MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Assuming no volume change on mixing, what mass of ammonium chloride should be added to 250.0 mL of 0.25 M aqueous ammonia to produce a solution of pH 10.70? (K_b for ammonia is 1.8×10^{-5}) 1) _____

A) 3.7 mg B) 40 mg C) 80 mg D) 30 mg E) 120 mg

2) Calculate the pH of a 1.00 L solution of 0.100 M $NH_3(aq)$ after the addition of 0.010 mol HCl(g). For NH_3, $pK_b = 4.74$. 2) _____

A) 9.26 B) 7.00 C) 10.21 D) 8.31 E) 11.46

3) Predict the molar solubility of the following salt in an aqueous solution that contains the given concentration of one of its ions: 3) _____

$BaSO_4$; $[SO_4^{2-}] = 4.3 \times 10^{-5}$ M; $K_{sp} = 1.1 \times 10^{-10}$

A) 4.7×10^{-15} M
B) 8.0×10^{-4} M
C) 6.9×10^{-8} M
D) 1.6×10^{-3} M
E) 2.6×10^{-6} M