

**2010 National Metal and Nonmetal Mine Rescue Contest
Mine Rescue Field Competition – Written Test**

Please do not write on this test. Use the answer sheet provided.

1. Rock gas is largely _____.
 - A. Nitrogen and carbon dioxide
 - B. Nitrogen and carbon monoxide
 - C. Carbon dioxide and hydrogen sulfide
 - D. Hydrogen and carbon monoxide
 - E. None of the above

2. Information the team relays to the fresh air base as it proceeds is known as the “progress report”.
 - A. True
 - B. False

3. Fires that involve flammable or combustible liquids are:
 - A. Class A
 - B. Class B
 - C. Class C
 - D. Class D
 - E. None of the above

4. An information center should only be directed by a company official.
 - A. True
 - B. False

5. The explosive range of Ethane in normal air is _____ percent.
 - A. 1.86 to 8.41
 - B. 5 to 15
 - C. 3 to 12.5
 - D. 2.12 to 9.35
 - E. None of the above

6. In order to get air to flow from the intake to the exhaust, the exhaust air must be at a higher pressure than the intake.
- A. True
 - B. False
7. _____ is found in high concentrations in black powder smoke.
- A. Whitedamp
 - B. Afterdamp
 - C. Blackdamp
 - D. Firedamp
 - E. None of the above
8. When conducting barefaced exploration, a back-up crew with apparatus should be stationed outside the area.
- A. True
 - B. False
9. Any testing device containing electrical circuits used in mines classified as gassy must be tested by MSHA prior to use under such conditions.
- A. True
 - B. False
10. _____ has a slight garlic odor.
- A. Butane
 - B. Ethane
 - C. Methane
 - D. Acetylene
 - E. None of the above.
11. The location of a victims cap lamp should be marked on the mine map and on the side of the mine near where they are found.
- A. True
 - B. False

12. A _____ is used to measure high velocity airflow in ducts or tubing.
- A. Smoke tube
 - B. Pitot tube
 - C. Medium velocity anemometer
 - D. High velocity anemometer
 - E. None of the above
13. During a mine emergency, _____ should establish the command center and oversee all aspects of the rescue and recovery operation.
- A. Top MSHA official
 - B. Top State official
 - C. Mine manager/Superintendent
 - D. CEO of company
 - E. None of the above
14. It is easier for concentrations of explosive gases to build up when the barometric pressure is high.
- A. True
 - B. False
15. The duties of the Fresh Air Base Coordinator typically include
- A. Checking names or numbers of the team going into the affected area.
 - B. Checking condition of backup team.
 - C. Checking and logging equipment and materials.
 - D. All of the above
 - E. None of the above
16. The characteristics of the burning material and the surrounding strata are one of the main factors in determining when to unseal a fire area.
- A. True
 - B. False

17. _____ is a mixture of carbon monoxide, carbon dioxide, methane, oxygen, nitrogen, and hydrogen.
- A. Whitedamp
 - B. Stinkdamp
 - C. Afterdamp
 - D. Blackdamp
 - E. Firedamp
18. It is okay to allow a survivor to walk out on their own if they appear to be in good shape.
- A. True
 - B. False
19. It is the duty of the _____ to notify all persons on the notification plan and inform them of the emergency.
- A. Manager/Superintendent
 - B. Mine Clerk
 - C. Outside Supervisor
 - D. Safety Director
 - E. None of the above
20. It is up to the team captain to decide whether or not to alter the ventilation during exploration of the mine.
- A. True
 - B. False
21. The explosive range of carbon monoxide in normal air is _____ percent.
- A. 4 to 74.2
 - B. 12.5 to 74.2
 - C. 4.3 to 45.5
 - D. 5 to 15
 - E. None of the above
22. A decrease in atmospheric pressure causes gas to expand.
- A. True
 - B. False

23. If the team is stopped at one location for an extended period, it's common practice for the fresh air base to signal two short pulls on the communication line about every 5 minutes to check on the team's condition.
- A. True
 - B. False
24. If a body is in cold water, it will remain in almost perfect condition for:
- A. 4 - 5 days
 - B. 7 - 8 days
 - C. 2 - 3 days
 - D. A week
 - E. None of the above
25. Chemical analysis of air samples can reveal the presence of gases that portable detectors are not designed to detect.
- A. True
 - B. False
26. Usually, after temporary seals are erected, a waiting period of about 48 hours is recommended before beginning construction on permanent seals.
- A. True
 - B. False
27. _____ is a hazard of direct firefighting.
- A. Electrocution
 - B. Oxygen deficiency
 - C. Steam
 - D. All of the above
 - E. None of the above
28. The most accurate method of determining air velocity with a smoke tube is to take readings:
- A. In the center of the airway
 - B. At half points within the airway
 - C. Along the side of the airway
 - D. At quarter points within the airway
 - E. None of the above

29. _____ is a first priority condition in the triage system.
- A. Back injury
 - B. Fractured arm
 - C. Multiple lacerations
 - D. Chest injury
 - E. None of the above
30. _____ ventilation is the re-ventilation of a sealed area in successive blocks by means of air locks.
- A. Block
 - B. Direct
 - C. In-Direct
 - D. Progressive
 - E. None of the above