

Ruidoso New Mexico
2009
Field written test

1. If an entire level was sealed in a multi-level mine, direct ventilation must be used.

(A) True_____ (A) False_____
2. Reventilation after an explosion in a single level, room-and-pillar mine is usually accomplished by direct ventilation.

(A) True_____ (B) False_____
3. By ensuring that there is never any unexplored area between the team and the _____, they are protecting their own safety.

A. return air
B. intake air
C. fresh air base
D. last open crosscut
E. command center
4. Air locks are to be used by mine rescue teams

A. in place of a fresh air base
B. when closing a door or building a bulkhead behind which conditions is not definitely known
C. before opening a barricade in bad air behind which trapped miners might be located
D. as refuges where they can remove or repair their breathing apparatus
E. all of the above
5. When making an air velocity measure with an anemometer, you should hold the instrument at arm's length in front of you with the air entering the dial side.

(A) True_____ (A) False_____
6. Which of the following is not necessary to advance a fresh air base in single-level, room-and-pillar mines.

A. construct a new air lock at the site of the new fresh air base
B. repair damaged ventilation controls to the point where the new fresh base is located
C. provide an opening for intake air

- D. provide an opening to the exhaust. Return to the old fresh air base and remove that air lock and any bulkheads in parallel entries
- E. all of the above

7. Equipment 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 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 other equipment
- E. into two categories, surface and underground

8. It is standard practice to mark bad ground conditions with chalk or some other type of marker, and note the location on the mine map.

- (A) True_____ (B) False_____

9. Under what conditions/situations might your team captain order your team to return to fresh air immediately?

- A. malfunctioning equipment
- B. hazardous ground that cannot be secured
- C. the presence of gases that produce an imminent explosion hazard
- D. a fire that cannot be extinguished
- E. all of the above

10. The map symbol for *Seal* is three straight lines or two straight lines with the word SEAL printed after them.

- (A) True_____ (B) False_____

11. 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

- A. decreased air flow at the back and slow down the progress of smoke
- B. increased air flow at the back and slow down the progress of smoke
- C. decreased air flow at the back and reverse the progress of smoke
- D. increased air flow at the floor and slow down the progress of smoke
- E. decreased oxygen content and prevent an explosion

12. Once a stretcher is brought into a refuge chamber or barricade, it should be checked to be sure that it will bear the weight of a person.
- (A) True_____ (B) False_____
13. The location of personal items, such as lunch buckets, cap lamps, or self rescuers should be marked on the mine map and on the side of the mine near where they are found.
- (A) True_____ (B) False_____
14. Before a team begins a rescue operation in a mine where an explosion has occurred,
- A. the team should make sure the main fan is running
 - B. the team should make sure that the mine is relatively safe to enter
 - C. the team should make sure that the main fan is guarded
 - D. a and c above
 - E. all of the above
15. Portable communication systems used for mine rescue work must be approved under
- A. CFR 30, Part 49.6(a)
 - B. CFR 29, Part 47
 - C. CFR 30, Part 23
 - D. CFR 30, Part 47
 - E. NIOSH
16. An air lock is built by building two stoppings 10 to 15 feet apart. Each stopping will have a door or flap in it so that teams can enter and exit the sealed area.
- (A) True_____ (B) False_____
17. Some mines have rollup doors in shop areas which close automatically when the carbon monoxide in the air reaches a certain level.
- (A) True_____ (B) False_____
18. A regulator can be made by knocking blocks out of a permanent bulkhead.
- (A) True_____ (B) False_____

19. Nitrogen, methane, carbon monoxide, and butane are all
- A. highly soluble in water
 - B. moderately soluble in water
 - C. slightly soluble in water
 - D. non-soluble in water
 - E. explosive
20. After a mine rescue team returns to the fresh air base, the team will confer with the
- A. FAB coordinator and the MSHA official in charge
 - B. command center and the captain of the incoming team
 - C. FAB coordinator and the captain of the incoming team
 - D. MSHA official in charge and the mine manager
 - E. command center and FAB coordinator
21. Sulfur dioxide gas in concentrations as low as _____ is dangerous to life.
- A. .02 to .07 percent
 - B. .01 to .05 percent
 - C. .04 to .05 percent
 - D. .4 to .5 percent
 - E. .004 to .005 percent
22. Preconditions for opening a fire area should be
- A. the oxygen content of the air should be low enough so that an explosion is impossible
 - B. there should be little or no carbon dioxide present
 - C. the fire area should have cooled
 - D. .all of the above
 - E. A and C above
23. One of the gases produced by burning rubber, neoprene, or PVC is phosgene. It has a maximum allowable TLV of
- A. .0001 percent
 - B. .0005 percent
 - C. .005 percent
 - D. .00001 percent
 - E. .01 PPM

24. Gas detection is an important part of any mine rescue or recovery operation. A team will make frequent tests for gases as they advance beyond the fresh air base. During the team's exploration, they will want to find out
- A. what harmful gases are present
 - B. how much oxygen is present
 - C. what the explosive range of the gases is
 - D. A and B above
 - E. all of the above
25. To obtain the quantity of air current in cubic feet per minute
- A. the linear feet of air travel per minute is multiplied by the computed area of the airway in square feet
 - B. the air velocity in feet per minute is multiplied by the length times the height of the airway
 - C. the air velocity in square feet is multiplied by the area of the airway
 - D. none of the above
26. You can detect ethane, propane, and butane with a portable detector or by chemical analysis.
- (A) True_____ (B) False_____
27. A single curvey line is a symbol for a
- A. snake
 - B. cable
 - C. water hazard
 - D. temporary bulkhead
 - E. none of the above
28. A double line with a D through it is a symbol for a
- A. regulator
 - B. barricade
 - C. permanent bulkhead with man door
 - D. mine door
 - E. temporary bulkhead with a man door

29. A large D across a drift or crosscut is a symbol for
- A. conveyor belt with loading and dumping points
 - B. mine door
 - C. man door
 - D. regulator
 - E. none of the above
30. If the team encounters a bulkhead that appears air tight but there are indications of blocks having been moved, the team does not have to report it.
- (A) True_____ (B) False_____
31. The height of a drift is 12 feet while the width is 30 feet. The anemometer reading is 60 feet for 45 seconds. What is the quantity of airflow in cubic feet per minute?
- A. 28,200
 - B. 25,920
 - C. 21,600
 - D. 28,800
 - E. 36,000

- 32 The chemical symbol for acetylene is
- A. C_2H_4
 - B. C_3H_6
 - C. C_2H_2
 - D. C_4H_4
 - E. A_2C_4
- 33 Basically, there are _____ way(s) to erect brattice seals.
- A. 3
 - B. 2
 - C. 1
 - D. 4
 - E. Several
- 34 All temporary seals should have provisions for collecting air samples.
- (A) True_____ (B) False_____
- 35 When building temporary seals, one of the most important things to consider is...
- A. The type of material available
 - B. The extent of the fire
 - C. The barometric pressure
 - D. ventilation
 - E. All of the above