

2022 Loveland MNM Day 1 Written Test

Name: _____ Team Name: _____

1. 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

2. Accumulations of hydrogen in the mine atmosphere are dangerous because hydrogen:

- a. is highly toxic
- b. is highly soluble in water
- c. is highly explosive

3. 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

4. Acetylene would normally be found in a mine atmosphere where:

- a. methane has burned or exploded in air with a lowered oxygen content
- b. leakage has occurred from adjacent oil or gas wells
- c. battery charging stations are located

5. 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

6. The most likely source of ethane, propane, or butane in a mine is:

- a. use of diesel equipment
- b. battery charging stations
- c. leakage from adjacent gas or oil wells

7. 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

8. The explosive range of a methane/air mixture (normally 5-15%) will change if:

- a. certain other combustible gases are present.
- b. coal dust is suspended in the atmosphere.
- c. both of the above

9. Two gases that are highly soluble in water are:

- a. methane and acetylene
- b. nitrogen and sulfur dioxide
- c. hydrogen sulfide and sulfur dioxide

10. Mine rescue teams are required by Federal law to have available:

- a. one detecting device for every gas listed as dangerous by the U. S. Bureau of Mines
- b. one detecting device for each gas normally encountered in the mine(s) the team serves
- c. four detecting devices for each gas normally encountered in the mine(s) the team serves

11. The first indications that an explosion has occurred are often very similar to those of:

- a. An inundation of water
- b. A large roof fall
- c. A fan stoppages

12. Explosions in coal mines are most often caused by ignitions of:

- a. Methane
- b. Hydrogen
- c. Carbon monoxide

13. Probably the best material to use for sealing a mine fire is:

- a. Brattice cloth
- b. Cement blocks
- c. Tile or bricks

14. Non-metallic tubes or pipes are inserted in temporary and permanent seals for the purpose of:

- a. Collecting air samples from the sealed area
- b. Bleeding off excess pressure from the sealed area
- c. Checking for smoke

15. Seals in high volatile coal seams are often placed:

- a. 1000 feet or more from the fire area
- b. 500 feet from the fire area
- c. 10,000 feet or more from the fire area

16. Burning materials that give off extremely toxic gases in addition to carbon monoxide are:

- a. The coal seam itself
- b. Hydraulic fluids
- c. Neoprene and other synthetic rubber compounds

17. Prior to rescue team exploration, the first step to take after a disaster is to:

- a. Examine all mine openings.
- b. Establish a Fresh Air Base.
- c. Proceed as far as possible into the mine without apparatus.

18. If at all possible, entry into the mine should be made on:

- a. A return airway.
- b. An intake airway.
- c. The main haulageway.

19. Debriefings are held to:

- a. Inform news reporters of developments.
- b. Inform family members of developments.
- c. Review the rescue team's findings after they have returned from underground.

20. If a team member experiences problems with his or her apparatus in by the Fresh Air Base, the team member should:

- a. Be sent back to the Fresh Air Base with another team member.
- b. With the entire team, return immediately to the Fresh Air Base.
- c. Switch to the apparatus that was carried on the stretcher or stokes basket.

21. Prior to a mine rescue team passing through a door or stopping/bulkhead behind which conditions are not definitely known, they should:

- a. Ask the Fresh Air Base to send in the backup team.
- b. Erect an air lock to prevent the mixing of atmospheres.
- c. Open the door or stopping/bulkhead, and wait at least 10 minutes so that any harmful gases are diffused.

22. When exploring in heavy smoke, it is recommended that the team:

- a. Use a linkline to hook all team members together.
- b. Keep in contact with the side to aid their progress.
- c. Both A and B above.

23. A smoke tube is a device used to:

- a. Determine oxygen content of the mine atmosphere.
- b. Determine direction and velocity of airflow.
- c. Detect leaks in temporary stoppings.

24. The traverse method is used when:

- a. Taking a reading with a smoke tube.
- b. Taking a reading with an anemometer.
- c. Erecting a temporary stopping.

25. Mine rescue teams should alter existing ventilation:

- a. Only when directed to do so by the Command Center.
- b. When they encounter high concentrations of methane.
- c. When they encounter smoke.

26. During mine rescue team explorations, the main fan:

- a. should be kept running
- b. should be continuously monitored
- c. Both A and B above

27. Temporary stoppings/Bulkheads built in a passageway should be placed at least 4 to 6 feet into the passageway in order that:

- a. Sufficient space is available to construct a permanent stopping/Bulkheads
- b. It will be protected from further explosions.
- c. It will not be affected by fire if a fire should spread to that crosscut.

28. "Pogo sticks" are devices that are used:

- a. To measure air velocity.
- b. To determine the direction of airflow.
- c. As supports on which brattice cloth can be hung.

29. Two instruments commonly used to measure velocity of airflow in a mine are:

- a. Smoke tube and CO detector.
- b. Anemometer and velocometer.
- c. Anemometer and velocometer.
- d. Smoke tube and anemometer.

30. The correct symbol for temporary line brattice is:

- a. -----
- b.
- c. ||