

**2012 Northern Mine Rescue Contest
Rochester, NY
Written Test – Technician Team Competition**

Name _____ Company _____

Team Name _____ Contest Position No. _____

Team Member No. _____

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

1. The lenses for the mask can be Plexiglas?
 - a. True
 - b. False

2. What are the types of BG4 testing?
 - a. Quick electronic operational check
 - b. Portable test kits
 - c. Dynamic bench tester
 - d. All of the above

3. The minimum valve is installed within the breathing loop?
 - a. True
 - b. False

4. The first low-pressure warning occurs when approximately _____ % of the oxygen has been used up.
 - a. 95%
 - b. 85%
 - c. 75%
 - d. 65%
 - e. None of the Above

5. A Carbon O₂ cylinder has a _____ year lifespan.
 - a. 5
 - b. 10
 - c. 12
 - d. 15

6. What is the volume of a BG4 Breathing bag?
 - a. 4.5 liter
 - b. 5.0 liter
 - c. 5.5 liter
 - d. 6.0 liter

7. The high pressure transducer converts pressure into a digital signal?
 - a. True
 - b. False

8. To check the exhalation valve, the RZ tester must be set on negative pressure?
 - a. True
 - b. False

9. The O-ring on the plug-in coupling should be replaced at least _____ for units which are in constant use.
 - a. Every 6 months
 - b. Every 12 months
 - c. Every 18 months
 - d. Every 24 months

10. The BG4 is approved for use at temperatures above 23 degrees Fahrenheit.
 - a. True
 - b. False

11. Oxygen enriched atmospheres may cause combustible gas readings to be higher than actual concentrations?
 - a. True
 - b. False

12. If there is an oxygen sensor installed in the iTX or MX6, is it calibrated during the zeroing operation?
 - a. True
 - b. False

13. The iTX and MX6 battery displays are in the upper right hand corner of the display.
 - a. True
 - b. False

14. During calibration of the iTX or MX6, what is the recommended flow rate?
- a. **0.5 LPM**
 - b. 1.5 LPM
 - c. 2.0 LPM
 - d. 2.5 LPM
15. Industrial Scientific recommends that a full instrument calibration be performed _____.
- a. Daily
 - b. Weekly
 - c. **Monthly**
 - d. None of the above
16. When using the iTX or MX6 silica compound vapors can affect the combustible gas sensor and may cause readings of combustible gas to be higher than actual gas concentrations.
- a. **True**
 - b. False
17. The calibration of the combustible gas sensor in the iTX or MX6 should not be verified after any incident where the combustible gas content has caused the instrument to display an over range condition.
- a. True
 - b. **False**
18. Sudden changes in atmospheric pressures in the iTX and MX6 will not cause temporary fluctuations in the oxygen reading.
- a. True
 - b. **False**
19. The manufacturer recommends that a functional (Bump) test be performed on every instrument before each days use.
- a. **True**
 - b. False
20. The iTX and MX6 uses rechargeable battery packs P/N 1301-1864 and P/N 1781-4568.
- a. True
 - b. **False**

21. The specific gravity of Butane is _____.
- a. 1.7493
 - b. 2.0756
 - c. 2.0100
 - d. 2.9153
22. The specific gravity of Radon is _____.
- a. 5.9674
 - b. 7.526
 - c. 8.967
 - d. 4.4930
23. The purpose of mine ventilation is to provide a volume of air sufficient to disperse and remove harmful gases, dust, smoke, and fume, and to provide adequate oxygen.
- a. True
 - b. False
24. In some mines the fire doors will close automatically when the carbon dioxide in the air reaches a certain level.
- a. True
 - b. False
25. The degree to which a toxic gas will affect you depends on how many factors?
- a. 2
 - b. 3
 - c. 4
 - d. None of the above
26. Characteristics of hydrogen sulfide include:
- a. Explosive
 - b. Highly toxic
 - c. Can be liberated from pools of stagnant water
 - d. All of the above

27. When assessing ventilation, the command center should be told the _____ of damage you find and the _____ of the damage?
- Area and type
 - Extent and area
 - Type and extent
 - None of the above
28. This trio of gases is in the correct sequential order from lowest to highest in specific gravity:
- Radon, Sulfur Dioxide, Butane
 - Oxygen, Nitrogen, Carbon dioxide
 - Methane, Carbon monoxide, Nitrogen
 - Ethane, Propane, Butane
29. Methane is nontoxic and may cause asphyxiation at high concentrations.
- True
 - False
30. For the purpose of contest work, no barricade will be entered without ventilating in front of the barricade if _____.
- Oxygen is below 17.0%
 - Carbon monoxide exceeds 1,200 ppm
 - Nitrogen Dioxide exceeds 20 ppm
 - All of the above
 - Only B and C