

Team Technician (BG 4) Written Test  
2012 Nevada Regional Contest  
March 14-15, 2012  
Winnemucca, NV

Name: \_\_\_\_\_ Company: \_\_\_\_\_

Team Name: \_\_\_\_\_ Contest Position #: \_\_\_\_\_

Team Member #: \_\_\_\_\_

**Please circle your answer. If you make a mistake make sure you fully erase any marks.**

1. The speech diaphragm is a thin foil?  
**A True**      B False
2. High medium pressure can cause low dosage?  
A True      **B False**
3. Bypass system damaged can cause high dosage?  
**A True**      B False
4. The tester should be on negative pressure to conduct the function test for the low pressure warning.  
A True      **B False**
5. The exhalation valve test is done with the tester set on Negative Pressure?  
**A True**      B.False
6. The minimum valve should open at a value between 1.0 and 2 mbar .  
A True      **B False**
7. Test is incorrect while testing the minimum valve can be caused by \_\_\_\_
  - A. cylinder valve not opened
  - B. Spring pressure is incorrect
  - C. Tilt valve defective
  - D. All the above**
8. Positive pressure is used to check the mask for leaks, using the mask test bladder and adaptor?  
**A True**      B False
9. O-ring on plug in coupling should be replaced every 6 years?  
**A True**      B False
10. Excessive disinfectant concentrations and over long disinfecting times can damage the mask?  
**A True**      B. False

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

**Industrial Scientific Corporation Gas Instruments:**

11. 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

12. 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

13. The iTX and MX6 gas instruments can not accept zinc-carbon battery types.

- A. True
- B. False

14. According to the gas manufacturer's recommendation, a full instrument calibration should be performed bi-monthly to ensure maximum accuracy

- A. True
- B. False

15. When the gas instrument is in non-latching mode, alarms set according to the Technician Team Competition in Contest Rule Book and exposed to 19.9% Oxygen, 0.2% Methane, 40 ppm Carbon Monoxide and 4 ppm Nitrogen Dioxide, it will \_\_\_\_.

- A. be in high alarm condition
- B. display "40" for the Carbon Monoxide reading
- C. display "4" for the Nitrogen Dioxide reading
- D. all of the above
- E. none of the above

16. 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

17. 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
18. If the sensor's full span value or span reserve is less than \_\_\_\_\_ of the applied (calibration) gas value\concentration, the gas sensor will fail calibration.
- A. 30%
  - B. 50%
  - C. 70%
  - D. 90%
  - E. 100%
19. 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. 4.0 liter per minute (LPM)
  - E. none of the above
20. According to the gas instrument manual, silicone compound vapors may cause readings of combustible (methane) gas to be \_\_\_\_\_ than gas concentrations.
- A. higher
  - B. the same
  - C. lower
21. Oxygen is an explosive gas and supports combustion.
- A. True
  - B. False
22. Specific gravity (or relative weight) of a gas is its weight in relation to an equal amount of normal air under the same temperature and pressure.
- A. True
  - B. False
23. The basic principle underlying mine ventilation is that air always moves from high pressure regions to low pressure regions.
- A. True
  - B. False

24. The traverse method is used when \_\_\_\_\_
- A. taking a reading with a smoke tube.
  - B. taking a reading with an anemometer.**
  - C. taking a reading with a psychrometer.
  - D. erecting bulkheads to form an air lock
  - E. none of the above.
25. High NO<sub>2</sub> readings could indicate that
- A. Explosives are burning
  - B. Malfunctioning electrical equipment is arcing
  - C. Inadequate ventilation with diesel equipment operating
  - D. All of the above**
26. The rule-of-thumb when altering ventilation is to direct only fresh air into an unexplored area.
- A. True
  - B. False**
27. Exposure to an atmosphere containing 6% of oxygen or less will almost always result in death
- A. True**
  - B. False
28. Temporary bulkheads can be constructed by fitting brattice around a piece of equipment.
- A. True**
  - B. False
29. A medium- velocity (or “regular”) anemometer is used to measure air velocities from 100 to 2,000 feet per minute?
- A. True
  - B. False**
30. Which of the following gases is not toxic?
- A. Oxides of Nitrogen
  - B. Ethane**
  - C. Acetylene
  - D. All of the Above