

2009 CMR Mine Rescue Contest
Kellogg, ID
Written Test – Mine Rescue Field Competition

Name _____ Company _____

Team Name _____ Contest Position No. _____

Team Member No. _____

Directions: Circle the letter preceding the correct answer to each of the following questions. Circle only one answer per question.

1. When the barometer falls, this means:
 - A. Gases will diffuse more quickly.
 - B. The atmospheric pressure is rising.
 - C. It is much easier for explosive gases to build up.
 - D. Gases are squeezed into a smaller area.

2. Methane is most explosive at what range?
 - A. 5% to 15% with at least 12.1% oxygen
 - B. 9.5% to 12.5% with at least 12.1% oxygen
 - C. 5% to 10%
 - D. 9.5% to 10%

3. The safest procedure for getting survivors out of the refuge chamber or barricade is:
 - A. Build an airlock
 - B. Use self-rescuers
 - C. Advance fresh air
 - D. Break into the barricade quickly

4. When you are judging the toxicity of a gas by its TLV, the rule of thumb is: the higher the number, the more toxic the gas is.
 - A. True
 - B. False

5. An anemometer is used to measure atmospheric pressure.
 - A. True
 - B. False

6. Once the coordinator at the fresh air base receives the progress report:
- A. It is recorded in a log book.
 - B. The fresh air base attendant makes a decision on whether to continue.
 - C. The information is then relayed on to the command center.
 - D. All of the above.
7. Tiny particles of solid and liquid matter suspended in air is called:
- A. The damps
 - B. Smoke
 - C. Gases
 - D. All of the above
8. "Simultaneous mapping" includes:
- A. The map man's map
 - B. The fresh air base coordinator's map
 - C. The command center's map
 - D. All of the above
 - E. Only A and B
9. Which of the following methods is not used to help you see better when exploring in smoke?
- A. Remove your cap lamp and hold it at waist level.
 - B. Use the "flood spot" if your light has one.
 - C. Use a high intensity light that is used in some mines.
 - D. Let the lamp hang from the cord to light up the rail or side that you're moving along.
10. If nothing else is available, a smoke tube can always be used to determine air velocity.
- A. True
 - B. False
11. _____ causes you to breathe faster and deeper.
- A. 15% oxygen
 - B. 17% oxygen
 - C. 2% or higher carbon dioxide
 - D. Both B and C

12. Blasting produces:
- A. carbon monoxide
 - B. hydrogen sulfide
 - C. nitrogen dioxide
 - D. all of the above
13. Electrical malfunctions can produce oxides of nitrogen.
- A. True
 - B. False
14. In natural ventilation, air flows because of the natural pressure. This pressure can only be supplied by thermal energy due to temperature differences.
- A. True
 - B. False
15. Usually, the measured distance using a smoke tube is ____ feet.
- A. 100
 - B. 50
 - C. 75
 - D. 25
16. The briefing committee is generally composed of:
- A. company officials
 - B. federal officials
 - C. state and union representatives where applicable
 - D. A and B
 - E. all of the above
17. Asphyxiating gases:
- A. can, in all cases, be tasted, smelled, or seen
 - B. cause suffocation
 - C. cause the metal parts of an apparatus to corrode
 - D. do not produce an oxygen deficient atmosphere
18. An elevated concentration of nitrogen in mine air can be harmful because:
- A. it can lower the oxygen content of the air
 - B. it is highly explosive
 - C. it is highly toxic
 - D. all of the above

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 it has returned from underground
 - D. all of the above
20. Chemical analysis has shown hydrogen sulfide. You should suspect:
- A. PVC or conveyor belt burning
 - B. penetration into an oil or gas well
 - C. detonation and burning of explosives
 - D. none of the above
21. In some mines the fire doors will close automatically when the ____ in the air reaches a certain level.
- A. carbon dioxide
 - B. oxygen deficiency
 - C. temperature
 - D. carbon monoxide
22. The explosive range of hydrogen is _____ to 74.2 percent.
- A. 7 percent
 - B. 5 percent
 - C. 4 percent
 - D. 3 percent
23. Stinkdamp contains the following mixtures.
- A. hydrogen sulfide and air
 - B. sulfur dioxide and air
 - C. nitrogen dioxide and air
 - D. none of the above
24. The purpose of a(n) _____ is to separate two different atmospheres while still permitting miners to enter and exit without mixing the atmospheres.
- A. regulator
 - B. overcast
 - C. air lock
 - D. bulkhead

25. Who decides how a fire should be fought?
- A. command center
 - B. team captain
 - C. fresh air base
 - D. mine rescue team
26. The TLV for carbon monoxide is 50 ppm or:
- A. 0.5 percent
 - B. 0.05 percent
 - C. 0.005 percent
 - D. none of the above
27. An anemometer is a small windmill device with a mechanical counter that measures air velocities of over _____ feet per minute.
- A. 100
 - B. 110
 - C. 120
 - D. none of the above
28. The symbol = on the mine map indicates.
- A. conveyor belt
 - B. permanent bulkhead
 - C. temporary bulkhead
 - D. none of the above
29. Air locking into a seal should never be undertaken until the oxygen content of the air behind the seal has been reduced to at least _____ percent.
- A. one
 - B. two
 - C. three
 - D. none of the above
30. Hazards of direct firefighting include all of the following except:
- A. explosive gases
 - B. toxic gases
 - C. elevated oxygen readings
 - D. bad ground conditions
 - E. all are hazards of direct firefighting

31. The best way to relieve barricaded survivors of psychological stress is to:
- A. get them out as soon as possible
 - B. communicate with them as soon as possible
 - C. restrain them
 - D. keep them busy
32. _____ and _____ are highly water soluble gases and both may be released from water.
- A. oxygen and sulfur dioxide
 - B. nitrogen dioxide and hydrogen
 - C. sulfur dioxide and radon
 - D. hydrogen sulfide and air
33. Erecting a temporary bulkhead before passing through a door or bulkhead where conditions are definitely not known will _____?
- A. provide an airlock.
 - B. ensure atmospheres on each side of the structure will not mix.
 - C. not alter the current status of the ventilation system.
 - D. all of the above.
34. Acetylene is not explosive but will burn.
- A. True
 - B. False
35. The components of blackdamp are:
- A. hydrogen sulfide and air
 - B. carbon dioxide, nitrogen, and air
 - C. carbon monoxide, nitrogen, and oxygen
 - D. none of the above

Answer Key for CMR Mine Rescue Field Competition - Written Test

Q	A	IG6 - Module	Page
1.	A	2	12
2.	D	2	43
3.	C	6	6
4.	B	2	17
5.	B	3	27
6.	C	4	49
7.	B	2	49
8.	D	4	51
9.	B	4	43
10.	B	3	27
11.	D	2	27, 30
12.	D	2	32, 35, 37
13.	A	2	35
14.	A	3	9
15.	D	3	31
16.	E	4	24
17.	B	2	19
18.	A	2	28
19.	C	4	57
20.	B	2	39
21.	D	3	21
22.	C	2	71
23.	A	2	53
24.	C	3	38
25.	A	5	24
26.	C	2	18
27.	C	3	27
28.	B	3	12
29.	B	7	12
30.	C	5	28 – 32
31.	B	6	10
32.	C	2	71
33.	D	4	44
34.	B	2	71
35.	B	2	51