
 - Bake
18. Water is an effective extinguishing agent on _____ fires.
- Class A***
 - Class B
 - Class C
 - All of the above
19. When a team goes into a mine to explore or fight a fire, it should be concerned with two main things -- _____.
- how many people are missing and where they are located
 - where the fire is located and the conditions in the fire area
 - toxic chemicals and explosive gases
 - spreading of the fire and the possibility of an explosion***
 - None of the above
20. The explosive range of hydrogen is 4.0 to 74.2 percent when there is at least 4.0 percent oxygen present.
- True
 - False***

21. The explosive range of methane is 5 to 15 percent when there is at least _____ percent oxygen present.
- a. 14.3
 - b. 10.7
 - c. 12.1*
 - d. 20.9
22. When several survivors suffering from physical and/or psychological trauma have been located, the accurate sorting of priority victims may mean the difference between life and death. This sorting of victims is commonly referred to as the “_____” system.
- a. priority
 - b. moulage
 - c. first line
 - d. triage*
 - e. None of the above
23. The best way to relieve psychological stress in survivors is to communicate with them _____.
- a. as soon as possible*
 - b. only when necessary
 - c. enough to determine what has happened
 - d. for at least 15 minutes
24. When a team locates a body, the usual procedure is to _____.
- a. keep calm
 - b. cover the victim
 - c. place the victim in a body bag
 - d. report the location to the command center*
25. 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*
26. Direct ventilation is the re-ventilation of a sealed area in successive blocks by means of airlocks.
- a. True
 - b. False*
27. 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*

28. Sulfur dioxide will not burn or explode but it is a very toxic and irritating gas.
- a. True*
 - b. False
29. Hydrogen sulfide is flammable and explosive in concentrations of 4.3 to 45.5 percent in normal air. It is most explosive at _____ percent.
- a. 12.1
 - b. 45.5
 - c. 4.3
 - d. 14.2*
30. There are three reasons for the “team check,” these include: _____.
- a. to make sure that the team is fit and ready to continue
 - b. give the team a chance to rest
 - c. break up the monotony of systematic exploration
 - d. team checks are required by the contest rules
 - e. to make sure that each team member’s apparatus is functioning properly
 - f. a., b., and e.*
 - g. a., d., and e.
 - h. only d.