

Southwest Wyoming Mutual Aid Mine Rescue Contest
Rock Springs WY
June 7-9, 2016

Team Technician BG4 Answers - Reference

1. d) the use of ice in the cooling system is only required at ambient temperatures above **32** degrees F. *PSS BG4 Service manual page 3*
2. b) **False** Checking the Inhalation Valve: Set “set positive pressure pumping”., tightly pinch the **exhalation** hose with your hand, start pumping slowly until, 10 mbar is indicated on the pressure gauge. *PSS BG4 Service manual page 25*
3. b) **False** To remedy a drainage valve will not open, opens too early or too late. **Disassemble drainage valve from breathing bag, remove cover lid. Check valve disc and spring.** *PSS BG4 Service manual page 35*
4. a) The temperature for drying an apparatus must not exceeds **60** degrees C. *PSS BG4 Service manual page 39*
5. c) *The high pressure O2 cylinders contain **400** liters of 99% O2. PSS BG4 Service manual page 45*
6. a) **True** The over pressure valve opens between 2-5 mbar on the relief valves. *PSS BG4 Service manual page 50*
7. b) If the cylinder pressure is lower tha 2600 psi/180 bar you should **charge the cylinder.** *PSS BG4 Service manual page 28*
8. a) **True.** To fit the waist belt you should press down on the fixing point of the waist belt and turn it through 90 degrees at the same time. *PSS BG4 Service manual page 18*
9. b) The accuracy of the Sentinel is $\pm 2\%$ of the final value. *PSS BG4 Service manual page 42*
10. c) Whenever the apparatus has been serviced; it must be **tested** per published guidelines. *PSS BG4 Service manual page 22*
11. c) During calibration, the user has **5** minutes to apply gas before the calibration times out. *MX6 iBrid Operation Guide, page 35*
12. **True.** The use of leather cases can produce inaccurate readings with diffusion (non-aspirated) gas detection instruments for specific monitoring applications. *MX6 iBrid Operation Guide, page 4*

13. **True.** Access to the Configuration Menu can be protected with a password. If the user doesn't remember the password, entering "412" as the password and pressing the left and right arrow keys simultaneously resets the password to nothing. MX6 iBrid Operation Guide, page 26.

14. **False.** Oxygen deficient atmospheres may cause combustible gas readings to be higher than actual concentration. **Oxygen-deficient atmospheres may cause combustible gas readings to be lower than actual concentrations.** MX6 iBrid Operation Guide, page 4.

15. **True.** The operation-mode root menu is the entry point to any feature. It is activated from the gas-monitoring display screen and has three menu tabs. MX6 iBrid Operation Guide, page 19.

16. **False.** Oxygen enriched atmospheres may cause the combustible gas readings to be lower than actual concentrations. **Oxygen rich atmospheres may cause combustible gas readings to be higher than actual concentrations.** MX6 iBrid Operation Guide, page 4.

17. c) Industrial Scientific recommends the "**2 & 2** Sampling Rule" when sampling with a motorized pump and tubing. MX6 iBrid Operation Guide, page 5.

18. b) 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 **+/-20%**. MX6 iBrid Operation Guide, page 6.

19. b) The MX6 multigas monitor (instrument) is powered by an alkaline or rechargeable Lithium-ion battery. Industrial Scientific recommends that the monitor is fully charged. This may require up to **8** hours. MX6 iBrid Operation Guide, page 13

20. b) For compliance determinations required by 30 CFR 57, Subpart T, the monitor must display "**CH4**" and "**%VOL**" during the monitor's start-up sequence. MX6 iBrid Operation Guide, page 5

21. d) An increase in pressure causes a gas to **contract**. MSHA Publication 3027, page 2-5

22. **True.** High temperatures cause gases to expand, so they diffuse more quickly. MSHA Publication 3027, page 2-6

23. c) The explosive range for hydrogen is **4.0-74.2%** in the presence of normal air. MSHA Publication 3027, page 2-7

24. **False.** Some toxic gases are harmful to inhale. An SCBA will protect you from such gases. Other toxic gases harm the skin or can be absorbed by the skin. An SCBA won't protect you from such gases. MSHA Publication 3027, page 2-10
25. *d)* Carbon dioxide will neither burn nor explode. MSHA Publication 3027, page 2-15
26. **True.** The presence of acetylene could indicate that an explosion has taken place in an area with low oxygen content. MSHA Publication 3027, page 2-24
27. **True.** A smoke tube is used to show direction and velocity of slow-moving air (below 120 feet per minute.). MSHA Publication 3027, page 3-18
28. *a)* . Temporary bulkheads should be erected a sufficient distance into the passageway (at least 4 to 6 feet) to **permit enough room for a permanent bulkhead to be built later.** MSHA Publication 3027, page 3-22
29. **True.** The smoke tube and anemometer are used to measure airflow. MSHA Publication 3027, page 3-16
30. *d)* **Upcast** is an exhaust ventilation shaft. MSHA Publication 3027, page 3-54