**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 -1mk2 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** |