

Rolla
Team Technician Test
BG4 apparatus
ISC gas detector

1. The mission must always be ended when the low-pressure warning output is at approximately 135 psi?

A. True **B. False**

2. The carbon cylinder has a life span of ____years?

A. 5 **B. 10** **C. 15** **D. 20**

3. On the relief valve, the over pressure valve opens between 2-5 mbar?

A. True **B. False C**

4. A leak in the dosage line can cause low dosage?

A. True **B. False**

5. Carbon monoxide contained in the exhaled air **is** is absorbed in the regeneration cartridge?

A. True **B. False**

6. When installing a relief valve, turn relief valve 45 degrees to the left?

A. True **B. False**

7. High pressure O2 cylinders contain ____% O2?

A. 96.5 **B. 97.5** **C. 98.5** **D. 99.5**

8. When checking the inhalation valve for control function; the pressure gauge must indicate +10 psi?

A. True **B. False**

9. When testing the CO₂ absorber the test pressure should be between +7 mbar and + 10 mbar?

A. True

B. False

10. When checking components (equipment connector and breathing hoses, CO₂ Absorber and Breathing air cooler) with the RZ tester, the pressure loss should not exceed 1.5 mbr/min?

A. True

B. False

11. Oxygen enriched atmospheres may cause readings of combustible (methane) gas to be _____ than actual concentrations.

A. higher

B. the same

C. lower

12. Silicone compound vapors may cause readings of nitrogen dioxide gas to be lower than gas concentrations.

A. True

B. False

13. Sudden changes in atmospheric pressure may cause temporary fluctuations in the _____ reading.

A. carbon monoxide

B. methane

C. nitrogen dioxide

D. oxygen

E. all of the above

14. A functional ("bump") test is defined as _____

A. a long exposure of the monitor (gas instrument) to a known concentration of gas(es)

B. a non-verification of sensor and alarm operation

C. intended to be a measure of the accuracy of the instrument

D. only A and C

E. none of the above

15. During calibration, what is the recommended flow rate?
- A. 2.0 liter per minute (LPM)
 - B. 2.5 liter per minute (LPM)
 - C. 3.0 liter per minute (LPM)
 - D. 4.0 liter per minute (LPM)
 - E. none of the above
16. Marginal calibration occurs if the sensor's full span value or span reserve is between _____ of the applied (calibration) gas value\concentration.
- A. 30 - 50%
 - B. 50 - 70%
 - C. 70 - 100%
 - D. 100 - 120%
17. According to the manufacturer's recommendation, how often should a functional "bump" test be performed on a gas instrument?
- A. Before each day's use
 - B. When the gas instrument shows a noticeable loss of sensor sensitivity
 - C. Once a week
 - D. Once a month
18. When the gas instrument is in non-latching mode, alarms set according to the Technician Team Competition in the MNM National Mine Contest Rule Book and exposed to 20.4% Oxygen, 1.2% Methane, 40.0 ppm Carbon Monoxide and 2.0 ppm Nitrogen Dioxide, it will _____.
- A. be in high alarm condition
 - B. display "40" for the Carbon Monoxide reading
 - C. display "2.0" for the Nitrogen Dioxide reading
 - D. all of the above
 - E. only B and C

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

- A. True
- B. False

20. The primary reason for power being removed from the combustible (methane) sensor is to prevent an explosion in the atmosphere being monitored.

- A. True
- B. False

21. The presence of small quantities of hydrogen (H₂) has little effect on the explosive range of other gases.

- A. True
- B. False

22. Exposure to an atmosphere containing 15% of oxygen will cause dizziness and headaches.

- A. True
- B. False

23. Which of the following gases is not toxic?

- A. Oxides of Nitrogen
- B. Carbon Dioxide
- C. Acetylene
- D. All of the above

24. The specific gravity of Nitrogen Dioxide (NO₂) is

- A. 0.7493
- B. 2.0756
- C. 1.5894
- D. 2.9153

25. An anemometer actually measures _____ of air

- A. linear feet of travel
- B. quantity
- C. velocity
- D. all of the above

26. Line brattice can be _____

- A. used to channel air intake air from the last open crosscut to the working section and across the face.
- B. hung from a rough lumber frame, from timber posts, or from special fasteners.
- C. use to flush out or ventilate a small area of the mine.
- D. all of the above
- E. none of the above

27. Mine doors installed to form an air-lock should always be opened and closed one at a time in order to maintain the air-lock.

- A. True
- B. False

28. Ventilation controls are used underground to properly distribute the air to all sections of the mine by controlling the _____ that travels.

- A. direction of the airflow
- B. amount of air
- C. quality of air
- D. all of the above
- E. A and B

29. How many of the following statements are true?

- Methane is flammable with an explosive range of 5 to 15 percent when there is at least 12.1 percent oxygen.
- Methane is most explosive at 11 percent concentration.
- The specific gravity of methane is 0.0545

A. 0

B. 1

C. 2

D. 3

30. 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.

A. True

B. False