

- 1 What is the O-C-O bond angle in CO₂?
 - A 109°
 - B 120°
 - C 180°
 - D None of the above
- 2 CO₂ reacts with water to form carbonic acid, H₂CO₃ = (HO)₂CO. What is the O-C-O bond angle in carbonic acid?
 - A 180°
 - B 120°
 - C 109°
 - D None of the above
- 3 Carbonic acid reacts with water to form hydrogen carbonate ion, (HO)CO₂⁻. What is the O-C-O bond angle in hydrogen carbonate ion?
 - A 180°
 - B 120°
 - C 109°
 - D None of the above
- 4 Carbonic acid reacts with water to form hydrogen carbonate ion, (HO)CO₂⁻. What is the H-O-C bond angle in hydrogen carbonate ion?
 - A 180°
 - B 120°
 - C 109°
 - D None of the above
- 5 Hydrogen carbonate ion reacts with water to form carbonate ion, CO₃²⁻. What is the O-C-O bond angle in carbonate ion?
 - A 180°
 - B 120°
 - C 109°
 - D None of the above
- 6 Estimate the pH assuming 0.035 M carbonic acid reacts with water 100% to form hydrogen carbonate ion,
(HO)₂CO(aq) + H₂O(l) <--> H₃O⁺(aq) + HOCO₂⁻(aq)
 - A pH = -log(3.5 x 10⁻²) = 1.0
 - B pH = -log(3.5 x 10⁻²) = 1.5
 - C pH = -log(3.5 x 10⁻²) = 2.0
 - D pH = -log(3.5 x 10⁻²) = 3.5

- 7 Estimate the pH assuming 0.035 M carbonic acid reacts with water 100% to form carbonate ion,
 $(\text{HO})_2\text{CO}(\text{aq}) + 2 \text{H}_2\text{O}(\text{l}) \rightleftharpoons 2 \text{H}_3\text{O}^+(\text{aq}) + \text{CO}_3^{2-}(\text{aq})$

- A $\text{pH} = -2 \times \log(3.5 \times 10^{-2}) = 3.0$
- B $\text{pH} = -2 \times \log(3.5 \times 10^{-2}) = 3.0$
- C $\text{pH} = -2 \times \log(3.5 \times 10^{-2}) = 4.0$
- D None of these