**SET 7**

**CHEMISTRY 233/3**

**MARKING SCHEME.**

TABLE -5MKS

1.(a) table completed with 3 titrations -1mk

Table completed with 2 titrations – ½ mk

Penalize up to maximum 1 /2 mk for the following

Unrealistics burette readings (reading below 1 or about 50) unless explained

Inverted table

Decimal places –1mk

-one or two d.p.s consistently used. If 2 d.p.s are used then 2nd place must be 0 or 5

Tied to 1st second row only

Accuracy -1mk

Atleast values concordant and two values arranged -1mk

Two titrations done and tow values which are concordant averaged -1mk

Marks to be distributed as follows

Showing attempt to find average with concordant values- ½ mk

-correct average given with atleast 2 decimal places unless it rounds out exaclty to less than two decimal places- ½ mk

Final average

Asnwer ± 0.1 of S.V -1mk

Asnwer ± 0.2 of S.V – ½ mk

If those are two possible averages work out the average that gives maximum credit award accordings

(b) R.F.M= 2 (23)+12+3(16)

=46+12+48

=106 √ ½

Concetration = 8.0 = 0.07547 √ ½

 106

Correct unit must be given as M or mol/l or moldm-3 otherwise penalize √ ½ mk but ignore IS unit not given

Answer to be atleast 2 d.ps unless it rounds off exactly less than 4.dps otherwise penalise ½ mk

Penalize fully for strange figures transformed from (b)

(ii) Concetration of B = 1000 x ans c(i) √ ½

 Average volume

Asnwer √ ½

Penalize ½ mk for either wrong unit (ignore if unit not given) or answer in less than 2 d.ps unless it rounds off exaclty to less than 2 d.p.d

(d) TABLE 2 -5mks

Award as in table 1

(e)(i) Moles of HCl used = 25 x ans in c (ii) √ ½ = ans √ ½

 1000

Moles of D used = ½ x ans above √ ½= ans √ ½

Asnwer to be in atleast 4 d.p unless it rounds off exactly to less tha 4d.p otherwisse penalize ½ mk

Penalise ½ mk for wrong unit but ignore if unit not given

Penalize fully for strange figures transfered

(ii) 1000 x ans in e(ii) √ ½

 Average vol

= ans √ ½

Penalise ½ mk for :

Wrong units but ignore for units not given

Answer given to less than 2d.ps unless it rounds off exaclty to less than 2 d.p.s

(f) (i) Alternative 1

Moles of D in 250cm3 = 250 x ans e(ii)

 1000

=ans √ ½

R.F.M = 4.0 √ ½

Ans above

=ans √ ½

Alternative 2

Mass of D in 1000cm3 = 4.0 x 1000√ ½

 250

=16.0√ ½

R.F.M = 16.0√ ½

 Asn in e(ii)

=ans √ ½

(ii) 2(23)+155+n(2+16)= ans in f(i)

46+155+18m=asn in f(i)

201+18n =ans in f(i) √ 1

18n=ans in f (i) -201

n= ans f(i) -201√ ½

 18

n=asn √ ½

penalty :

n must be given as a whole number penalise ½ mk

2.

|  |  |
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| Observations  | Inferences  |
| (a) Black residue √ ½ White fumes formed near glass rod √ ½  | NH4+ |
| (b)(i) Green ppt √ ½ insoluble in excess √ ½ (ii) Green precipitate √ 1(iii) White precipitate √ 1(iv) Precipitate does not dissolve √ 1 | Fe 2+CO32-, SO42-, SO32-, Cl-4 -2mks3-1mk, 2- ½ mkCO32-, SO42-, SO32-3-2mks,2-1mk, 1- ½ mkSO42-SO42- must be (iii) otherwise penalise fully |
| Award 0 for correct inferences if observation is correct |

3.

|  |  |
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| OBSERVATIONS | INFERENCES |
| (a) Burns with yellow sooty flame √ 1 |  C = C - C = C - ,  |
| (b) Dissolves to give clear solution √ 1 | Soluble substance√ 1Cu2+, Fe2+, Fe3+√ 1 |
| (c) Decolourised √ 1 //turns from brown or yellow to colourless  |  C = C √ 1 |