2021

CHEMISTRY – HONOURS – PRACTICAL

Paper – CC – 3 – 6 – P

Full Mark – 30

INORGANIC CHEMISTRY – 3

1. For the estimation of total hardness of a sample of water by EDTA method (in ppm)

a) Write down the principle of estimation mentioning all the equations involved and derive the working formula

(b) Using the following data calculate the strength of ($\sim \frac{M}{50}$) Na_2H_2EDTA solution 10

i) 1·0969 gm of AR $Zn(OAc)_2 \cdot 2H_2O$ has been accurately weighed, transferred to a 250 ml volumetric flask. Added 4 gm NH_4Cl and volume is made up with distilled water Calculate the strength of $Zn(OAc)_2$ solution. 2

ii) Standardization of Na_2H_2EDTA by Standard $Zn(OAc)_2$ solution

No of titrations	Volume of standard $Zn(OAc)_2$ taken (ml)	Burette reading of Na_2H_2EDTA solution			
		Initial (ml)	Final (ml)	Difference (ml)	Most frequent reading (ml)
1	25	0	25·2	25·2	25·2
2	25	0	25·2	25·2	
3	25	0	25·3	25·3	

(c) Using the above data, calculate total hardness of a sample of water (in ppm) 2

No of titrations	Volume of sample of water (ml)	Burette reading of Na_2H_2EDTA solution			Most frequent reading (ml)
		Initial (ml)	Final (ml)	Difference (ml)	
1	50	0	15·1	15·1	15·1
2	50	0	15·1	15·1	
3	50	0	15·2	15·2	

2. Answer the following questions :- 4

i) Why Na_2H_2EDTA cannot be used as a primary standard substance ? 2

ii) Write down the structure of Eriochrome Black T (EBT). 2

iii) ~~Mg-EDTA~~

iii) Write down the structure of Mg-EDTA complex 2

iv) Why NH_4Cl is used in the preparation of standard $Zn(OAc)_2$ solution? 2

v) Why NH_4Cl-NH_4OH buffer is used in the estimation of total hardnen of water by EDTA method? 2

vi) Calculate the hardnen of $\left(\frac{M}{100}\right)$ $Zn(OAc)_2$ solution 2