

2013 Northern Mine Rescue Contest

Written Exam (Field Competition)



July 16, 2013

Rochester, New York

**2013 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. _____ causes a gas to contract.
 - A. An increase in pressure
 - B. A decrease in pressure
 - C. An increase in temperature
 - D. None of the above
 - E. All of the above

2. In a triage system _____ is considered a first priority condition.
 - A. Second degree burns involving 15 to 30 percent of the body
 - B. First degree burns of less than 20 percent of the body
 - C. Severe bleeding
 - D. Multiple lacerations
 - E. All of the above

3. The _____ provides suitable transportation for people and supplies, as needed.
 - A. Mine Superintendent
 - B. Mine Foreman
 - C. Mine Clerk
 - D. Chief Mechanic
 - E. Outside Supervisor

4. The degree to which a toxic gas will affect you depends on how concentrated the gas is, how toxic the gas is, and how long you are exposed to the gas.
 - A. True
 - B. False

5. Each mine rescue station shall be provided with at least one extra, fully-charged oxygen bottle for every six self-contained breathing apparatus.
 - A. True
 - B. False

6. Some of the main factors governing the time for unsealing a fire area are:
 - A. Extent and intensity of the fire at the time of sealing.
 - B. Tightness of the seals.
 - C. Effect of barometric pressure on the enclosed area.
 - D. Effect of temperature on the enclosed area.
 - E. All of the above.

7. Hydrogen Sulfide is most explosive at _____ percent.
 - A. 10.2 percent
 - B. 12.2 Percent
 - C. 14.2 Percent
 - D. 15.2 Percent
 - E. None of the above

8. During exploration of the mine, the team captain can decide whether or not to alter ventilation.
 - A. True
 - B. False

9. Fires involving combustible metals such as magnesium, titanium, sodium, and potassium are considered:
 - A. Class A
 - B. Class B
 - C. Class C
 - D. Class D
 - E. None of the Above

10. Air locking operations should never be undertaken until the oxygen content of the air behind the seals has been reduce to at least five percent.
 - A. True
 - B. False

11. _____ has a slight garlic odor.
- A. Radon
 - B. Methane
 - C. Hydrogen
 - D. Acetylene
 - E. None of the above
12. If a team loses voice contact with the fresh air base, a system of pulls or tugs on the communication line is used to send and receive signals. Four tug means retreat.
- A. True
 - B. False
13. Rigor mortis will develop on a more obese individual probably within:
- A. 1 - 2 hours
 - B. 2 - 4 hours
 - C. 3 - 5 hours
 - D. 6 - 10 hours
 - E. None of the above
14. _____ is a mixture of carbon dioxide, nitrogen, and air.
- A. Firedamp
 - B. Afterdamp
 - C. Blackdamp
 - D. Stinkdamp
 - E. None of the above
15. A 30 pound fire extinguisher will normally last 18 to 25 seconds.
- A. True
 - B. False
16. It is more accurate when measuring velocity with a smoke tube to take readings at quarter points within the airway.
- A. True
 - B. False

17. Methane is most explosive in the _____ percent range.
- A. 8.5 to 9
 - B. 9.5 to 10
 - C. 10.5 to 11
 - D. 11 to 15
 - E. None of the above
18. All personnel items belonging to bodies found in the mine are left in the mine until the investigation is complete.
- A. True
 - B. False
19. According to law, each team must have a portable or sound-powered communication system. The system's wire or cable must be at least _____ feet long.
- A. 250 feet
 - B. 300 Feet
 - C. 1,000 Feet
 - D. 2,000 Feet
 - E. None of the above
20. In above-normal concentrations _____ acts as an asphyxiant because it lowers the oxygen content of the air.
- A. Nitrogen
 - B. Carbon Dioxide
 - C. Carbon Monoxide
 - D. Hydrogen
 - E. None of the above
21. Temporary bulkheads in a passageway should be placed at least _____ feet into the passageway.
- A. 2 - 3
 - B. 3 - 4
 - C. 4 - 6
 - D. 6 - 8
 - E. None of the above

22. Usually, after temporary seals are erected, a waiting period of about 72 hours is recommended before beginning construction on permanent seals.
- A. True
 - B. False
23. Clean, dry air at sea level is made up of _____ percent oxygen.
- A. 78
 - B. 52
 - C. 25
 - D. 21
 - E. None of the above
24. Federal officials are always in charge of any mine rescue operations.
- A. True
 - B. False
25. _____ is a mixture of carbon monoxide and air which results from a mine fire.
- A. Stinkdamp
 - B. Whitedamp
 - C. Afterdamp
 - D. Firedamp
 - E. None of the above
26. Moderate heat exhaustion is considered a third priority condition.
- A. True
 - B. False
27. If the power has been cut off to burning equipment, the fire can be treated as a Class _____ fire.
- A. Class A
 - B. Class B
 - C. Class D
 - D. A and B
 - E. B and D

28. The specific gravity of normal air is:

- A. 1.0
- B. 1.1
- C. 1.2
- D. 2.0
- E. None of the above

29. A _____ is used to control and adjust the quantity of airflow in the mine.

- A. Bulkhead
- B. Line Brattice
- C. Auxiliary Fan
- D. Regulator
- E. None of the above

30. During exploration, it is recommended that team checks be conducted every ten minutes.

- A. True
- B. False