

Self Assessment

1. Arterial Blood Gas Interpretation involves evaluating two components. They are:
 - A. **Acid-Base Balance**
 - B. **Oxygenation**

2. List the composition of the atmosphere.

- **78.08 % Nitrogen**
- **20.95 % Oxygen**
- **0.03 % Carbon Dioxide**
- **0.94 % Other trace gases**

3. Write two formulas derived from Dalton's Law of Partial Pressures.

Dry Gas: $P_{\text{GAS}} = P_{\text{BARO}} \times F_{\text{IO}_2}$

Inspired Gas: $P_{\text{GAS}} = (P_{\text{BARO}} - 47 \text{ torr}) \times F_{\text{IO}_2}$

4. For each mile you ascend above sea level, barometric pressure will drop **120** mm Hg.

5. Which of the following ABG values tell us about the efficiency of ventilation?

A. pH **B. PaCO₂** C. PaO₂ D. HCO₃⁻ E. BE

6. Which of the following ABG values is used to assess hypoxemia?

A. CaO₂ B. Hb **C. PaO₂** D. SaO₂ E. PaCO₂

7. At body temperature, water vapor pressure is **47 mmHg**.

8. SaO₂ needs to be measured by a machine called a **CO-Oximeter**.

9. Name three ABG values that are calculated or derived

A. **HCO₃⁻**
B. **BE**
C. **CaO₂**

10. List lab values that should be reviewed when assessing abnormal ABG results:

- **Previous Analyses**
- **Hemoglobin or hematocrit**
- **Electrolytes (K⁺, Cl⁻, Na⁺)**
- **Blood Glucose**
- **Blood Urea Nitrogen (BUN)**
- **Chest X-Ray**
- **PFT**

11. When assessing oxygenation, what three environment/patient factors need to be taken into consideration?

- A. **FiO₂**
- B. **Barometric Pressure**
- C. **Age**

12. Write the PaCO₂ equation and explain the relationship between the parameters used.

CO₂ Production x 0.863
Alveolar Minute Ventilation

As CO₂ Production doubles, Minute ventilation must double to keep PaCO₂ the same.

13. What is the Henderson Hasselbalch equation?

$$pH = pK + \log\left(\frac{HCO_3^-}{(PaCO_2 \times 0.03)}\right)$$