**Problems based on Henry’s Law**

**Chapter-2 (Solutions)**

1. Henry’s law constant for the solubility of methane in benzene at 298 K is 4.27 × 105 mm Hg. The solubility of methane in benzene at 298 K under 760 mm Hg is
2. 4.27 × 10–5 (b) 1.78 × 10–3 (c) 4.27 × 10–3 (d) 1.78 × 10–3
3. The partial pressure of ethane over a saturated solution containing 6.56 × 10–2 g of ethane is 1 bar. If the solution contains 5.00 × 10–2 g of ethane then what will be the partial pressure (in bar) of the gas? (a) 0.762 (b) 1.312 (c) 3.81 (d) 5.0
4. KH (K bar) values for Ar(g), CO2(g), HCHO(g) and CH4(g) are 40.39, 1.67, 1.83 × 10–5 and 0.413 respectively. Arrange these gases in the order of their increasing solubility. (a) HCHO < CH4 < CO2 < Ar (b) HCHO < CO2 < CH4 < Ar (c) Ar < CO2 < CH4 < HCHO (d) Ar < CH4 < CO2 < HCHO
5. When a gas is bubbled through water at 298 K, a very dilute solution of the gas is obtained. Henry’s law constant for the gas at 298 K is 150 K bar. If the gas exerts a partial pressure of 2 bar, the number of millimoles of the gas dissolved in 1 L of water is (a) 0.55 (b) 0.87 (c) 0.37 (d) 0.66
6. (a) State Henry’s Law. (b) If O2 is bubbled through water at 393 K, how many millimoles of O2 gas would be dissolved in 1L of water? Assume that O2 exerts a pressure of 0.95 bar. (Given KH for O2 = 46.82 bar at 393K)
7. Given reason for the following :– (a) Aquatic species are more comfortable in cold waters than in warm waters. (b) To avoid bends scuba divers use air diluted with helium.
8. Cold drinks bottles are sealed under high pressure of CO
9. Gas (A) is more soluble in water than Gas (B) at the same temperature. Which one of the two gases will have the higher value of KH (Henry’s constant) and why?

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