المملكة العربية السعودية

وزارة التعليم

MINISTRY OF EDUCATION

هام

لكل المهتمين و المهتمات

بدروس و مراجع الجامعية

مدونة المناهج السعودية eduschool40.blog

EXPERIMENT (4)

Determination of Sodium Hydroxide Concentration By Titrations With A Standard Solution of Hydrochloric Acid

DATE:

STUDENT'S NAME:

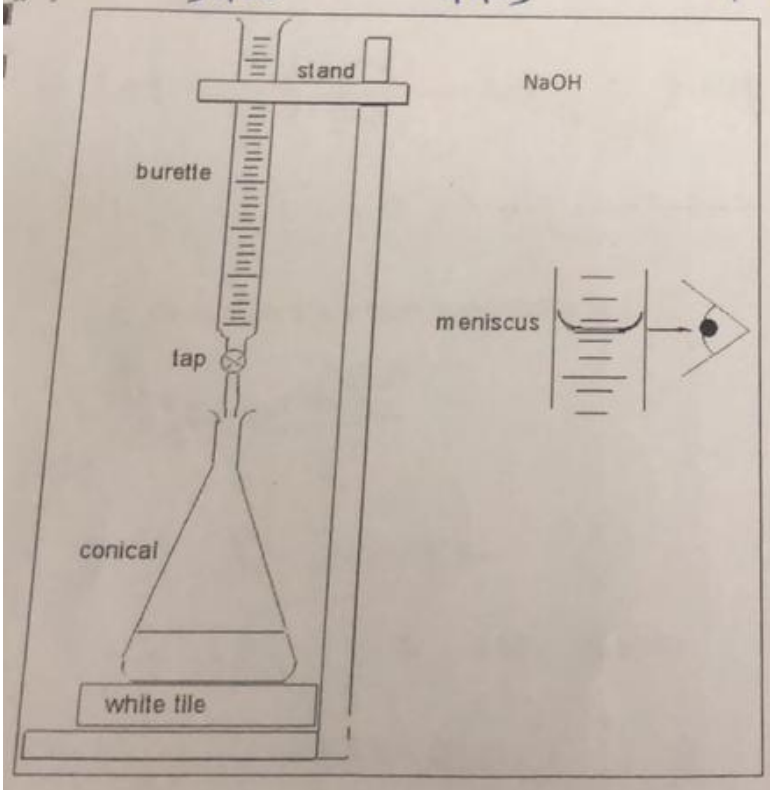
STUDENT'S NUMBER:

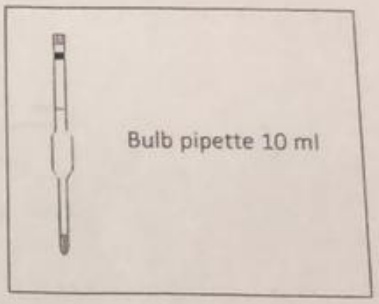
Molar masses (g mol^{-1}): H = 1 , O = 16 Na = 23

Results:

FIRST: Volume of NaOH using M.O. as an indicator:

Exp.	Initial reading	Final reading	Volume (V) mL	Average
1	0	12.1	12.1	9.7
2	12.1	23.3	11.2	12.1 + 11.2 + 11.5 / 3 = 32.4 / 3 = 34.8 / 3 = 11.6
3	23.3	34.8	11.5	
	34.8	44.5	9.7	





EXPERIMENT (5)

Determination of Acetic Acid Concentration By Titrations With A Standard Solution of Sodium Hydroxide

DATE:

STUDENT'S NAME:

