

2023 Kansas Shoot-out Mine Rescue Competition
Hutchinson, Kansas
Written Test – Mine Rescue

- 1) According to 30 CFR Section 49.9, Federal regulations require mines to _____ a Mine Rescue Notification Plan for notifying all the mine rescue team members that will be needed to assist in the rescue and recovery operation.
 - a. Have
 - b. Makeup
 - c. Post
 - d. Both a and c (MSHA 3027, Pg 1-3)

- 2) Dinner buckets encountered during exploration are important because:
 - a. They can contain food and/or water for the rescue team.
 - b. They may contain notes that would indicate the whereabouts of survivors. (MSHA 3027, Pg 4-50)
 - c. They indicate where miners ate their dinner.
 - d. None of the above.

- 3) Carbon monoxide is:
 - a. gas found in all mining operations
 - b. a normal constituent of air
 - c. detected during a mine fire or explosion (MSHA 3027, Pg 2-69)
 - d. a product of the breathing process

- 4) Two instruments commonly used to measure velocity of airflow in a mine are:
 - a. Flame safety lamp and smoke tube.
 - b. Smoke tube and CO detector.
 - c. Anemometer and flame safety lamp.
 - d. Smoke tube and anemometer. (MSHA 3027, Pg 3-50)

- 5) A nontoxic gas can still be dangerous because it can:
 - a. displace oxygen
 - b. burn
 - c. explode
 - d. all of the above (MSHA 3027, Pg 2-71)

- 6) A mono-ammonium phosphate extinguisher is effective in fighting:
- a. Class A fires
 - b. Class B fires
 - c. Class C fires
 - d. All of the above (MSHA 3027, Pg 5-47)
- 7) An elevated concentration of nitrogen in mine air can be harmful because:
- a. it can lower the oxygen content of the air (MSHA 3027, Pg 2-69)
 - b. it is highly explosive
 - c. it is highly toxic
 - d. all of the above
- 8) In order to plan a recovery operation, there must be;
- a. a plan of recovery.
 - b. an initial assessment of underground conditions. (MSHA 3027, Pg 7-4)
 - c. Plenty of food and water available.
 - d. a mine rescue team willing to help.
- 9) In sealing a fire it is recommended that:
- a. Only permanent bulkheads be used
 - b. The last intake and last exhaust be sealed simultaneously (MSHA 3027, Pg 5-47)
 - c. A single air sample tube be used
 - d. All of the above
- 10) The usual procedure when a body is encountered during exploration is:
- a. Mark location and position of body on map.
 - b. Attach identifying number to body bag.
 - c. Keep all personal belongings of the miner with the body.
 - d. All of the above. (MSHA 3027, Pg 6-13)
- 11) 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 (MSHA 3027, Pg 2-71)

- 12) Prior to a mine rescue team passing through a door or bulkhead behind which conditions are not definitely known, they should:
- Ask the fresh air base to send in the backup team.
 - Erect an air lock to prevent the mixing of atmospheres. (MSHA 3027, Pg 4-50)
 - Open the door or bulkhead and wait at least 10 minutes so that any harmful gases are diffused.
 - Never enter such areas.
- 13) Accumulations of hydrogen in the mine atmosphere are dangerous because hydrogen:
- is highly toxic
 - is highly soluble in water
 - is highly explosive (MSHA 3027, Pg 2-69)
 - gives off a suffocating odor
- 14) During rescue team explorations, the main fan:
- Should be kept running.
 - Should be continually monitored.
 - Both of the above. (MSHA 3027, Pg 3-49)
 - None of the above.
- 15) An area in the mine closed at both ends by doors or by bulkheads with flaps or doors in them. Used to prevent mixing of different atmospheres while allowing miners to enter and exit is a:
- Barricade
 - Refuge Chamber
 - Air Lock (MSHA 3027, Pg 6-14)
 - None of the above
- 16) When using a dry chemical extinguisher, you should aim the stream of dry chemical:
- Directly at the flame
 - Directly at the smoke
 - About 6 inches ahead of the flame edge (MSHA 3027, Pg 5-48)
 - About 12 inches ahead of the flame edge
- 17) Which of the following is not true of sulfur dioxide?
- It is explosive (MSHA 3027, Pg 2-70)
 - it is highly toxic
 - it is highly soluble in water
 - it can occur during mine fires

- 18) The purpose of rescue team exploration is to:
- a. Determine conditions underground.
 - b. Locate missing miners.
 - c. Locate clues or indications of missing miners' locations.
 - d. All of the above. (MSHA 3027, Pg 4-49)
- 19) Acetylene would normally be found in a mine atmosphere where:
- a. diesel equipment is used
 - b. methane has burned or exploded in air with a lowered oxygen content (MSHA 3027, Pg 2-70)
 - c. leakage has occurred from adjacent oil or gas wells
 - d. battery charging stations are located
- 20) The traverse method is used when:
- a. Taking a reading with a smoke tube.
 - b. Taking a reading with an anemometer. (MSHA 3027, Pg 3-49)
 - c. Erecting a temporary bulkhead.
 - d. None of the above
- 21) Air locking operations should always begin on the _____ of the fire.
- a. return side
 - b. belt side
 - c. face side
 - d. intake side (MSHA 3027, Pg 7-8)
- 22) Atmospheric pressure and temperature are important factors because they:
- a. affect the rate of diffusion of a gas by ventilation (MSHA 3027, Pg 2-71)
 - b. can cause false readings on gas detection instruments
 - c. lower oxygen content in the mine
 - d. all of the above
- 23) 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. (MSHA 3027, Pg 4-51)
 - d. All of the above.

- 24) 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 (MSHA 3027, Pg 2-71)
 - d. cannot be detected with today's detection instruments
- 25) Some important information that the mine rescue team should be supplied with while being briefed when miners are missing during a mine emergency are;
- a. Area or areas where they were working and the escape routes used from those areas
 - b. Likely places where miners would erect barricades
 - c. Location of any refuge chambers and ventilation boreholes where miners could obtain fresh air
 - d. All of the above. (MSHA 3027, Pg 6-13)
- 26) Determining the exact time to unseal a fire area is based on;
- a. the laws of physics and chemistry.
 - b. an educated guess and what the boss says.
 - c. experience and sound judgement.
 - d. both a and c (MSHA 3027, Pg 7-5)
- 27) The team is under the direct supervision of the _____. They also work and communicate with the designated official(s) who are responsible for coordinating the work carried out by mine rescue teams.
- a. briefing officer
 - b. map man
 - c. team captain (MSHA 3027, Pg 1-6)
 - d. team trainer
- 28) It is important to establish a clear chain-of-command so that rescue and recovery work can be well coordinated. Located at the top of the chain-of-command is:
- a. Mine Superintendent (MSHA 3027, Pg 1-6)
 - b. Captain on the team
 - c. Secretary of Labor
 - d. President of the company

29) “Pogo sticks” are devices that are used:

- a. To test ground conditions.
- b. To measure air velocity.
- c. To determine direction of airflow.
- d. As supports on which brattice cloth can be hung. (MSHA 3027, Pg 3-50)

30) Mine rescue teams are required by Federal law to have available:

- a. one detecting device for each gas normally encountered in the mine(s) the team serves
- 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 (MSHA 3027, Pg 2-70)
- d. one detecting device for each team member