

Redox Practice

(Titrations)

Short Answer - write your response in the space provided.

Express your answer in correct sig figs & units where appropriate.

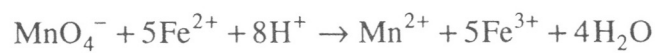
1. A technician tests the concentration of methanol, CH_3OH , in diluted windshield washer fluid using a redox titration. A 25.00 mL sample is titrated with 14.50 mL of 0.0200 M KMnO_4 . Determine the concentration of methanol in the sample given the following redox reaction:



(3 marks)

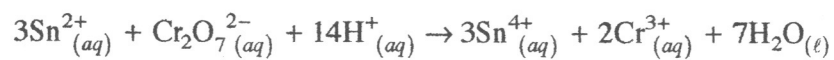
2.

An impure sample of iron was dissolved in acid. The Fe^{2+} in this solution was titrated with 0.0210 M KMnO_4 . Use the following data table and redox equation to determine the moles of Fe^{2+} in the sample. (3 marks)



TRIAL	VOLUME KMnO_4
1	37.26 mL
2	35.18 mL
3	35.22 mL

3. In the process of extracting tin from a sample of ore, the tin is removed as Sn^{2+} ions. A titration requires 21.43 mL of 0.0170 M $\text{K}_2\text{Cr}_2\text{O}_7$ to reach the equivalence point with the Sn^{2+} in a 0.750 g sample of the ore.



Using the reaction, calculate the percent mass of tin in the ore sample.

(4 marks)

4.

Consider the following redox reaction in acidic solution:



a) Write a balanced equation for the above reaction.

(4 marks)

b) The above reaction was used for a redox titration. At the equivalence point 5.684×10^{-4} mol KMnO_4 was required to titrate 5.00 mL of H_2O_2 solution. Calculate the $[\text{H}_2\text{O}_2]$.

(2 marks)