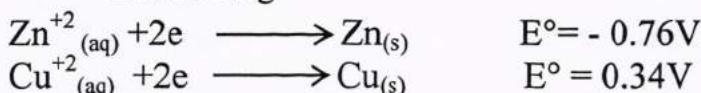




Note : answer Five questions only (20 Marks for each question)

Q1)

A- Compute the electric potential of cell containing Cu electrode immersed in 0.2M Cu^{+2} solution and Zn electrode immersed in 0.02M Zn^{+2} solution considering



B- Prepare 0.5L 0.1N H_2SO_4 if you have a bottle of H_2SO_4 has specific gravity of 1.84 and is 90% H_2SO_4 (W/W).

Q2)

for equilibrium reaction below.



When 76, 90, 105 and 55.35 are equivalent weights of A, B, C and D respectively, and the valence A and C = 1, but valence of B and D = 2, and weight of D formed was 2.037 gm calculate weights of reaction items and formed items ?

Q3)

A mixture of NH_4Cl and 1.0 M NH_3 solution is prepared to give a buffer of pH 9.0. What quantities of each are required ? if we use 100 ml NH_3 solution, $K_b = 1.8 \times 10^{-5}$

Q4)

A solution of 20 ml 0.01M AgNO_3 is added to 80 ml 0.05M K_2CrO_4 . Compute Q_{sp} for Ag_2CrO_4 and show are there precipitating of Ag_2CrO_4 or no ? for Ag_2CrO_4 $K_{\text{sp}} = 1 \times 10^{-12}$

Q5)

- 1- Why titration of weak acid with weak base do not to be feasible ?
- 2- Define two of

Titrand , indicator , End point



Note :

Q6)

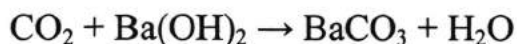
a)

Calculate the pH change that takes place for the buffer solution that 250ml contains 0.3M ammonium chloride and 0.2 M NH_3 if 5 mmol of NaOH is added ?

$\text{pKb}=4.74$,

$\text{Kb}=1.8 \times 10^{-5}$

b) A 0.2011gm sample of an organic compound was burned in a stream of oxygen , and CO_2 (44 gm/mole) produced in a solution of barium hydroxide. Calculate the percentage of carbon in the sample if 0.500gm of BaCO_3 (197 gm/mole) was formed.



Note , the atomic weight of H=1, S=32, O=16 , N=14 , Cl=35.5.

Good luck

Examiner
Ahmed kh. Ibrahim

head of department
Aziz I. Abdullah



Note :

Q6)

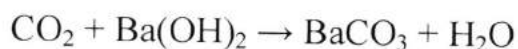
a)

Calculate the pH change that takes place for the buffer solution that 250ml contains 0.3M ammonium chloride and 0.2 M NH_3 if 5 mmol of NaOH is added ?

$\text{pK}_b=4.74$,

$\text{K}_b=1.8 \times 10^{-5}$

b) A 0.2011gm sample of an organic compound was burned in a stream of oxygen , and CO_2 (44 gm/mole) produced in a solution of barium hydroxide. Calculate the percentage of carbon in the sample if 0.500gm of BaCO_3 (197 gm/mole) was formed.



Note , the atomic weight of H=1, Cl=35.5.

Good luck

Examiner
Ahmed kh. Ibrahim

head of department
Aziz I. Abdullah