**COLORADO MINE RESCUE CONTEST**

**GOLDEN, CO**

**MAY, 2015**

**MINE RESCUE WRITTEN TEST**

Name:

Team:

Member Number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. It is extremely important to develop a standardized method of reporting gas readings and other critical information to the Command Center and the Fresh Air Base (FAB). (Page 1-6 of Pub 3027 Module 1)

1. True \*
2. False

2. Duties of the mine foreman may include: (Page 1-7 of Pub 3027 Module 1)

1. Provide suitable transportation for people and supplies, as needed.
2. Organize underground operations for each shift in cooperation with the person in charge, Federal inspectors, and, if involved, state inspectors and union representatives.
3. All of the Above \*
4. None of the Above

3. In these emergencies, the Mine Safety and Health Administration will serve as the primary communicator with the operator, miners’ families, the press and the public. (Page 1-5 of Pub 3027 Module 1)

1. True \*
2. False

4. Normal air is composed of 66% Nitrogen, 24% oxygen, 8% carbon dioxide and 2% other gasses. (Page 2-45 Pub 3027 module 2)

1. True
2. False\*

5. Carbon monoxide tastes (Page 2-47 Pub 3027 module 2)

1. Slightly sweet
2. Bitter
3. Like a rotten egg
4. None of the above\*

6. Any flammable gas can explode under certain conditions. (page 2-7 Pub 3027 module 2)

1. True\*
2. False

7. The following gasses oxygen, butane, hydrogen sulfide and carbon dioxide are all found: (page 2-47 Pub 3027 Module 2)

1. At about the same level as normal air.
2. Seeking high places.
3. Seeking low places.
4. None of the above. \*

8. What conditions would indicate the presence of oxides of nitrogen? (page 2-8 Pub 3027 module 2)

1. A reddish brown color and the odor of blasting powder fumes.\*
2. The odor of blasting powder fumes and sour taste.
3. A sweet taste with reddish brown color.
4. The odor of blasting powder fumes and sour taste.

9. is the usual map symbol for: (page 3-7 Pub 3027, module 3)

1. Bulkhead
2. Fan
3. Overcast\*
4. Undercast

10. R is the usual map symbol for: (page 3-13 Pub 3027 module 3)

1. Return fan
2. Regulator\*
3. Roof fall
4. Rally point

11. It is ok for the mine rescue team to alter the existing ventilation when they encounter high concentrations of carbon monoxide and the team captain decides to do so? (Page 3-15 Pub 3027 module 3)

1. True
2. False\*

12. A survivor with the following conditions or injuries (chest injuries, third degree burns involving hands and feet, and multiple fractures) would be classified as:

 (Page 6-5 Pub 3027 module 6)

1. First Priority\*
2. Second Priority
3. Third Priority
4. Immediate Priority

13. A survivor with abrasions, second degree burns over 12% of his body, and a fractured arm would be classified as: (page 6-6 Pub 3027 module 6)

1. First Priority
2. Second Priority
3. Third Priority\*
4. Delayed Priority

14. Handling communications with the team and the command center, mapping the team’s progress and findings and coordinating and overseeing the activities of all personnel at the fresh air base are the duties of the (page 4-11 Pub 3027 module 4)

1. Mine superintendent
2. MSHA representative
3. Fresh air base coordinator\*
4. Team trainer

15. In addition to the equipment any miner wears when going underground and their breathing apparatus, what equipment is a mine rescue team required to have? (page 4-18 Pub 3027 module 4)

1. A gas detector for each team member and a communication system.
2. Two detecting devices for each gas they may encounter, two oxygen indicators & a communication system.\*
3. A gas detector for each team member, a communication system, scaling bar & walking stick.
4. A communication system, a gas detector, blankets and a horn.

16. Which of the following is true? (page 2-5 Pub 3027 module 2)

1. A decrease in temperature causes a gas to contract.\*
2. An increase in temperature and pressure causes a gas to contract.
3. An increase in pressure causes a gas to expand.
4. All of the above

17. If you know the specific gravity of a gas; you will know (page 2-7 Pub 3027 module 2)

1. Where you should test for it.
2. How quickly it will diffuse.
3. How easily it can be dispersed by ventilation.
4. All the above\*

18. Why can it be dangerous to walk through water or begin pumping of water pools? (page 2-11 Pub 3027 module 2)

1. Water can get into your boots and cause infection.
2. Gasses can be liberated when water pools are disturbed.\*
3. a and b
4. None of the above

19. For all mines, rescue teams must know how to test for: (page 2-12 Pub 3027 module 2

1. Hydrogen sulfide and oxygen deficiency
2. Oxygen deficiency and carbon monoxide\*
3. Both a and b.
4. Carbon dioxide and oxygen deficiency

20. These gasses can be detected by color, odor, or taste. (Page 2-47 Pub 3027 module 2)

1. Sulfur dioxide, butane, carbon monoxide, & hydrogen
2. Hydrogen sulfide, nitrogen, nitrogen dioxide, & methane
3. Acetylene, hydrogen sulfide, carbon dioxide, & nitrogen dioxide\*
4. Carbon dioxide, acetylene, carbon monoxide, & sulfur dioxide

21. As you explore, the team’s priorities in order are: (page 4-12 Pub 3027 module 4)

1. Team safety, rescue of survivors , & recovery of the mine\*
2. Rescue of survivors, team safety, & recovery of the mine
3. Team safety, recovery of the mine & rescue of survivors
4. Rescue of survivors, recovery of the mine, & team safety

 22. Three factors that affect a team’s rate of travel are: (page 4-31 Pub 3027 module 4)

1. Water, fatigue & degree of slope
2. Smoke, falls, & amount of equipment carried
3. Water, smoke & obstructions
4. All the above\*

23. It is generally recommended that mine rescue teams use multipurpose dry chemical extinguishers which contain what chemical? (page 5-6 Pub 3027 module 5)

1. Monoammonium phosphate\*
2. Sodium bicarbonate
3. Magnesium phosphate
4. Ammonium chlorate

24. The first thing a rescue team should do when encountering a refuge chamber is to erect an airlock before entering the refuge chamber. (page 6-13 Pub 3027 module 6)

1. True
2. False\*

25. No attempt should be made to unseal a fire area until: (page 7-6 Pub 3027 Module 7)

1. The oxygen content behind the seal is pretty low, and carbon dioxide and carbon monoxide are not present.
2. Carbon dioxide is not present behind the seal and the oxygen content behind the seal is pretty low, and the area behind the seal is cool.
3. The oxygen content behind the seal is 1.75% and carbon monoxide is not present.
4. The oxygen content behind the seal is low enough to make an explosion impossible, carbon monoxide is not present behind the seal and the area behind the seal is cool.\*

26. What type of fire is involves combustible metals? (Page 5-5 Pub 3027 module 5)

1. Class A
2. Class B
3. Class C
4. Class D\*

27. For fighting fires that are stubborn localized fires that cannot be approached at a close range because of high heat or smoke, the best method is to use low expansion foam. (page 5-10 Pub 3027 module 5)

1. True
2. False\*

28. Rigor Mortis occurs faster in muscular persons than in obese persons. (Page 6-9 Pub 3027 module 6)

1. True\*
2. False

29. The common method for reestablishing ventilation for unsealing a fire area in multi-level mines is: (page 7-7 Pub 3027 module 7)

1. Progressive ventilation
2. Direct ventilation\*
3. Rapid ventilation
4. Use of the 3 airlock rule

30. The first thing the team should do after finding evidence of an explosion is to build seals to block the airway and call for a gas reading in the main return. (page 5-26 Pub 3027 module 5)

1. True
2. False\*