**SET 2**

**FORM THREE EXAM**

**CHEMISTRY 233/3**

**MARKING SCHEME**

1. Table 1

Complete table -*2mks*

Decimal point -*1mk*

Accurate value -*1mk* *5mks*

Principal of average -*1mk*

Final answer -*1mk*

(i) average = ± 0.1(20+20.0+20.0) = 20.0cm3

3

(ii) Molarity of R= 40 = 1.0 √ ½ 1

40√ ½

25x 1 = 0.025 √ ½ 1

1000√ ½

(iii) NaOH : HCl

1 : 1

0.025=0.025 (same moles) 1

(iv) 20.0cm3 =0.025

100cm3 = 0.025 x 100*√ 1* 1

20

=0.125*√ 1* 1

(v) 1000cm3=2moles

100cm3= 100x 2*√ 1*

1000 1

=0.2moles *√ 1*

(vi) 0.2-0.125*√ 1*= 0.075*√ 1* 2

(vii) MCO3 (s) + 2HCl MCl2+ H2O+CO2(g) 1

Moles of MCO3 = 0.075 √ ½

2 1

=0.0375moles √ ½ 1

(viii) RFM of MCO3 = 4.69 √ *½*

0.0375

=125 2

(ix) RAM of Q = 125-60

=65*√ ½* 1 **20**

|  |  |  |
| --- | --- | --- |
| 2.(i) Blue litmus paper turns red *√ ½*  Red litmus remains red *√ ½* | Acidic compound/H+ √ *1* present | 2 |
| (ii) Effervescence occurs *√ 1* | H+ present /solution acidic *√ 1* | 2 |
| (iii) Purple colur changes to colourless/H+/KMNO4 is decolourised | C= C – C = C-*√ 1* | 2 |
| (iv) Fruity or sweet smell*√ 1* | -COOH- confirmed *√ 1* | 2=8 |

3.Solid N

|  |  |  |
| --- | --- | --- |
| (a) Dissolves to form a colourless solution √ *1* | Fe2+, Fe3+ or Cu2+ *√ 1* absent | 2 |
| (b) White √ ½ precipitate soluble √ ½ in excess **1** | Al3+, Zn2+ or Pb2+ *√ 1*  3 ions -1mk  2 ions- ½ mk | 2 |
| (c) white √ ½ precipitate insoluble √ ½ in excess alkali *1* | Al3+, Pb2+ present *√ 1* | 2 |
| (d) No white precipitate is formed *1* | Al3+ √ 1 confirmed | 2 |
| (e) white precipitate *√ 1* | Cl-, SO42-, SO32-√ *1Rj Co32-*  Note aluminum carbonate does not exist | 2 |
| (f) white precipitate dissolves on warming √ *1* | Cl- ions √ 1 confirmed | 2  **12** |