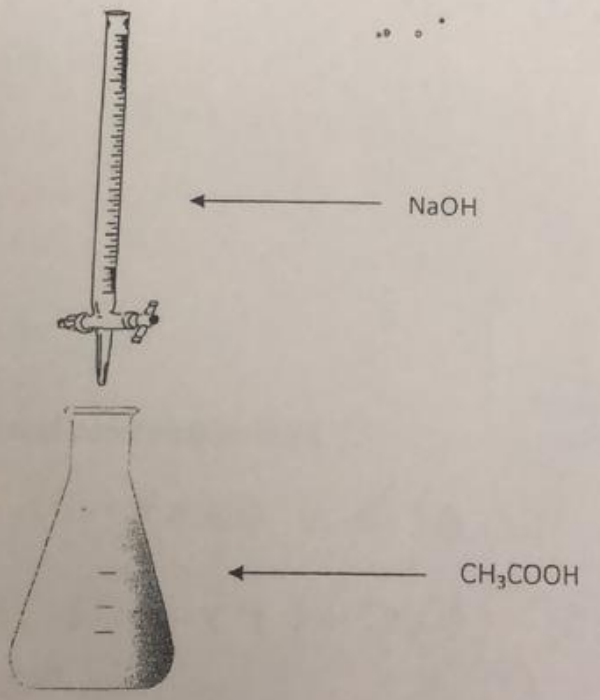
STUDENT'S NUMBER: هاذي نفس التجربه بس ناخذ اخذ

Molar masses (g mol^{-1}): H = 1 , C = 12 O = 16

Results:

Volume of NaOH using Ph.Ph. as an indicator:

Exp.	Initial reading	Final reading	Volume (V) mL	Average
1	0	11.6	11.6	$\frac{11.6+11.4+10}{3}$ = 11.3
2	11.6	23	11.4	
3	23	33.9	10.9	



EXPERIMENT (6)

Determination of Hydrochloric Acid Concentration By Titrations With A Standard Solution of Sodium Carbonate

DATE:

STUDENT'S NAME:

STUDENT'S NUMBER:

Molar masses (g mol^{-1}): H = 1 , Cl = 35.45

Results:

First: Volume of HCl using M.O. as an indicator:

Exp.	Initial reading	Final reading	Volume (V) mL	Average
1	0	11.8	11.8	$\frac{11.8+12+11.5}{3}$ = 3
2	11.8	23.6	12	=11.7 ml
3	23.6	35.1	11.5	

M =

V = 11.7 ml

n = 2

HCl

$\frac{m \times V}{n} = \frac{m' \times V'}{n'} = \frac{m \times 11.7}{2} = \frac{0.05 \times 10}{1}$

$m = \frac{2 \times 0.05 \times 10}{11.7 \times 1} = 0.085$

Na_2CO_3

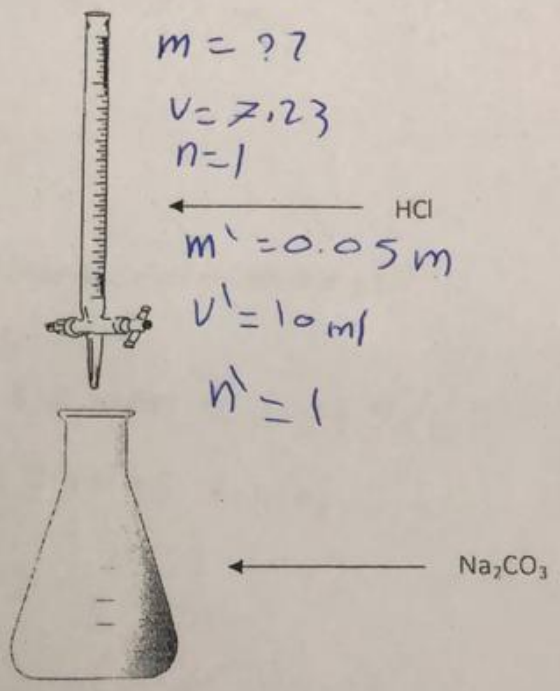
$m' = 0.05\ m$

$V' = 10\ m$

$n' = 1$

Second: Volume of HCl using ph.ph. as an indicator:

Exp.	Initial reading	Final reading	Volume (V) mL	Ave
1	0	7.4	7.4	7.4+
2	7.4	14.4	7	
3	14.4	21.7	7.3	=7.



Calculations:

7. Volume of HCl = V = 7.23 mL

8. Volume of Na_2CO_3 = V' = 10 mL

9. Molarity of Na_2CO_3 = M' = 0.05 mol L^{-1}

10. The reaction equation is:

$$HCl + Na_2CO_3 \xrightarrow{PH.PH} NaHCO_3 + NaCl$$

11. Calculation of the acid molarity:
- Indicator used is (PH.PH).
- pH range of indicator is from (8.3) to (10).
- At the end point the color of indicator changed from (Pink) to (Colo