**LANJET CLUSTER JOINT 2018**

**233/3**

**CHEMISTRY PRACTICAL**

**MARKING SCHEME**

1. CT

D

A Total marks for both tables.

PA

FA

Table 1 11.6cm3

Table 2 11.8cm3

ii) Total volume = 11.6 + 11.8

 = 23.4 cm3

iii) Moles of sodium Carbonate

 =Molarity X Volume = 24 X 0.05 = 0.00125moles

1000 1000

iv) Na2 Co3(s)  + 2HCl (aq) 2NaCl (aq) + CO2(g) + H2O (l)

v) Moles of HCL

 Moles ratio 1:2

 = 0.00125

 = 0.0025 moles

vi) Molarity of the acid

 Avs(v) X 1000 = 0.0025 x 1000

 Total Volume 23.4

 = 0.107Molar

Q2.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Volume of D (cm3) | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| Temperature (0C) | 20.0 | 22.0 | 24.0 | 26.0 | 27.0 | 27.0 | 26.5 | 26 .0 |

* Complete Table CT ( All readings (2mks), 6 – 7 reading 11/2 mks)
* Use of decimal D
* Accuracy  A (Compare the candidates initial temperature readings at volume 0cm3with school volume ±2

Outside ±2 award 0.

* Trend T 

 Continues rise, constant then drop.

Temperature(0C

 Volume of D added

Axis

Scale 

Plotting

Extrapolation

1. Showing DT on extrapolated graph 

Correct values

1. Extrapolation from vertex of the straight lines till the X axis 

Correct Value 

1. DH = mcØ

M= total mal of solute ie 50cm3 + value from graph

Moles of acid used

Volume from the graph X Molarity

 1000 

DH = KJ/mole

 Moles of

NB penalize ½ mrk for not showing the sign ie –ve sign

**3A.**

|  |  |
| --- | --- |
| Test 1 | Expected observation |
| Take 1/3 portion of solid E in boiling tube, heat gently and test gas produced with glowing split.  | * White solid turns brown, yellow on cooling.
* Brown gas produced 
* Wooden rekindle

(any observation ½ mk) |

|  |  |
| --- | --- |
| Test 2 | Expected observation |
| Put remaining solid in boiling tube add about 8cm3 of distilled water.Shake, divide solution obtained into two portions. To first port add few then excess drops of sodium hydroxide solution.  | White precipitate soluble in excess |

|  |  |
| --- | --- |
| Test 3 | Expected observation |
| To the last portion add drops of potassium iodide provided in the access | Yellow precipitate |

(b)

|  |  |
| --- | --- |
| Test 1 | Inferences |
| Brown gas produced  Or Wooden splint rekindled | No-3 Present |

|  |  |
| --- | --- |
| Test 2 | Inferences |
| Solid dissolved forming a colourless solution which formed white precipitate with sodium hydroxide and dissolved in excess | Pb 2f present Ignore All3+, Zn2+ present |

|  |  |
| --- | --- |
| Test 3 | Inferences |
| Yellow precipitate | Pb 2+ Present |

**Q3B. a**

|  |  |
| --- | --- |
| Observation  | Inferences |
| a) Solid dissolved forming a colourless solution | Polar compound |

b) i)

|  |  |
| --- | --- |
| Observation | Inferences |
| PH 4 Reject colour if given | Weakly acid  |

ii)

|  |  |
| --- | --- |
| Observation | Inferences |
| Puple potassium maganate VII turns colourless | R – OHC ≡ C or C= C- Present |

iii)

|  |  |
| --- | --- |
| Observation | Inferences |
| Orange bromine turns colourless | C ≡ C or C= C- present |