

2012 National Metal and Nonmetal Mine Rescue Contest

Team Trainer 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 31, 2012

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

1. In mechanical ventilation, air flows because of the natural difference in pressure between the underground intake and return entries.
 - A. True
 - B. False
2. Overcasts and undercasts are used to permit the two air currents to cross without the intake air short-circuiting into the exhaust. Undercasts are seldom used in a mine because _____.
 - A. they are difficult to construct
 - B. it is cheaper to build overcasts
 - C. they are apt to fill with water and debris
 - D. None of the above
3. The _____ is the hub of a rescue and/or recovery operation.
 - A. fresh air base
 - B. command center
 - C. safety department
 - D. All of the above
4. A regulator can be made by knocking several blocks out of a permanent bulkhead.
 - A. True
 - B. False
5. Some gases found in mines are soluble and can be released from water. These include _____.
 - A. H_2 , H_2S , and NO_2
 - B. H_2 , CO_2 , and H_2S
 - C. H_2S and SO_2
 - D. H_2 , O_2 , and H_2S
6. Federal regulation 30 CFR Section 49.6(a)(8) requires a mine rescue station to have a portable mine rescue communication system (approved under 30 CFR Part 23) or a sound-powered communication system.
 - A. True
 - B. False

7. Survivors can be categorized into three priority groups according to their condition or injuries. Severe bleeding, deep shock, and chest injuries, are examples of _____.
- A. First Priority conditions
 - B. Second Priority conditions
 - C. Third Priority conditions
 - D. A mix of all three Priority conditions
8. About _____ percent of clean, dry air at sea level is made up of argon, carbon dioxide, and small trace amounts of other gases.
- A. 0.03
 - B. 3.00
 - C. 0.01
 - D. 1.00
9. For a fire or explosion to occur, three elements must be present at the same time: fuel, sufficient oxygen, and heat (ignition).
- A. True
 - B. False
10. During a rescue operation, the rescue of survivors is the _____ priority of the mine rescue team.
- A. first
 - B. second
 - C. third
 - D. None of the above
11. Indirect firefighting methods work by _____.
- A. removing potential ignition sources from the fire area
 - B. exhausting the fuel source in the fire area
 - C. eliminating oxygen from the fire
 - D. None of the above
12. During recovery work, the role of a mine rescue team varies as the operation progresses and conditions change. Until ventilation is re-established, apparatus crews will be needed to:
- A. assess ground conditions
 - B. clear debris and stabilize ground conditions
 - C. rebuild bulkheads
 - D. All of the above

13. The trachea is:
- A. Formed by tubes that branch from the throat and take air to the lungs
 - B. An air passage to the lungs
 - C. A leaf-shaped structure that covers the larynx
 - D. A food passage with carries food and fluid to the stomach
14. When determining your patient's responsiveness during your initial assessment using the AVPU Scale, the P in the acronym means:
- A. Prior medical history
 - B. Painful
 - C. Partially alert
 - D. Patient
15. When a blood vessel in the brain ruptures, the patient is said to have:
- A. Heart attack
 - B. Chronic obstructive pulmonary disease
 - C. Cerebrovascular accident
 - D. Seizure
16. When conducting a one rescuer emergency move called an incline drag the patient is:
- A. Dragged using a blanket
 - B. Dragged by the feet and ankles
 - C. Always dragged head first
 - D. None of the above
17. The first thing a rescuer should do when inserting a Oropharyngeal airway is:
- A. Insert the airway so the tip is positioned towards the roof of the mouth
 - B. Ventilate the patient with the most appropriate technique
 - C. Take BSI precautions
 - D. Manually open the airway using the head tilt, chin lift
18. An AED will NOT be effective on the following heart rhythm:
- A. Ventricular-fibrillation
 - B. Ventricular-tachycardia
 - C. Bradycardia
 - D. Asystole
19. When treating a patient with a flail chest you should apply a bulky pad or dressings, several inches thick, over the site;
- A. True
 - B. False

20. The gallbladder is located in the:
- A. Right upper quadrant
 - B. Right lower quadrant
 - C. Left upper quadrant
 - D. Left lower quadrant
21. Oxygen deficient atmospheres may cause readings of combustible (methane) gas to be higher than the actual concentration.
- A. True
 - B. False
22. Oxygen enriched atmospheres may cause readings of combustible (methane) gas to be lower than actual concentrations.
- A. True
 - B. False
23. Silica can affect the combustible gas sensor and may cause readings to be lower than actual gas concentrations.
- A. True
 - B. False
24. Sudden changes in atmospheric pressure will not cause temporary fluctuations in the oxygen readings.
- A. True
 - B. False
25. The manufacturer recommends that a functional (bump) test be performed on the gas instrument after each day's use.
- A. True
 - B. False
26. During exploration of a mine and the mine rescue team loses communication with the command center the captain has the authority to change the ventilation during an emergency.
- A. True
 - B. False

27. Under 30 CFR §49.6(a)(6), 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. One
 - B. Two
 - C. Four
 - D. Six
28. Class ____ fires are best extinguished by cooling with water or by blanketing with certain dry chemicals.
- A. D
 - B. C
 - C. B
 - D. A
 - E. None of the above.
29. During mine rescue contests, barricades will not be entered without ventilating in front of them, if:
- A. CO exceeds 0.12 %
 - B. CO₂ exceeds 4.0 %
 - C. Both A and B
 - D. None of the above.
30. Teams must explore or examine workings systematically and thoroughly, unless an uncontrollable fire has been discovered. Then, the team must proceed without undue delay in finding and sealing all approaches to the fire. This action will relieve the team of the responsibility to explore systematically.
- A. True
 - B. False