

**TECHNICIAN TEAM WORKSHOP**  
**April 7, 2010, Carlsbad, New Mexico**  
**TECHNICIAN TEAM WRITTEN TEST**

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.

**Gas Instruments:**

1. 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
  
2. If the instrument water barriers are not kept clean, obstructions may cause readings to be higher than actual gas concentrations.  
  
A. True  
B. False
  
3. The calibration of the combustible gas sensor should be verified after any incident where the combustible gas content has caused the instrument to display an over range condition.  
  
A. True  
B. False

4. The gas instruments can accept the following battery types \_\_\_\_\_.

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

5. The calibration is marginal if the reserve span is \_\_\_\_\_ the calibration gas.

- A. greater than
- B. 30%-50% of
- C. 50%-70% of
- D. 70%-90% of
- E. lower than

6. For a standard calibration, the gas instrument will display for each sensor the amount of sensor life left in percent.

- A. True
- B. False

7. 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%

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

- A. True
- B. False

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

- A. True

B. False

10. When the battery life is nearing its end, the following occurs.

TMX412	iTX	MX6
the instrument emits a shortbeep every 15 seconds. In addition, the battery indicator will be replaced by a flashing "B" on the display	The unit will emit a periodic tone.	"Low Battery" is displayed.

A. True

B. False

#### BG4 test questions

11. What are the types of BG4 testing ?

A. Quick electronic operational check

B. Portable test kits

C. Dynamic bench tester

D. All above

12. The Bg4 has been flame tested to Niosh open circuit standards.

A. True

B.False

13. The high pressure transducer converts pressure into a digital signal ?

A. True

B. False

14. The Panarama Nova mask has a double sealing surface ?

A. True

B.False

15. The lenses for the mask can be plexiglass ?

A. True

B. False

16. The panorama Nova provides 90% peripheral vision ?

A. True

B. False

pg 60

17. The over pressure valve opens  $< 2$  mbar ?

A. True      B. False

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

A. True      B False

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

A. True      B. False

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

A. True      B. false

**MSHA Publication 3027 Modules 2 and 3:**

21. A gas with a specific gravity of 1.2 will seek high places

- A. True
- B. False

22. Oxygen deficiency with an oxygen concentration of 10% will result in unconsciousness.

- A. True
- B. False

23. Temporary bulkheads can be constructed by fitting brattice around a piece of equipment.

- A. True
- B. False

24. Propane has a specific gravity of 1.5625 and an explosive range of 2.12 to 9.35 percent.

- A. True
- B. False

25. Oxygen deficiency with an oxygen concentration of 5% will almost always result in death.

- A. True
- B. False

26. A medium- velocity (or “regular”) anemometer is used to measure air velocities from 100 to 2,000 feet per minute?

- A. True
- B. False

27. A high-velocity anemometer is for measuring velocities from \_\_\_\_\_ to 10,000 feet per minute?

- A. 1000
- B. 1500
- C. 2000
- D. 2500

28. 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

29. Non-sparking shovels should be used to fill in around temporary bulkheads.

- A. True
- B. False

30. How many of the following statements are true?.

- An increase in atmospheric pressure causes a gas to expand.
- A decrease in atmospheric pressure causes a gas to contract.
- An increase in temperature causes a gas to expand.
- A decrease in temperature causes a gas to contract.

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