**2015 Southwestern Regional Mine Rescue Contest**

**Ruidoso, NM**

**Team Tech W/BG4 Written Test**

1. The user has \_\_\_\_\_ to apply gas before calibration times out.
   1. 10 minutes
   2. 5 minutes (Page 35)
   3. 3 minutes
   4. 2 minutes
   5. 1 minute
2. Oxygen enriched atmospheres may cause combustible gas readings to be lower than actual concentrations.
   1. True
   2. False (Page 4)
3. Silicone compound vapors or other known contaminants may affect the combustible gas sensor and cause readings of combustible gas to be greater than actual gas concentrations.
   1. True
   2. False (Page 4)
4. Sudden changes in atmospheric pressure may cause temporary fluctuations in the oxygen reading.
   1. True (Page 4)
   2. False
5. High off-scale readings may indicate explosive concentration carbon monoxide.
   1. True
   2. False (Page 4)
6. Industrial Scientific recommends the \_\_\_\_\_\_\_\_\_\_\_\_ when sampling with a motorized pump and tubing, allow for \_\_\_\_\_\_\_\_\_\_\_\_ per foot of tubing used, prior to noting the monitor readings.
   1. 1 & 3 Sampling Rule, 1 minutes plus 3 seconds
   2. 2 & 3 Sampling Rule, 2 minute plus 3 second
   3. 3 & 3 Sampling Rule, 3 minutes plus 3 seconds
   4. None of the above (Page 5)
7. The individual alkaline batteries cannot be replaced in a \_\_\_\_\_\_\_area.
   1. Smoky
   2. Wet
   3. Gassy
   4. None of the above (Page 5)
8. 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%.
   1. True (Page 5)
   2. False
9. The visual alarm is also used as the confidence indicator which, when enabled, blinks the LEDs once every \_\_\_\_ seconds.
   1. 25
   2. 20
   3. 35
   4. 30 (Page 7)
10. ata logging is a feature that allows a variety of system parameters to be recorded at regular intervals (and saved internally) for retrieval (and viewing) at a later date. The data log feature saves the following information EXCEPT:
    1. Gas Type
    2. STEL
    3. TWA
    4. TLV (Page 8)
    5. All of the above
11. The apparatus must be inspected and serviced regularly by certified service personnel.
    1. True
    2. False (PSS BG Service Manual page 2)
12. When changing the mask lense, remove lens screws by turning them clockwise with a screwdriver, while at the same time holding hexagon nuts.
    1. True
    2. False (PSS BG Service Manual page 9)
13. The speech diaphragm is a very thick foil, which could easily contribute to considerable leakage if it is damaged.
    1. True
    2. False (PSS BG Service Manual page 10)
14. Ultrasonic cleaning is the only acceptable method of orifice service.
    1. True (PSS BG Service Manual page 13)
    2. False
15. When cleaning, all parts must be cleaned in lukewarm water with a mild detergent.
    1. True (PSS BG Service Manual page 16)
    2. False
16. When drying, the minimum temperature is 60 °C (140 °F).
    1. True
    2. False (PSS BG Service Manual page 16)
17. The oxygen must have a purity >99.5% and must be both tasteless and odorless.
    1. >98.5%
    2. >95.5%
    3. >99.4%
    4. None of the above (PSS BG Service Manual page 17)
18. The oxygen cylinder must be charged and handled in accordance with O2 handling publications.
    1. True (PSS BG Service Manual page 17)
    2. False
19. The cylinder must be full for operational usage, 3000 PSI (206 BAR) is required.
    1. True (PSS BG Service Manual page 20)
    2. False
20. The mould parting seams of the breathing hose and on the connectors from the oxygen cooler and CO2 absorber must line up.
    1. True
    2. False (PSS BG Service Manual page 20)
21. High temperatures or heat cause gases to expand so they diffuse more slowly.
    1. True
    2. False (Modules Page 2-5)
22. SO2 is not a soluble gas, but H2S may be released from water.
    1. True
    2. False (Modules Page 2-7)
23. The specific gravity of CO2 is\_\_\_\_\_.
    1. 1.5129
    2. 1.5192
    3. 1.5219
    4. 1.5291 (Modules Page 2-7)
    5. None of the above
24. H2S is flammable and explosive in concentrations from 4.3 to 45.5 in normal air.
    1. True (Modules Page 2-19)
    2. False
25. The following are five of the major damps except:
    1. Smokedamp (Modules Page 2-29)
    2. Stinkdamp
    3. Afterdamp
    4. Blackdamp
    5. Firedamp
26. Blower fans are used mostly in mines having little overburden.
    1. True (Modules Page 3-4)
    2. False
27. The only natural energy source that can create and sustain is \_\_\_\_\_\_ energy due to temperature differences.
    1. Nuclear
    2. Mechanical
    3. Electrical
    4. Thermal (Modules Page 3-5)
28. Sometimes permanent bulkheads have a man door or drop door to allow an increase in ventilation to pass through.
    1. True
    2. False (Modules Page 3-9)
29. Air doors are usually built at shaft stations and other strategic locations, so that if there is a fire they can be closed to serve as a barrier to the fire and contaminated air.
    1. True
    2. False (Modules Page 3-12)
30. Line brattice is especially useful for rescue teams when they need to flush out or ventilate a large area of the mine.
    1. True
    2. False (Modules Page 3-10)