

2018 National Metal and Nonmetal Mine Rescue Contest

Mine Rescue Field Competition Written Test

Directions:

- 1. Find the correct answer to each of the questions.**
- 2. Select only one answer per question.**
- 3. Then, fill in the corresponding circle on the answer sheet for each numbered question.**

Good Luck!



July 23, 2018

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1. The Command Center is the hub of rescue and recovery operations and is typically staffed and controlled by a mine emergency “command group”.
 - A. True
 - B. False
2. The mines ventilation system is designed to bring in fresh air to _____ and _____ harmful gases and to supply oxygen.
 - A. Increase and promote
 - B. disperse and remove
 - C. decrease and unify
 - D. All of the above
3. MSHA requires mine rescue stations serving underground M/NM mines to have _____ gas detectors appropriate for each gas which may be encountered at the mines served.
 - A. Two
 - B. Three
 - C. Four
 - D. None of the above
4. The advantage to chemical analysis is that generally it is not a time-consuming process.
 - A. True
 - B. False
5. The rate of diffusion is how quickly the gas will mix or blend with one or more other gasses and how quickly it can be dispersed.
 - A. True
 - B. False
6. Atmospheric pressure is measured on a _____.
 - A. Weigh Scale
 - B. Dust Pump
 - C. Barometer
 - D. All of the above

7. Under no circumstances do you ever alter ventilation without orders to do so from the _____.
- A. President of the United States
 - B. Secretary of Labor
 - C. #1 Judge
 - D. Command Center
8. In many cases, one main fan is used to ventilate the entire mine.
- A. True
 - B. False
9. In some large multi-level mines, booster fans installed on certain levels are used along with the main fan to maintain the correct ventilation throughout the mine.
- A. False
 - B. True
10. If shafts are used as the two main airways, the intake airway is called the upcast shaft, and the exhaust airway is referred to as the downcast shaft.
- A. True
 - B. False
11. If pressure difference exists naturally between the two airways, then the mine has _____ ventilation.
- A. Mechanical
 - B. Accurate
 - C. Natural
 - D. None of the above
12. "Exploration" is a term we use to describe the process of assessing conditions underground and locating miners (or clues to their whereabouts) during a rescue and recovery operation.
- A. True
 - B. False
13. Before anyone goes underground, it's important to examine the _____ to determine the safest route for entering the mine.
- A. Mine Map Legend
 - B. Mine Rescue Team
 - C. Mine Act
 - D. Mine Openings

14. During barefaced exploration, the crew uses the mines communication system to report their progress and findings to the surface.
- A. True
 - B. False
15. The fresh air base should be located as close as possible to the affected are of the mine, but situated where its assured a supply of good _____.
- A. Food
 - B. Supplies
 - C. Drinking Water
 - D. Air
16. According to law, the team must also have a portable or sound-powered communication system. The systems wire or cable must be at least ___ feet long.
- A. 500
 - B. 800
 - C. 10,000
 - D. 1,000
17. Before the team goes underground, they will attend a _____ session.
- A. Health Counseling
 - B. Eye Exam
 - C. Briefing
 - D. All of the above
18. Sealing off the fire area is another way of removing _____.
- A. Fuel
 - B. Oxygen
 - C. Heat
 - D. None of the above
19. Class ___ fires involve combustible metals such as magnesium, titanium, zirconium, sodium, and potassium.
- A. "A"
 - B. "B"
 - C. "C"
 - D. "D"
20. Dry chemical extinguishers put out fires by stopping the chemical reaction between the fuel and oxygen (which produces the flame).
- A. True
 - B. False

21. Hand-held extinguishers range in size from about ____ to ____ pounds.
- A. 5 to 50
 - B. 10 to 50
 - C. 2 to 55
 - D. 2 to 50
22. A 30-pound extinguisher will normally last ____ to ____ seconds.
- A. 16 to 25
 - B. 18 to 30
 - C. 18 to 25
 - D. None of the above
23. Low expansion foam can only be used when you're close enough to a fire to force the foam directly on to the fire.
- A. True
 - B. False
24. If the fire begins to back up against the intake air in search of oxygen, you can put up a "traverse" brattice (or hurdle brattice) from side to side and seal it completely.
- A. True
 - B. False
25. Severe head injuries, airway or breathing problems, and unconsciousness are examples of a _____ priority condition.
- A. Low or third
 - B. Secondary
 - C. First
 - D. None of the above
26. Specific gravity is the weight of a gas compared to an equal volume of normal air under the same temperature and pressure.
- A. True
 - B. False
27. Sulfur monoxide has a specific gravity of 2.2638.
- A. True
 - B. False
28. Since your self-contained breathing apparatus supplies you with oxygen, it will protect you against asphyxiating gases.
- A. True
 - B. False

29. The specific gravity for Carbon Dioxide (CO₂) is _____?
- A. 1.1925
 - B. 1.2291
 - C. 1.5299
 - D. None of the above
30. Carbon Monoxide is explosive and flammable. Its explosive range in normal air is _____ to _____ percent.
- A. 12.0 to 74.0
 - B. 12.5 to 74.2
 - C. Carbon Monoxide is not explosive and flammable
 - D. None of the above