

Test – Answer – page – Module – BG4
2014 Dalton GA

MSHA Publication 3027 (formerly IG 6-Instructor’s Manual for Mine
Rescue training) Module 2-Mine Gases and Module 3-Ventilation,
Mine Rescue Contest Rules/BG4

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:
 - a. **Gases will diffuse more quickly--- Module 2-page12**
 - b. The atmospheric pressure is rising
 - c. It is much easier for explosive gases to build up
 - d. Gases are squeezed into a smaller area

2. Methane is most explosive at what range
 - a. 5% to 15% with at least 12.1% oxygen
 - b. 9.5% to 12.5% with at least 12.1% oxygen
 - c. 5% to 10%
 - d. **9.5% to 10%--Module 2 – page 43**

3. Electrical malfunctions can produce oxides of nitrogen
 - a. **True - Module 2 – page 35**
 - b. False

4. Usually, the measured distance using a smoke tube is
_____ feet
 - a. 100
 - b. 50
 - c. 75
 - d. **25 – Module 3 – page 31**

5. Asphyxiating gases
 - a. Can, in all cases, be tasted, smelled, or seen
 - b. Cause suffocation – Module 2 – page 19**
 - c. Cause the metal parts of an apparatus to corrode
 - d. Do not produce an oxygen deficient atmosphere

6. The explosive range of hydrogen is _____ to 74.2%
 - a. 7%
 - b. 5%
 - c. 4%--Module 2 – page 71**
 - d. 3%

7. An anemometer is a small windmill device with a mechanical counter that measures air velocities of over _____ feet per minute
 - a. 100
 - b. 110
 - c. 120 – Module 3 – page 27**
 - d. None of the above

8. Mine ventilation air always moves from _____
 - a. Neutral pressure regions to atmospheric pressure regions
 - b. Low pressure regions to high pressure regions
 - c. High pressure regions to low pressure regions – Module 3 – page 8**
 - d. Balanced pressure regions to unbalanced pressure regions

9. A partially opened mine door can be used as a regulator
 - a. True - Module 3 – page 21**
 - b. False

10. The most accurate measurement of air velocity using a smoke tube is obtained by releasing smoke in the center of the airway
 - a. True
 - b. False – Module 3 – page 30**

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11. The mission must always be ended when the low-pressure warning output is at approximately 135 psi
- True
 - False - BG4 service manual – page 12**
12. The carbon cylinder has a life span of _____years
- 5
 - 10
 - 15 - BG4 service manual – page 52**
 - 20
13. On the relief valve, the over pressure valve opens between 2-5 mbar
- True - BG4 service manual – page 57**
 - False
14. A leak in the dosage line can cause low dosage
- True BG4 service manual – page 23**
 - False
15. Carbon monoxide contained in the exhaled air is absorbed in the regeneration cartridge
- True
 - False - BG4 service manual – page 3**
16. When installing a relief valve, turn relief valve 45 degrees to the left
- True BG4 service manual – page 31**
 - False
17. High pressure O₂ cylinders contain _____% O₂
- 96.5
 - 97.5
 - 98.5
 - 99.5 BG4 service manual – page 52**

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18. When checking the inhalation valve for control function; the pressure gauge must indicate +10 psi
- a. True
 - b. False - BG4 service manual – page 35**
19. When testing the CO₂ absorber the test pressure should be between +7 mbar and + 10 mbar
- a. True BG4 service manual – page 42**
 - b. False
20. When checking components (equipment connector and breathing hoses, CO₂ Absorber and Breathing air cooler) with the RZ tester, the pressure loss should not exceed 1.5 mbr/min
- a. True
 - b. False BG4 service manual – page 42**
21. The maximum drying temperatures for BG4 parts is _____°C
- a. 50°C
 - b. 55°C
 - c. 60°C BG4 service manual – page 45**
 - d. 65°C
22. The relief valve activation occurs at _____PSI
- a. 85
 - b. 86
 - c. 87 BG4 service manual – page 51**
 - d. 88
23. Dosage output is 1.5 to 1.9 PSI
- a. True
 - b. False BG4 service manual – page 51**

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24. For units that are in constant use the valve disc on the exhalation and inhalation valves need to be replaced every _____
- a. yearly
 - b. 2 years
 - c. **3 years BG4 service manual – page 44**
 - d. 4 years
25. Drager Safety needs to perform a major overhaul of the pressure reducer every 5 years
- a. True
 - b. **False BG4 service manual – page 44**
26. Constant dosage for the BG4 apparatus must be 1.5 to 1.8 L/min
- a. True
 - b. **False BG4 service manual – page 38**
27. When checking the minimum valve the admission pressure of the minimum valve must be between _____ and _____ mbar
- a. 0.5 and 2.0
 - b. 0.1 and 1.5
 - c. 1.0 and 2.5
 - d. **0.1 and 2.5 BG4 service manual – page 38**
28. To check the relief valve on the BG4; set the pump on positive pressure, pump until relief valve opens, read admission pressure from the pressure gauge and it must be 2 to 7 mbar
- a. True
 - b. **False BG4 service manual – page 37**
29. To check the residual warning the cylinder must be closed, observe display unit; the warning must react at approximately 700 psi
- a. **True BG4 service manual – page 40**
 - b. False

30. The Panorama Nova mask has a peripheral vision of 95%
- a. True
 - b. False BG4 service manual-page 60**