**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 – OH  C ≡ C or C= C- Present |

iii)

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