

Technician Team Test - Dräger

2015 Northern Nevada Regional Contest
Winnemucca, Nevada
March 11 & 12, 2015

Please mark the most appropriate answer on the **answer sheet**. **DO NOT mark on the test as it will not be graded.** You will have **60** minutes to complete all testing. Good luck!

MX6 Questions:

1. In an oxygen deficient atmosphere, the combustible gas reading____
 - a. may read higher than actual concentrations.
 - b. may read lower than actual concentrations. (Page 4, answer is b)
 - c. will always be negative.
 - d. none of the above.
2. Which of the following situations may cause readings of combustible gas to be lower than the actual gas concentration?
 - a. Silicone compound vapors
 - b. Obstruction of the sensor openings
 - c. None of the above
 - d. Both a and b (Page 4, answer is d)
3. A bump test measures for sensor accuracy.
 - a. True
 - b. False (Page 11, answer is False)
4. In addition to regular calibrations, Industrial Scientific recommends calibrating after which of the following?
 - a. The unit falls or is dropped.
 - b. The unit is exposed to water.
 - c. After installing a new sensor.
 - d. All of the above. (Page 12, answer is d)
5. If the instrument is still reading gas while in the configuration mode, and there is an alarm, the instrument returns to the gas monitoring display screen.
 - a. True (Page 32, answer is True)
 - b. False
6. The instrument alarms are deactivated during calibration____
 - a. to prevent damage to the alarms.
 - b. to prevent damage to your ears.
 - c. to save battery life. (Page 34, answer is c)
 - d. so the user can focus on calibration.

7. The oxygen sensor technology is _____

- a. electrochemical. (Page 38, the answer is a.)
- b. catalytic.
- c. infrared.
- d. photoionization.

8. Your unit reads 10% LEL in a Propane atmosphere, but was calibrated to Methane. The LEL correlation factor for this situation is 1.62. What is the actual percentage LEL?

- a. 16.2% (Page 41, the answer is a)
- b. 0.162%
- c. 162%
- d. 10%

9. Zeroing sets each installed sensor to recognize the ambient air as clean air. If the ambient air is not truly clean air, gases that are present and relevant to the installed sensor types will not be measured.

- a. True
- b. False (Page 11, the answer is false)

10. When a sensor has degraded beyond an acceptable level no further adjustment is possible and the sensor will no longer pass calibration.

- a. True (Page 11, the answer is true)
- b. False

PSS BG4 questions:

11. Breathing air is enriched with oxygen from the oxygen cylinder through the minimum valve in the case of low breathing rates.

- a. True
- b. False (page 3 of the PSS BG4 Service Manual, top of left column)

12. The part number (P/N) for the refillable scrubber is:

- a. P/N R24388
- b. P/N R34277 (page 5 of the PSS BG4 Service Manual)
- c. P/N P33921
- d. P/N RS22438

13. When dismantling the waist belt you must first lift up the four locking clips inside the carrying frame and press them out through the slits. Next you press the fixing point of the waist belt downwards and at the same time, turn it through

- a. 45 degrees and draw it outwards
- b. 90 degrees and push it inwards
- c. 180 degrees and push it inwards
- d. None of the above (turn it through 90° and draw it outwards-page 8 PSS BG4 Service Manual)

14. The tool **not** used to work on the Panorama Nova Mask is:

- a. 5 mm open end wrench (7 mm open end wrench page 9 PSS BG4 Service Manual)
- b. Screwdriver, flat tip/cross tip

- c. Diaphragm spanner (P/N R26817)
- d. End crimp pliers
- e. Dow Corning 111

15. When installing the reducer and you have threaded on the locking ring you should tighten it before attaching the cylinder to the reducer connection.

- a. True
- b. False **(page 15, you should not tighten the lock ring until after you've attached the cylinder to the reducer connection (notes 1 & 2))**

16. The function test for the low pressure warning must be carried out with the Sentinel

- a. On
- b. Off **(page 24 PSS BG4 Service Manual)**
- c. It doesn't matter

17. When checking the exhalation valve, 10 mbar should be indicated on the pressure gauge.

- a. True
- b. False **(page 25 (-10 mbar) PSS BG4 Service Manual)**

18. When check residual pressure the alarm should go off at:

- a. 46 bar
- b. 48 mbar
- c. 46 mbar
- d. 48 bar **(page 31 PSS BG4 Service Manual)**

19. All of the tools used to check the Panorama Nova Mask are provided in test kit R33777.

- a. True
- b. False **(page 37 PSS BG4 Service Manual)**

20. If your PSS BG4 is in constant use you should replace the pressure reducer, high pressure O-ring every 3 years.

- a. True
- b. False **(page 38, (footnote 4) yearly)**

MSHA 3027 Questions

21. The mine rescue team is under the direct supervision of the mine operator?

- a. True
- b. False **(False, 1-6)**

22. Testing devices containing electrical circuits, such as methane detectors, used in mines classified as non-gassy mines must be "permissible"?

- a. True
- b. False **(False, 2-4)**

23. Portable detectors can reveal the presence of gasses that a complete chemical analysis is not designed to detect?

- a. True
- b. False (False, 2-4)

24. A gas is a substance with?

- a. A definite shape and volume.
- b. A definite volume but changes shape according to the shape of its container.
- c. Neither a definite shape nor volume. (c, 2-5)

25. Once a gas expands, it is less concentrated, so it diffuses more quickly?

- a. True (True, 2-6)
- b. False

26. Heat from a fire in the mine will cause gasses to expand and diffuse more slowly?

- a. True
- b. False (False, 2-6)

27. Where is sulfur dioxide likely to collect in greater concentrations?

- a. At the mine portal.
- b. Against the back.
- c. Along the floor. (c, 2-6)
- d. All of the above.

28. 30 CFR section 49.9 must be followed by every mine. This standard pertains to _____.

- a. The Small and Remote Capability application
- b. The Ventilation Plan
- c. Mine rescue physical requirements
- d. The Mine Emergency Notification Plan (1-3, at the top)

29. The presence of small quantities of hydrogen greatly increases the explosive range of other gasses.

- a. True (Page 2-18 at the bottom)
- b. False

30. Hydrogen Sulfide (H₂S) is most explosive at _____.

- a. A little over 14 ppm
- b. 15 ppm
- c. A little over 14 percent (Page 2-19, 14.2%)
- d. Hydrogen sulfide is not explosive