

TECHNICIAN TEAM WRITTEN TEST
Winnemucca, Nevada - 2010

Name: _____ Company: _____

Team Name: _____ Contest Position Number: _____

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

BG4 Breathing Apparatus:

1. What are the types of BG4 testing?
 - A. Quick electronic operational check
 - B. Portable test kits
 - C. Dynamic bench tester
 - D. All above
2. The BG4 has been flame tested to NIOSH open circuit standards?
 - A. True
 - B. False
3. The high pressure transducer converts pressure into a digital signal?
 - A. True
 - B. False
4. The Panarama Nova mask has a double sealing surface?
 - A. True
 - B. False
5. The lenses for the mask can be plexiglass?
 - A. True
 - B. False
6. The panorama Nova provides 90% peripheral vision?
 - A. True
 - B. False

7. The over pressure valve opens < 2 mbar?

- A. True
- B. False

8. Using a refillable canister, the concerns are: the lid o-ring and the tab Lock connectors?

- A. True
- B. False

9. The panorama Nova mask can use a harness or hairnet?

- A. True
- B. False

10. The minimum valve is installed within the breathing loop?

- A. True
- B. False

MSHA Publication 3027 Modules 2 and 3:

11. A gas with a specific gravity of 0.8 will seek high places.

- A. True
- B. False

12. Oxygen deficiency with an oxygen concentration of 9% will result in unconsciousness.

- A. True
- B. False

13. Temporary bulkheads can not be constructed by fitting brattice around a piece of equipment.

- A. True
- B. False

14. Carbon monoxide has an explosive range of 12.5 to 74.2 percent in normal air.

- A. True
- B. False

15. As little as 2,000 ppm of hydrogen sulfide can cause immediate death.

- A. True
- B. False

16. A medium-velocity anemometer is used to measure air velocities from _____ to 2,000 feet per minute?

- A. 50
- B. 100
- C. 120
- D. 150

17. To obtain the “flow” of air through a mine there must be a difference in both air velocity and pressure between the intake and exhaust airways.

- A. True
- B. False

18. The condition of the following should be reported to the command center.

- A. Ventilation controls
- B. Compressed air lines
- C. Auxiliary fans
- D. All of the above

19. A smoke tube is used to show only the direction of slow-moving air.

- A. True
- B. False

20. How many of the following statements are true?

- Carbon dioxide will burn.
- Carbon dioxide is insoluble in water.
- Carbon dioxide is produce by decaying of timbers.
- Breathing air containing 5 percent carbon dioxide increases respiration 300 percent.

- A. 1
- B. 2
- C. 3
- D. 4

Gas Instruments:

21. If a sudden change in atmospheric pressure occurs when travelling through mine ventilation doors or ascending a shaft, it may cause temporary fluctuations in the oxygen reading.

- A. True
- B. False

22. If the instrument water barriers are not kept clean, obstructions may cause readings to be lower than actual gas concentrations.

- A. True
- B. False

23. Oxygen enriched atmospheres may cause combustible gas reading to be higher than actual concentrations.

- A. True
- B. False

24. The gas instruments can accept the following battery types

_____.

(circle only one answer under the options for your gas instrument)

For the TMX412:

- A. nickel-cadmium (NiCad)
- B. zinc-carbon
- C. alkaline
- D. all of the above
- E. both A and C

For the iTX and MX6 iBrid:

- A. lithium-ion
- B. zinc-carbon
- C. alkaline
- D. all of the above
- E. both A and C

25. In latching mode for the gas instrument, all high alarm conditions (and not in Over Range condition) will automatically clear/turn off when the gas concentration has decreased to a level below the high alarm setpoint.

- A. True
- B. False

26. Verify the calibration of the combustible gas sensor after any incident where the combustible gas content has caused the instrument to latch or lock in the OVER-RANGE (alarm) conditions.

- A. True
- B. False

27. If the sensor's full span value or span reserve is less than _____ of the applied (calibration) gas value\concentration, the sensor will fail calibration.

- A. 30%
- B. 50%
- C. 70%
- D. 90%
- E. 100%

28. Benzene can affect the combustible gas sensor and may cause readings of combustible gas to be lower than actual gas concentrations.

- A. True
- B. False

29. The manufacturer recommends that a functional ("bump") test be performed on every instrument prior to each days use.

- A. True
- B. False

30. When the battery life is nearing its end, the following occurs.
(answer the question for your gas instrument)

For the TMX412 , when approximately 1 hour of energy remains, gas instrument emits a short beep every 15 seconds. In addition, the battery indicator will be replaced by a flashing "B" on the display	For the iTX , with a minimum of 15 minutes of battery life, the unit will emit a periodic tone.	For the MX6 iBrid , if the remaining runtime is less than 10 minutes, "Low Battery" is displayed.
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- A. True
- B. False