



# 2011 Central Mine Rescue Contest

May 19-20, 2010

Juneau, Alaska

## Written Exam for the Mine Rescue ~ Team Trainer.

*All tests must be completed within a total of 60 minutes*

Trainer \_\_\_\_\_ Company \_\_\_\_\_

Team Name \_\_\_\_\_

1. Module 4 of the Metal Non Metal revised 2008 edition of "A guide to Mine Rescue Training" is
  - a. Mine gases
  - b. Mine ventilation
  - c. Exploration
  - d. Mine Recovery
  - e. None of the above
2. Module 5 in the guide to mine rescue training discusses
  - a. Mine recovery
  - b. Rescue of survivors
  - c. Fires
  - d. Mine ventilation
  - e. None of the above
3. 30 CFR, part 49.1 discusses
  - a. Availability of mine rescue teams
  - b. Alternative mine rescue capabilities for small mines
  - c. Purpose and scope
  - d. Definitions
4. 30 CFR, part 49, subpart B is for Metal Non Metal teams
  - a. True
  - b. False

5. 30 CFR, 49.3 an operator can apply for small and remote status if there are fewer than \_\_\_\_\_ underground employees within two hours of ground travel time,
  - a. 25
  - b. 35
  - c. 26
  - d. 36
  - e. 15
6. 49.7 under physical requirements for mine rescue team members a team member must have a repeated blood pressure reading that does not exceed
  - a. 150 over 100
  - b. 160 over 120
  - c. 160 over 100
  - d. 150 over 90
  - e. None of the above
7. Mine rescue equipment repair records shall be kept for
  - a. 1 year
  - b. 2 year
  - c. No requirement
  - d. Until reviewed by an Authorized representative from MSHA
8. Which of the following is not true of sulfur dioxide?
  - a. It is explosive
  - b. It is highly toxic
  - c. It is highly soluble in water
  - d. It can occur during mine fires
9. An elevated concentration of carbon dioxide in mine air can be harmful because;
  - a. It is highly explosive
  - b. It increases the breathing rate
  - c. It is highly toxic in small concentrations
  - d. All of the above
10. Characteristics of hydrogen sulfide include:
  - a. Explosive
  - b. High toxic
  - c. Can be liberated from pools of stagnant water
  - d. All of the above

11. Gases that are neither toxic nor explosive:
  - a. Are not found in mine atmospheres
  - b. Are not dangerous
  - c. Can be dangerous because they can displace oxygen
  - d. Cannot be detected with today's detection instruments
12. Carbon dioxide (CO<sub>2</sub>) seeks high places
  - a. True
  - b. False
13. Nitrogen Dioxide (NO<sub>2</sub>) seeks high places
  - a. True
  - b. False
14. Hydrogen (H<sub>2</sub>) seeks high places
  - a. True
  - b. False
15. Sulfur Dioxide (SO<sub>2</sub>) has a specific gravity of 2.2638, therefore should be tested for in low areas. It has a very low explosive range and is very toxic.
  - a. True
  - b. False
16. Infectious diseases range from such generally mild conditions as the common cold to life-threatening diseases such as tuberculosis. The four diseases of most concern to emergency medical responders are:
  - a. Human immunodeficiency virus, hepatitis, tuberculosis, meningitis.
  - b. AIDS, hepatitis, blood borne pathogen, influenza
  - c. Typhoid fever, viral encephalitis, bacterial meningitis, SARS
  - d. Hepatitis, tuberculosis, meningitis, Lyme disease
17. The appropriate rate of compressions during adult CPR is \_\_\_\_per minute.
  - a. 80 to 100
  - b. No faster then 80
  - c. About 100
  - d. No faster then 120

18. Pulmonary resuscitation is:
- Any effort to restart normal heart rhythms.
  - Any effort to revive or restore normal breathing.
  - The use of mechanical devices to restart breathing.
  - The ability to restore normal heart rhythm and breathing.
19. Mine rescue teams should alter existing ventilation:
- Only when directed to do so by the command center
  - When the team captain decides to do so
  - When they encounter high concentrations of carbon monoxide
  - When they encounter smoke
20. Burning materials that give off extremely toxic gases in addition to carbon monoxide:
- Timbers
  - Hydraulic fluids
  - Neoprene and other synthetic rubber compounds
  - All of the above
21. Barefaced exploration should be attempted only when:
- The team captain says it OK
  - Everyone on the team says there up for it
  - A back up mine rescue team with apparatus is immediately available
  - There are no indications an apparatus is needed.
22. In the Code of federal regulations 49.2 "Availability of mine rescue teams" clearly outlines the requirements of a mine rescue team except teams operating under 49.3 or 49.4
- True
  - False
23. It is much easier to remove a concentration of sulfur dioxide by ventilation than it is to remove the same concentration of hydrogen
- True
  - False
24. Which of the following is not a heavy hydrocarbon?
- Ethane
  - Propane
  - Butane
  - Acetylene

25. Sulfur Dioxide gas in concentrations as low as \_\_\_\_\_ is dangerous to life.
- a. .02 to .07 %
  - b. .01 to .05 %
  - c. .04 to .05 %
  - d. .4 to .5 %
  - e. .004 to .005 %
26. If you took a ventilation reading in a drift 14 feet wide and 16 feet high and record a true reading of 1200 fpm, what is the CFM?
- a. 2400
  - b. 250,00
  - c. 268,000
  - d. 286,800
27. Taking a reading in a drift 10 feet wide and 10 feet high and a true reading of 1000 feet per minute the CFM would be.
- a. 1000
  - b. 10,000
  - c. 100,000
  - d. None of the above
28. If a survivor is found in contaminated or questionable air and is fully conscious and ready to travel, the team should
- a. Get them to a fresh air base as soon as possible
  - b. Let them continue to head for a fresh air base so the team can do more important work
  - c. Provide the person with breathing protection and send them toward fresh air.
  - d. None of the above
29. In body recovery, a muscular individual will begin putrefaction sooner than an obese person.
- a. True
  - b. False
30. If a body is found the first thing a team member should do is check all of his/her pockets and look for stuff that will identify him/her.
- a. True
  - b. False