

2012 M&NM SOUTHWESTERN MUTUAL BG 4
TECHNICIAN TEAM WRITTEN TEST

June 12, 2012, Wyoming

10 QUESTIONS from PSS BG4 Service Manual (rev 0)

10 QUESTIONS from MSHA Publication 3027_MODULES 2 and 3

10 QUESTIONS for MULTI-GAS INSTRUMENT (iTX, MX6 iBrid)

1. When checking the constant dosage set the dosage at 0.5 – 2 mbar read off the measure dosage valve and on the red scale as soon as the pointer has stopped moving and it should lie between 1.5 and 1.9 mbar?
 - a. True
 - b. False

2. The high pressure steel O2 cylinder is full at _____ psi with a + rating?
 - a. 3000 psi
 - b. 3135 psi
 - c. 3531 psi
 - d. 3035 psi

3. The inhalation and exhalation valves on a BG 4 which is in constant use need to be replaced every 4 years?
 - a. True
 - b. False

4. The minimum valve activates between .1 and 2.5 mbar and provides approximately _____ l/min of flow?
 - a. 70 l/min
 - b. 75 l/min
 - c. 80 l/min
 - d. 85 l/min

5. The BG 4 Panorama Nova Mask is made of EPDM or silicone material, has a triple sealing surface, with thriple sealing edges and has 90% peripheral vision?
 - a. True
 - b. False

6. When checking the relief valves, the over pressure valve opens between 2-5mbar and the moisture trap opens ≤ 10 mbar?
- True
 - False
7. In the event of a fault, the Sentinel alarm will bleeps _____ times?
- One
 - Two
 - Three
 - Four
8. All parts which were in contact with breathing air must always be thoroughly cleaned and disinfected after each use; the drying temperature for these parts must not exceed 65°C ?
- True
 - False
9. To conduct a positive pressure leak test, the RZ tester is set on leak test and the pressure is reduced to 7 mbar and it can not change more than 1 psi in a one minute time period?
- True
 - False
10. If while conducting the high-pressure leak test the cylinder pressure is lower than 2600 psi/185 bar the cylinder must be changed?
- True
 - False
11. When the pressure increases and the temperature decreases gas expand?
- True
 - False
12. Afterdamp is a mixture of carbon monoxide, carbon dioxide, methane, oxygen nitrogen and hydrogen; which is the most poisonous of the gases in afterdamp?

- a. Carbon Monoxide
- b. Carbon Dioxide
- c. Methane
- d. Nitrogen
- e. Hydrogen

13. Breathing air containing 5 percent carbon dioxide increases respiration _____ percent, causing difficult breathing?

- a. 150 %
- b. 250%
- c. 300 %
- d. 350 %

14. Nitrogen Dioxide will neither burn nor explode, but exposure to 200 ppm to 700 ppm can be fatal for short exposures?

- a. True
- b. False

15. Hydrogen is a highly explosive gas. Air containing 4% to _____ % hydrogen will explode even when there is as little as 5% oxygen present?

- a. 72.4%
- b. 74.2%

16. The explosive range of carbon dioxide is 12.5% to 74.2%?

- a. True
- b. False

17. A high-velocity anemometer is for measuring velocities from _____ to _____ feet per minute.

- a. 1,000 to 5,000 ft. /min.
- b. 2,000 to 5,000 ft. /min.
- c. 1,000 to 10,000 ft. /min.
- d. 2,000 to 10,000 ft. /min.

18. The smoke tube is used to show the direction and velocity of slow-moving air below _____ ft. /min.?

- a. 150 ft. /min.
- b. 140 ft. /min.
- c. 130 ft. /min.
- d. 120 ft. /min.

19. To calculate the quantity of airflow in cubic feet per minute the formula is?

- a. Quantity (ft.) = Area (ft.²) x Velocity (ft. /min.)
- b. Quantity (ft.²) = Area (ft.³) x Velocity (ft. /min.)
- c. Quantity (ft.³) = Area (ft.²) x Velocity (ft. /min.)
- d. Quantity (ft.³) = Area (ft.³) x Velocity (ft. /min.)

20. An undercast is an enclosed airway built at an intersection of mine passages that permit one air current to pass over another air current without mixing?

- a. True
- b. False

21. Industrial Scientific Corporation recommends that a full calibration be performed using certified concentrations of Industrial Scientific calibration gases _____ to ensure maximum accuracy?

- A) Daily
- B) Weekly
- C) Monthly
- D) Yearly

22 The low operating temperature for the ITX/MX6 is _____?

- A) -10 °C (14°F)
- B) -20°C (-4°F)
- C) -25°C (-13°F)
- D) -30°C (-22°F)
- E) None

23 The 4 steps of operation for the iTX/MX6 are in which order?

- A) Turn on and check battery, bump test, clear peaks, zero
- B) Turn on and check battery, zero, bump test, clear peaks
- A) Turn on and check battery, clear peaks, bump test, zero
- B) Turn on and check battery, bump test, zero, clear peaks
- C) None are correct

24. According to the gas instrument manual, a functional (bump) test is defined as a brief exposure of the monitor to a known concentration of gas(es)

for the purpose of verifying sensor and alarm operation and is not intended to be a measure of the accuracy of the instrument?

- A) True
- B) False

25 The iTX and MX6 gas instruments can not accept zinc-carbon battery types?

- A) True
- B) False

26 When the gas instrument is exposed to 99 PPM nitrogen dioxide, it will _____?

- A) Remove power from the nitrogen dioxide sensor.
- B) Display "+OR" or "OR" for the nitrogen dioxide reading.
- C) Display "99.0" on the nitrogen dioxide reading.
- D) Both A and B
- E) None of the above

27. The maximum display range for the (catalytic) combustible\methane\LEL sensor is?

- A) 10% Methane
- B) 100% Methane
- C) 50% LEL
- D) None of the above

28 What is the recommended flow rate during calibration of the gas instrument?

- A) 2.0 liter per minute (LPM)
- B) 2.5 liter per minute (LPM)
- C) 3.0 liter per minute (LPM)
- D) 1.5 liter per minute (LPM)
- E) None of the above

29 Oxygen deficient atmospheres and silicone compound vapors may cause readings of combustible gas to be lower than actual gas concentrations?

- A) True
- B) False

30. With the exception of _____ gas over-range, all over-range conditions will clear automatically when the gas concentration has decreased to a level within the display range of the gas instrument in non-latching mode?

- A) carbon monoxide
- B) nitrogen dioxide
- C) combustible
- D) oxygen
- E) none of the above