3KNT FRATERNITY

CHEMISTRY 233/3

MARKING SCHEME PP3.

|  |  |  |  |
| --- | --- | --- | --- |
| Titration | i | ii | iii |
| Final burette reading | 30.1 | 30.1 | 30.1 |
| Initial burette reading | 0.0 | 0.0 | 0.0 |
| Volume of solution c1 used | 30.1 | 30.1 | 30.1 |

CT-1

D-1

AV-1

FA-1

05

A)-Complete table 1 mk

-Consistency use of decimal 1mk

-penalize fully for mixed decimall

-Accuracy

If I 0.1 v 1 mk

Ii 0.25 v ½ mk

-Principal of averaging

30.1+30.1+30.1=30.1

3

- Final answer 1 mk

-if average titre within ±0.1 of S.V 1mk

b)Mole of NaOH reading

1000 0.2mole ½

25=?

x0.2=0.005 mole

-since the acid in dibiasic,mole ratio of the acid base is 1:2 ie x:NaoH.

1:2 ½

-This 2moles of NaOH react with one mole of acid

2moles of NaOH 1 mole of acid ½

0.005 moles ?

=x1 ½

=0.0025moles ½

c)if 30. 0.0025moles

1000 ? ? ½

1000x

=0.0831 moles/litre ½

d)RMM=g/litre

molarity

500 5.0 kg ½

1000 ?

=

10.0g ½

RMM==121 ½

c)x=121 ½

90+18x=121

18x=121-90

X=1.7

X=2 ½

2.a)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Total vol of water added to 5g solid k | 10 | 15 | 20 | 25 | 30 | 35 |
| Temperature at which crystals appear () | 86 | 67 | 57 | 48.5 | 42 | 39 |
| Solubility of k in g/100g of water. | 50 | 33.3 | 25 | 20 | 16.7 | 14.3 |

i)complete table (column I ) - 2 mks

incomplete table with 5 readings 2 mks

Incomplete table with 4 readings 1 mk

3 and below readings 0 mk

ii)Use of decimals

whole number of idp (applier to column i)

iii)Accuracy ½ mk

I 2.0 0f S.V ½ mk

If otherwise 0mk

iv)Tred ½ mk

½ mk for continous droping temp readings in column iotherwise penalize

Column II 2 mks

½ mk for each value of solubi;lity correctly.

G i)solubility of 25 1 mk

From extrapolated graph=8.5g/100g H

ii)Temp when solution will contain 22g

penalize fully for wrong units

d)Mass of solid K 1 mk

At 52

=14.0 g/o0

21.5-14.0=7.5 g

|  |  |  |
| --- | --- | --- |
|  | OBSERVATIONS | INFERENCES |
| a) | Blue green flame ½ | present |
| b i) | White ppt soluble in ½ | present |
| ii) | White ppt soluble in 1 | present ½ |
| iii) | White ppt formed insoluble on warming 1 | present ½ |
| iv) | White ppt formed insoluble on adding HCL ½ | present ½ |
| c) | Efferfescence/bubble formed |  |
| d(i) | Burns with a yellow sooty flame ½ |  |
| ii)I | Effervesscence of a colourless gas ½ |  |
| II | Sweet fruity smell |  |
| III | Purple colour of KMnO4 turns colourless 1 |  |