

Rolla
Written Test
Sept 21/23 2010

1. MSHA is the primary communicator with the operator, miner's families, the press and the general public?
 - a. True
 - b. false
2. Carbon Monoxide is;
 - a. A gas found in all mining operations
 - b. A normal constituent of air
 - c. Detected during a mine fire or explosion
 - d. A product of the breathing process
3. Oxides of nitrogen can occur in a mine atmosphere;
 - a. When certain explosives are used
 - b. When diesel powered equipment is being used
 - c. When electric equipment produces arcs or sparks
 - d. All of the above
4. An anemometer is used for measuring medium air velocity between 100 and 2000 feet per minute.
 - a. True
 - b. False
5. Bulkheads are used to direct air as needed and to keep the ventilation fan from building up excess pressure.
 - a. True
 - b. False
6. Auxiliary ventilation systems always consist of an exhaust fan and tubing, sometimes referred to as vent bag or fan line.
 - a. True
 - b. False
7. Sulfur Dioxide is;
 - a. Highly toxic, corrosive effect on lungs, may be asphyxiating, and originates from blasting and or powder fumes.
 - b. Asphyxiate, depletes oxygen.
 - c. Highly toxic, can be asphyxiate, and taste sweetish
 - d. Highly toxic, can be asphyxiate, a taste bitter (acid)
 - e. None of the above

8. Methane is not considered to be a gas that is soluble in water.
 - a. True
 - b. False
9. The volume of a gas changes in response to any change in atmospheric pressure or temperature. For example: An increase in pressure causes a gas to expand.
 - a. True
 - b. False
10. When using a hand held fire extinguisher standing 10 to 15 feet away from the fire is close enough to effectively knock the flames down.
 - a. True
 - b. False
11. What gas has an acid taste in high concentrations?
 - a. Acetylene
 - b. Butane
 - c. Nitrogen Dioxide
 - d. Carbon Dioxide
 - e. None of the above
12. The only requirements for a fresh air base are positive ventilation and fresh air, communication with the command center and mine rescue team.
 - a. True
 - b. False
13. An elevated concentration of nitrogen in mine air can be harmful because;
 - a. It can lower the O₂ content of the air
 - b. It is highly explosive
 - c. It is highly toxic
 - d. All of the above
14. Characteristics of hydrogen sulfide include
 - a. Explosive
 - b. Highly toxic
 - c. Can be liberated from pools of stagnant water
 - d. All of the above

15. Two gases that are highly soluble in water are;
 - a. Methane and acetylene
 - b. Hydrogen sulfide and hydrogen
 - c. Nitrogen and sulfur dioxide
 - d. Hydrogen sulfide and sulfur dioxide
16. What areas or facilities arrangements should be identified by the Mine Rescue Team members for carrying out a rescue and / or recovery operation on the surface?
 - a. Command Post, waiting area for teams, bench area for apparatus, security.
 - b. Information center, waiting area for family / friends, press room, food / sleeping quarters.
 - c. Laboratory, medical facilities, temporary morgue.
 - d. Only a and b
 - e. All of the above
17. Specific gravity is the weight of a gas compared to an equal volume of normal air under the same temperature and pressure. Therefore the weight of air acts as the reference point from which we measure the relative weight or specific gravity of other gases.
 - a. True
 - b. False
18. The equipment the team uses for exploration work falls
 - a. Into two categories, the equipment each team member has, and the equipment required by law.
 - b. Into three categories, the individual equipment, team equipment required by law, and all other equipment.
 - c. Into two categories, the equipment each team member has, and the equipment the team uses.
 - d. Into two categories, the equipment required by law, and all other equipment.
 - e. Into two categories, surface and underground.

19. If a fire begins to back up against the intake air in search of oxygen, you can put up a transverse brattice from side to side leaving an open space at the top. This will cause
- Decreased air flow at the back and slows down the progress of smoke
 - Increased air flow at the back and slows down the progress of smoke
 - Decreased air flow at the back and reverses the progress of smoke
 - Increased air flow at the floor and slows down the progress of smoke
 - Decreased oxygen content and prevents an explosion
20. Portable communication systems used for mine rescue work must be approved under
- CFR 30, Part 49.6(a)
 - CFR 29, Part 47
 - CFR 30 Part 23
 - CFR 30 Part 47
 - NIOSH
21. Nitrogen, methane, carbon monoxide, and butane are all
- Highly soluble in water
 - Moderately soluble in water
 - Slightly soluble in water
 - Non-soluble in water
 - Explosive
22. Sulfur dioxide gas concentrations as low as ____ is dangerous to life.
- .02 / .07 %
 - .01 / .05 %
 - .04 / .05 %
 - .4 / .5 %
 - .004 / .005 %
23. One of the gases produced by burning rubber, neoprene, or PVC is phosgene. It has a maximum allowable TLV of
- .0001 %
 - .0005 %
 - .005 %
 - .00001 %
 - .01 %

24. To obtain the quantity of air current in cubic feet per minute
- The linear feet of air travel per minute is multiplies by the computed area of the airway in square feet.
 - The air velocity in feet per minute is multiplies by the length times the height of the airway
 - The air velocity in square feet is multiplies by the area of the airway
 - None of the above
25. The chemical symbol for acetylene is
- C_2H_4
 - C_3H_6
 - C_2H_2
 - C_4H_4
 - A_2C_4
26. Basically there are _____way(s) to erect temporary brattice seals
- One
 - Two
 - Three
 - Four
 - Ten
27. If an entire level was sealed in a multi-level mine , direct ventilation must be used.
- True
 - False
28. Re-ventilation after an explosion in a single level, room-and-pillar mine is usually accomplished by direct ventilation.
- True
 - False
29. A regulator can be made by knocking blocks out of a permanent bulkhead.
- True
 - False
30. All temporary seals should have provisions for collecting air samples.
- True
 - False