

2013 Southwestern Mine Rescue Contest
Taos, NM
Technician Team Contest – Written Test

Name _____ Company _____

Team Name _____ Contest Position No. _____

1. Gases issuing into still air without mixing tend to stratify according to the gas's specific gravity.
 - a. True
 - b. False

2. In order for a flammable gas to explode, there must be?
 - a. Enough of the gas in the air
 - b. Enough oxygen
 - c. A source of ignition
 - d. All of the above

3. The presence of CO above normal ambient levels for a continued period of time _____ indicates there is a fire somewhere in the mine.
 - a. May
 - b. Does not
 - c. Definitely
 - d. None of the above

4. Methane's explosive range is 5 to 15 percent when there is at least _____ percent oxygen.
 - a. 1.21
 - b. 12.1
 - c. Either a or b
 - d. None of the above

5. Because rock gas is largely nitrogen and carbon dioxide, the effect of rock gas is to produce an oxygen-deficient atmosphere.
 - a. True
 - b. False

6. The basic principle underlying mine ventilation is that air always moves from low pressure regions to high pressure regions.
 - a. True
 - b. False

7. Sometimes _____ have a man door in them to allow miners to pass through.
 - a. Check curtain
 - b. Temporary bulkhead
 - c. Permanent bulkhead
 - d. None of the above

8. Mine doors are always hung so that ventilating pressure will push them open to minimize the amount of effort to open them.
- True
 - False
9. An anemometer is a small sort of windmill with a mechanical counter for recording the number of revolutions caused by the moving air current. It is used to measure air _____.
- Quantities
 - Qualities
 - Smells
 - Velocities
10. Air locks are used any time a team is required to break open a _____ or open a door when the conditions on the other side of that bulkhead or door are not definitely known.
- Bulkhead
 - Check curtain
 - Regulator
 - None of the above
11. Silicone compound vapors may cause readings of carbon monoxide gas to be lower than gas concentrations.
- True
 - False
12. It's much easier for concentrations of explosive gases to build up when the barometric pressure is high.
- True
 - False
13. Air containing 4 to 74.2 percent hydrogen will explode even when there is as little as 5 percent oxygen present.
- True
 - False
14. Sudden changes in atmospheric pressure may cause temporary fluctuations in the _____ reading.
- carbon monoxide
 - methane
 - nitrogen dioxide
 - oxygen
 - all of the above
15. Firedamp is a mixture of carbon monoxide, carbon dioxide, methane, oxygen, nitrogen and hydrogen. It is called "firedamp" because it's usually found after a mine fire or explosion.
- True
 - False
16. Breathing air containing 5 percent carbon dioxide increases respiration 300 percent.
- True
 - False

17. The specific gravity (or relative weight) of a gas is its weight at a given temperature and pressure in relation to an equal amount of normal air at standard temperature and pressure.

- A. True
- B. False

18. Cold gases diffuse more quickly.

- A. True
- B. False

19. Which of the following gases are found in normal air?

- A. krypton
- B. methane
- C. neon
- D. helium
- E. all of the above

20. Pure oxygen is lighter than normal air

- A. True
- B. False

21. The Bg4 is approved for use at temperatures above 23 degrees Fahrenheit?

- A. True
- B. False

22. The use of ice in the cooling system is only required at ambient temperature above 32 degrees C ?

- A. True
- B. False

23. The sentinel meets the explosion – proofing standard to EEx in 11C T4 And EEx; A1 and approved for use in gaseous mines by MSHA (appr.No 2G-3980 – 0)

- A. True
- B. False

24. Damaged dirty orifice can cause high dosage?

- A. True
- B. false

25. Damaged orifice can cause high dosage?

- A. True
- B. False

26. Checking the inhalation valve while testing set the tester to negative pressure?

- A. True
- B. False

27. Checking the relief valve, opening pressure gauge: it should be between 2 and 5 Lpm?

- A. True
- B. false

28. The high pressure leak test will fail if dosage is out of range?
A. True
B. False
29. The constant dosage metering quantity should lie between 1.5 and 1.9 Lpm?
A. True
B. False
30. Drainage valve opens too early or too late, can be caused by incorrect spring pressure?
A. True
B. False

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Technician Team Written Exam Answers

<u>Q</u>	<u>A</u>	<u>Module</u>	<u>Paragraph</u>
1	A	2-6	6
2	D	2-7	5
3	C	2-17	4
4	B	2-22	3
5	A	2-26	7
6	B	3-5	1
7	C	3-9	1
8	B	3-11	8
9	D	3-16	7
10	A	3-23	7
11	B		
12	A	2-6	
13	A	2-18	
14	D		
15	B	2-27	
16	A	2-15	
17	B	2-10	
18	B	2-6	
19	E	2-12	
20	B	2-14	
21	A		
22	B		
23	B		
24	B		
25	A		
26	B		
27	B		
28	A		
29	B		
30	A		