Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Company\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Team Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Contest Position Number\_\_\_\_\_\_\_\_\_

Team Member Number\_\_\_\_\_\_\_\_\_

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

1. When the barometer falls, this means:
2. **Gases will diffuse more quickly** [**MSHA 3027 (IG6) 2008, pg.2-6]**
3. The atmospheric pressure is rising
4. It is much easier for explosive gases to build up
5. Gases are squeezed into a smaller area
6. Methane is most explosive at what range
7. 5% to 15% with at least 12.1% oxygen
8. 9.5% to 12.5% with at least 12.1% oxygen
9. 5% to 10%
10. **9.5% to 10%[MSHA 3027 (IG6) 2008, pg.2-22]**
11. Electrical malfunctions will not produce oxides of nitrogen
12. True
13. **False [MSHA 3027 (IG6) 2008, pg.2-18]**
14. Usually, the measured distance using a smoke tube is \_\_\_\_\_\_\_\_\_feet.
15. 100
16. 50
17. 75
18. **25** [**MSHA 3027 (IG6) 2008, pg.3-18]**
19. Asphyxiating gases:
20. Can, in all cases, be tasted, smelled, or seen
21. **Cause suffocation** [**MSHA 3027 (IG6) 2008, pg.2-10]**
22. Cause the metal parts of an apparatus to corrode
23. Do not produce an oxygen deficient atmosphere
24. The explosive range of hydrogen is \_\_\_\_\_\_\_\_\_\_\_to 74.2%.
25. 7%
26. 5%
27. **4%** [**MSHA 3027 (IG6) 2008, pg.2-18]**
28. 3%
29. An anemometer is a small windmill device with a mechanical counter that measures air velocities of over \_\_\_\_\_\_\_\_\_\_\_\_feet per minute.
30. 100
31. 110
32. **120** [**MSHA 3027 (IG6) 2008, pg.3-16]**
33. None of the above
34. Mine ventilation air always moves from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
35. Neutral pressure regions to atmospheric pressure regions.
36. Low pressure regions to high pressure regions.
37. **High pressure regions to low pressure regions** [**MSHA 3027 (IG6) 2008, pg.3-5].**
38. Balanced pressure regions to unbalanced pressure regions.
39. A partially opened mine door cannot be used as a regulator.
40. True
41. **False [MSHA 3027 (IG6) 2008, pg.3-12]**
42. The most accurate measurement of air velocity using a smoke tube is obtained by take readings at quarter

points within the airway.

1. **True [MSHA 3027 (IG6) 2008, pg.3-18]**
2. False
3. Oxygen deficient atmospheres may cause combustible gas readings to be higher than actual concentrations.
	1. True
	2. **False [MX6 iBrid Operations Guide Rev.3 page 3]**
4. Oxygen enriched atmospheres may cause combustible gas readings to be lower than actual concentrations.
5. True
6. **False [MX6 iBrid Operations Guide Rev.3 page 3]**
7. The battery icon at >50% is what color?
8. **Blue [MX6 iBrid Operations Guide Rev.3 page 11]**
9. Yellow
10. Red
11. When calibrated using methane concentrations less than 5% of volume, reading accuracy of the infrared methane sensor may not be guaranteed to be better than \_\_\_\_\_\_\_\_?
12. +/- 15%
13. **+/- 20% [MX6 iBrid Operations Guide Rev.3 page 5]**
14. +/- 25%
15. To power up the MX6 instrument, locate, press and hold the center [ENTER] navigation button for at least 2 seconds.
16. True
17. **False [MX6 iBrid Operations Guide Rev.3 page 13]**
18. The Normal Operations Menu has a \_\_\_\_\_\_\_\_\_ background and the Configuration Menu has a \_\_\_\_\_\_\_\_\_\_ background.
19. white, blue
20. white, red
21. **white, yellow [MX6 iBrid Operations Guide Rev.3 page 8]**
22. If all three alarms are disabled, “ALARMS OFF!” is displayed at the bottom of the normal readings screen in black.
23. True
24. **False [MX6 iBrid Operations Guide Rev.3 page 23]**
25. The user has \_\_\_\_\_\_\_ minutes to apply gas before the calibration times out.
26. two
27. three
28. **five [MX6 iBrid Operations Guide Rev.3 page 19]**
29. A high-level alarm has an audio indicator that beeps with a high frequency and visual alarm LEDs that are pulsed with short delay.
30. **True [MX6 iBrid Operations Guide Rev.3 page 7]**
31. False
32. \_\_\_\_\_\_\_\_\_\_ error events for the instrument are recorded into a FIFO queue in non-volatile memory and are time stamped.
33. **Fifteen [MX6 iBrid Operations Guide Rev.3 page 8]**
34. Twenty
35. Twenty-five
36. The infrared methane sensor is not to be used for methane concentrations below 5% in air.
37. **True [MX6 iBrid Operations Guide Rev.3 page 5]**
38. False
39. Verify the calibration of the combustible gas sensor after any incident where the combustible gas content has caused the instrument to display an over-range condition.
	1. **True** **[MX6 iBrid Operations Guide Rev.3 page 3]**
	2. False
40. The recommended calibration gas for infrared methane sensor calibration is 99% volume methane.
41. **True** **[MX6 iBrid Operations Guide Rev.3 page 5]**
42. False
43. A bump test is intended to be a measure of the instruments accuracy.
44. True
45. **False [MX6 iBrid Operations Guide Rev.3 page 17]**
46. Sudden changes in atmospheric pressure may cause temporary fluctuations in the oxygen reading.
47. **True [MX6 iBrid Operations Guide Rev.3 page 3]**
48. False
49. The sensor readings are displayed as solid \_\_\_\_\_\_\_\_ numerals during normal operation, and solid \_\_\_\_\_\_\_\_\_ numerals during alarm conditions.
50. black, black
51. **black, red [MX6 iBrid Operations Guide Rev.3 page 14]**
52. red, red
53. Access to the Configuration Menu cannot be protected using a security password.
54. True
55. **False [MX6 iBrid Operations Guide Rev.3 page 16]**
56. Silicone compound vapors or other known contaminants may affect the combustible gas sensor and cause readings of combustible gas to be lower than actual gas concentrations.
57. **True [MX6 iBrid Operations Guide Rev.3 page 3]**
58. False
59. For calibration, gas should be applied at a flow rate of \_\_\_\_\_\_\_.
60. **0.5 lpm [MX6 iBrid Operations Guide Rev.3 page 19]**
61. 1.0 lpm
62. 1.5 lpm
63. There are only two different cradles are available for use with the MX6 multi-gas monitor.
64. True
65. **False [MX6 iBrid Operations Guide Rev.3 page 7]**