

2022 Loveland MNM Day 1 Written Test KEY

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.
- c. Anemometer and velocity meter.

d. Smoke tube and anemometer.

30. The correct symbol for temporary line brattice is:

a. -----

b.

c. ||