

Dr. T. Ahmed

Quiz #1

1. Fill in the blanks:

[10]

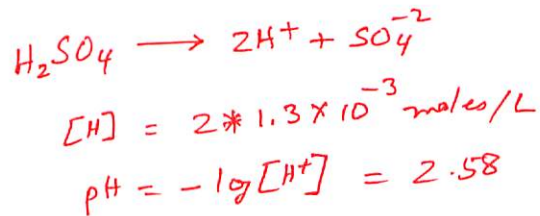
- (a) The single most important parameter in environmental fate and transport studies is chemical concentration.
- (b) The unit "mg/kg" is used extensively to quantify contaminant concentration in soil.
- (c) The unit "mg of contaminant per square foot of area" is a commonly used unit to express level of contaminant on surfaces.
- (d) Molarity is the number of moles of solute dissolved in one liter of solution.
- (e) Equivalent weight = molecular weight/ charge.
- (f) Normality = mass of substance per liter/ equivalent weight.
- (g) For wastewater and most natural waters,
Concentration in ppm = Concentration in mg/L.
- (h) $\text{pH} = -\log_{10}[\text{H}]$
- (i) $\text{pH} + \text{pOH} = \text{14}$.
- (j) When a 1.0 N acid solution is available, solutions of any normality less than 1.0 N can be prepared from it by dilution.

2. The concentration of nitrogen in a water sample is reported as 5 mg/L. Which of the following statement is correct? [2]

- (A) 5 mg of nitrogen gas in 1.0 liter of water.
- (B) 5 mg of nitrite-nitrogen in 1.0 liter of water.
- (C) 5 mg of ammonia-nitrogen in 1.0 liter of water.
- (D) the reported value must indicate the particular nitrogen specie.

3. A water contains 1.3×10^{-3} moles per liter of H_2SO_4 (H = 1, S = 32, O = 16). The pH of the water is most nearly: [4]

- (A) 2.28
- (B) 2.58
- (C) 2.88
- (D) none of the above.



4. The concentration of SO_4^{2-} ion in a water sample is 1.5 g/L. The concentration (in g/L of sulfur) is most nearly: [4]

- (A) 1,500
- (B) 0.031
- (C) 0.016
- (D) 0.5

$$\frac{1.5}{96} * 32 = 0.5 \text{ gm/L as S}$$