TERM II
CHEMISTRY PAPER 3 (PRACTICAL)
FORM THREE MARKING SCHEME

1. CT – 1mk
D.P – 1 mk
Accuracy (1 mk)

(a) Average volume of solution X = 25.0cm^3 (1 mk)
(b) Moles of solution X required

$NaOH(aq) + HCl(aq) \longrightarrow NaCl(aq) + H2O(l)$

1:1 (1/2 mk)

Moles of NaOH = $\frac{0.2\times25}{1000} = 0.005\ moles$ (1/2 mk)

Moles of solution X = $\frac{0.005\times1}{1}$ = 0.005 moles (1 mk)

(c) Molarity of solution X
No. of moles = 0.005 moles

0.005 moles	25cm^3
?	1000 cm^3

= $\frac{0.005\times1000}{25}$ (1 mk) = 0.2m (1 mk)

Procedure II
CT – 1 mk
D.P – 1 mk
Accuracy – 1 mk
(d) Average volume of solution X
= 25.0 cm^3 (1 mk)
(e) Number of moles of Na_2CO_3 in 25cm^3

$Na2CO_{3(aq)} + 2HCl_{(aq)} \longrightarrow 2NaCl_{(aq)} + CO_{2(g)} + H_2O_{(l)}$

1:2

Moles of HCl reacting = $\frac{0.2\times25}{1000}$
= 0.005 moles (1/2 mk)
Mole ratio – Na_2CO_3:HCl
1:2 (1/2 mk)
Moles of Na_2CO_3 = ½ x 0.005(1/2 mk) = 0.0025 moles (1/2 mk)
(f) Concentration of sodium carbonate in moles per litre.

0.0025 moles	25cm^3
?	1000cm^3

$\frac{0.0025\times1000}{25}(1\ mk) = 0.1$ M (1 mk)

2. (a)

Observations	Inferences
- Solid turns to yellow and then to white on cooling. (1 mk) - A gas that turns moist blue litmus paper to red.	Zn^{2+} present (1 mk) The gas is acidic

(b) (i)

Observations	Inferences
A white precipitate soluble in excess. (1 mk)	Zn^{2+} present (1 mk)

(ii)

Observations	Inferences
A white ppt present (1 mk)	SO_4^{2-}, Cl^-, CO_3^{2-} present (1 mk for any two)

(c)

Observations	Inferences
Effervescence present (1 mk)	CO_3^{2-} present (1 mk)

(i)

Observations	Inferences
A white ppt which dissolves in excess (1 mk)	Zn^{2+} present (1 mk)

(ii)

Observations	Inferences
No white ppt (1 mk)	SO_4^{2-}, CL^-, SO_3^{2-} absent (1 mk for any two)

3. (a) (i)

Observations	Inferences
Solid burns with a sooty flame (1 mk)	C=C or –C≡C- present (1/2 mk for each)

(b) (i)

Observations	Inferences
Solid dissolves forming a colourless solution. (1/2 mk)	The solid is polar (1/2 mk)

(ii)

Observations	Inferences
Purple acidified potassium manganate (vii) is decolourised (1 mk)	C=C or –C≡C- present (1/2 mk for each)

(iii)

Observations	Inferences
Orange acidified Potassium dichromate (vi) turns to green. (1 mk)	C=C or –C≡C- present (1/2 mk for each)

(iv)

Observations	Inferences
Effervescence present (1 mk)	H^+ present (1 mk)

(v)

Observations	Inferences
PH is 5 (1 mk)	Solution is weakly acidic. (1 mk)