**CHEMISTRY FORM 4 PAPER 3 PRACTICAL MARKING SCHEME**

1. **.**

* Complete table with 3 titrations (1mk)
* incomplete table (0mk)
* use of decimals (1mk)
* use of decimals (1mk)
* Accuracy in relation to S.V (1mk)

1. Average volume = 20cm3 (1mks)
2. i) = 0.004 moles (1mk)

ii) Na2Co3 + 2HCl 2Nacl + Co2 + H2O (1mk)

(aq) (aq) (aq) (g) (l)

iii) Moles of Na2 CO3 in 25cm3 of T

Na2 Co3 :HCl

1: 2 ( ½ mk)

Moles of Na2Co3 = ½ x 0.004 ( ½ mk)

= 0.002 moles (1mk)

iv) moles of Na2Co3 in 100cm3 of T

0.002 moles 25cm3

0.002 x 100 100cm3

25 (1mk)

= 0.008 moles (1mk)

v) moes of Na2 Co3 in 50cm3 of the original solution P.

0.008 moles (1mk) (same as moles in 100cm3)

1. i) Mass of Na2Co3 in solution P

0.008moles 50cm3

250cm3

250 x 0.008 = 0.04 moles (1mk)

50

mass = moles x RFM

= 0.04 X 106 g (½ mk)

= 4.24 g (½ mk)

ii) Concentration of P in moles per litre

4.24g 250cm3

1000cm3

4.24 x 1000 = 16.96 g/L (1mk)

250

molarity = 16.96

106

= 0.16M (1mk)

1. .
2. .

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Total volume of G added (cm3) | 0 | 5 | 10 | 15 | 20 | 25 | 30 |
| Volume of F (cm3) | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Highest temperature (0°c) | 23.0 | 26.0 | 28.0 | 29.0 | 30.0 | 28.0 | 27.0 |

CT = (1mk)

Trend (1mk)

use of decimals(1mk)

1st reading = + 2°C S.V (1mk)

1. Graph

labelled Axis – (½ mk for each) extrapolated line graph (1mk)

T – 1mk

1. i) 14.5cm3 (1mk)

ii) T = 30.2 -23 = 7.2°C (1mk)

1. Number of moles of NaoH used

25 x1

1000 = 0.025 moles (1mk)

1. Molar heat of neutralization of NaoH

Heat change = mcθ

= -(25 +14.5) x 4.2 x 7.2 J

= -39.5 X 4.2 X 7.2J ( ½ mk)

= - 1194.48J

= - 1.19448KJ ( ½ mk)

0.025 moles -1.19448KJ

1mole -1.19448KJ ( ½ mk)

0.025

= - 47.779.2KJmol-1

= -47.779KJmol-1 ( ½ mk)

