233/3
CHEMSITRY
PAPER 3

MARKING SCHEME

QUESTION 1

PROCEDURE 1

Table l

Complete table – 3 marks (1 mark for temp. reading, 2 marks for calculating solubility).
Decimal (Temperature) – 1 mark (1 or 2 d.p consistently or whole number)
Accuracy   - 1 mark (Tied to the school value 1st reading only)
Trend   - 1 mark (Temp. continuously dropping – 1 ark otherwise penalize fully)

a) Graph
   labeling axes – ½ mark
   Scale – ½ mark
   Plotting – 1 mark
   Curve – 1 mark

b) i) Accept correct reading shown from a correctly plotted graph for ½ mark, and correct reading for ½
      mark otherwise penalize fully. For correct reading without showing award.

   ii) Mark as b(i) above

PROCEDURE 2

Table II
Complete table – 1 mark
Decimal   - 1 mark
 Accuracy   - 1 mark
Principles of averaging – 1 mark (average volume in (a))
Final Accuracy – 1 mark
   Total   5 marks

B (i) $\dfrac{25 \times 0.2\sqrt{}}{1000}$ (½) = 0.005 moles√ (½)

ii) Mole ratio   A :   B
                1 :   2
                ?   0.005
                  √ (½)
            $\dfrac{1 \times 0.005}{2}$ = 0.0025 moles√ (½)

iii) 0.0025 moles   average volume ((a) above)
                                            1000cm^3
            $\dfrac{1000 \times 0.0025\sqrt{} (1)}{\text{Average volume}}$ = correct answer (1)

iv)   6g   250cm^3
       ?   1000cm^3
          √ ½
     $\dfrac{6 \times 1000}{250}$ = 24g√ ½

            24g = correct answer in b(iii) above
             ?   1 mole

            $\underline{24 \times 1}$ √ (½) = R.M.M.√ ½
            Correct answer

    NOTE- Penalty/condition
    1. Penalize ½ mark for wrong units
    2. All answers should be given to at least 4 d.p unless for terminating decimals to less than 4 d.p.
    3. Penalize ½ mark for wrong transfer of values, otherwise penalize fully for strange figures.

QUESTION 2

Observation	Inference
a) Solid dissolves to a colourless solution√ (1)	- colour ions absent√ (1)
b) Burns with a yellow flame√ ½	- Na^+ present √ ½
c) (i) No yellow ppt formed√ ½	- Pb^{2+} absent√ ½
(ii) White ppt formed√ (1)	SO_4^{2-}, SO_3^{2-} or CO_3^{2-} present√ (1)
(iii) White ppt dissolves√ (1)	SO_3^{2-} or CO_3^{2-} present√ (1)
(iv) Acidified $K_2Cr_2O_7$ solution changes colour from orange to green√ 1	SO^{2-} present or CO_3^{2-} absent√ (1)

     NB
  1. For part C (ii) award,
     1 mark for 3 ions mentioned

2

½ mark for 2 ions mentioned
0 mark for 1 ion mentioned
2. Penalize fully for any contradicting ions mentioned in all the inferences
3. For part C (iii) award,
1 mark for 2 ions mentioned
½ mark for 1 ion mentioned

QUESTION 3

Observation	Inference
a) Burns with blue flame or non-sooty flame/non smoky flame/non-luminous flame √ (1)	I I C = C or -C ≡ C- I I absent√ (1)
b) (i) Acidified KMnO$_4$ solution changes colour from purple to colourless.√ (1)	R – OH present√ (1) I I penalize C = C & -C ≡ C- I I
(ii) Orange colour of bromine water persists/remains√ (1)	I I C = C or - C = C – I I Absent√ (1)
(iii) No bubbles/no effervescence√ (1)	H$^+$/-COOH/H$_3$O$^+$ absent√ (1)

NB
1. Penalize fully for any contradictory ion.
2. for b(iii) award,
- 1 mark for 3 ions mentioned
- ½ mark for 2 ions mentioned
- 0 mark for 1 ion mentioned