

**2013 Central Mine Rescue Contest
Kellogg, Idaho**

Written Test-Team Technician

Name _____ Company _____

Team Name _____ Contest Position _____

Team Member No. _____

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

- 1. Silicone vapors will _____ the combustible sensor.**
 - a. Have no effect on.
 - b. Have an inhibiting effect on.
 - c. Over range.
 - d. Poison.

- 2. According to Industrial Scientific calibration policy, how often should you calibrate your instruments?**
 - a. Once a year
 - b. Once every 6 months
 - c. Once a month
 - d. Quarterly

- 3. What does the Peak Readings display on all Industrial Scientific instruments indicate?**
 - a. Highest readings of the toxic gases, O₂ and LEL.
 - b. Lowest readings of the toxic gases and LEL and the highest reading of the O₂.
 - c. Highest reading of the toxic gases and LEL and the lowest reading of the O₂.
 - d. Alarm set points.

- 4. When a sensor encounters a gas concentration higher than the measuring range of the sensor, what is displayed on the instrument?**
 - a. OR
 - b. OVER RANGE
 - c. 999+
 - d. The sensor identifier will disappear from the display

- 5. The Gortex membrane should be replaced?**
- a. Before each calibration.
 - b. When new sensors are installed.
 - c. Cannot be replaced in the field.
 - d. When dirty or Gortex damage is present.
- 6. How many sensors can be installed in the MX6/iTX?**
- a. 4 sensors.
 - b. 5 sensors.
 - c. 6 sensors.
 - d. 7 sensors.
- 7. What are the two types of battery packs available for the MX6/iTX?**
- a. NiCad and Lithium Ion
 - b. Alkaline and NiCad
 - c. Alkaline and Lithium Ion
 - d. NiMh and Alkaline
- 8. What are the alarm set points for methane on the MX6/iTX?**
- a. 1.5 – 2.5%
 - b. 1.0 – 2.0%
 - c. 1.0 – 1.5%
 - d. 3.0 – 5.0%
- 9. The calibration gas values are factory set and cannot be changed?**
- a. True
 - b. False
- 10. What appears on the display of the MX6/iTX when the combustible sensor is exposed to more than 5% by volume CH₄?**
- a. 5.0% +
 - b. ERR
 - c. OR
 - d. The actual concentration of CH₄
- 11. The explosive range of Ethane in normal air is?**
- a. 2.12-9.35%
 - b. 3.0-12.5%
 - c. 2.5-9.35%
 - d. 1.86-8.41%

- 12. The degree to which a toxic gas will affect you depends on three factors: 1) how concentrated the gas is, 2) how explosive the gas is, and 3) how long you're exposed to the gas?**
- True
 - False
- 13. _____ is formed when methane is burned or heated in air having low oxygen content?**
- Butane
 - Argon
 - Ethane
 - Acetylene
- 14. When smoke gets dense it can disorient reference points causing you to fall down, this is called _____?**
- Spatial distortion
 - Spatial distention
 - Spatial disorientation
 - Spatial difficulty
- 15. Drowning from water in the lungs can occur by the body trying to counteract corrosive effects from severe exposure of acids formed by _____?**
- Hydrogen Sulfide
 - Oxides of Nitrogen
 - Carbon Monoxide
 - Sulfur Dioxide
- 16. The discharge of an extinguisher varies between?**
- 8-20 seconds
 - 5-60 seconds
 - 18-25 seconds
 - 8-60 seconds
- 17. Which of these conditions is not a first priority during triage?**
- Deep shock
 - Second degree burns covering 10% of the body
 - Severe bleeding
 - Inhalation of poisonous gases
- 18. The ideal time to take an air sample is when the sealed area is under positive pressure?**
- True
 - False

- 19. Color, odor, and taste are sensory properties that can help you identify a gas?**
- a. True
 - b. False
- 20. One of the most poisonousness gasses is Hydrogen Sulfide; concentrations of _____ to _____ percent can cause rapid unconsciousness, cessation of respiration, and death.**
- a. .07 to .10%
 - b. .02 to .07%
 - c. .10 to .20%
 - d. 0.04 to 0.05%
- 21. The Bg4 is approved for use at temperatures above 23 degrees Fahrenheit?**
- a. True
 - b. False
- 22. The use of ice in the cooling system is only required at ambient temperature above 32 degrees C?**
- a. True
 - b. False
- 23. The sentinel meets the explosion – proofing standard to EEx in 11C T4 and EEx; A1 and approved for use in gaseous mines by MSHA? (approx. No 2G-3980–0)**
- a. True
 - b. False
- 24. Dirty orifice can cause high dosage?**
- a. True
 - b. False
- 25. Damaged orifice can cause high dosage?**
- a. True
 - b. False
- 26. Checking the inhalation valve while testing set the tester to negative pressure?**
- a. True
 - b. False

- 27. Checking the relief valve, opening pressure gauge: it should be between 2 and 5 Lpm?**
- a. True
 - b. False
- 28. The high pressure leak test will fail if dosage is out of range?**
- a. True
 - b. False
- 29. The constant dosage metering quantity should lie between 1.5 and 1.9 Lpm?**
- a. True
 - b. False
- 30. Drainage valve opens too early or too late, can be caused by spring pressure incorrect?**
- a. True
 - b. False