SERIES 21 EXAMS

233/3 CHEMISTRY
MARKING SCHEME

QUESTION 1

C.T -1
A.P -1
AC-1
AV-1
F.A-1
5

PROCEDURE 1
TABLE 1

	i.	ii.	iii.
Final burette reading (cm^3)	20.0	20.0	20.0
Initial burette reading (cm^3)	0.0	0.0	0.0
Volume of solution c used (cm^3)	20.0	20.0	20.0

a)

i). Average volume = $\frac{20.0 + 20.0 + 20.0}{3} = 20.0cm^3$

ii). Moles of solution C = $\frac{0.125 \text{ X titre}}{1000}\sqrt{}^{1/2} = \text{Ans}\ \sqrt{}^{1/2}$

iii). Moles of solution D = 1 X ans a(ii) = Ans $\sqrt{}^{1/2}$

iv). Molarity of solution D = $\frac{\text{Ans a(iii) X 1000}}{25}\sqrt{}^{1/2} = \text{Ans}\sqrt{}^{1/2}$

v). Molarity of solution B

$M_{conc.} \times V_{conc.} = M_{di} \times M_{di}\sqrt{}^{1/2}$

Molarity = $\frac{\text{Ans a(iv) x 150}\sqrt{1}}{50} = \text{Ans}\sqrt{}^{1/2}$

b) Table 2

	i.	ii.	iii.
Final burette reading (cm^3)	15.8	15.8	15.8
Initial burette reading (cm^3)	0.0	0.0	0.0
Volume of solution c used (cm^3)	15.8	15.8	15.8

C.T-1
D.P- 1
AC-1
AV-1
F.A-1

b)

i). Average volume of sol A = $\frac{15.8 + 15.8 + 15.8}{3} = 15.8(cm^3)$

ii). Moles of solution D used = $\frac{\text{Ans a(iv) x 25}}{1000}\sqrt{}^{1/2} = \text{Ans } (cm^3)\ \sqrt{}^{1/2}$

iii). Moles of sol A = $\frac{\text{Ans b(ii)}}{2}\sqrt{}^{1/2} = \text{Ans}\sqrt{}^{1/2}$

iv). Solubility of solid A

Titre volume = Ans b (iii)

$100cm^3 = \frac{100 \text{ x Ans b (iii)}}{\text{Titre}} = \text{moles}\sqrt{}^{1/2}$

Solubility = $\frac{100 \text{ x Ans b (iii)}}{\text{Titre}}\sqrt{1} \text{ x } 126$

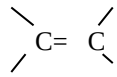
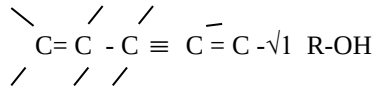
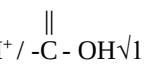
$= \text{Ans}\sqrt{}^{1/2}$

2.

No.	Observation	Inference
a)	Colour less filtrate$\sqrt{}^{1/2}$ white residue$\sqrt{}^{1/2}$	Cu^{2+}, Fe^{2+}, Fe^{3+}, $\sqrt{}^{1/2}$ absent in both filtrate and residue $\sqrt{}^{1/2}$
I.	White ppt$\sqrt{}^{1/2}$ soluble in excess$\sqrt{}^{1/2}$	Zn^{2+}, Pb^{2+}, Al^{3+}, $\sqrt{1}$
II.	White ppt$\sqrt{}^{1/2}$ soluble in excess $\sqrt{}^{1/2}$	$Zn^{2+}\sqrt{1}$
III.	White ppt$\sqrt{}^{1/2}$	$SO_3^{2-}\sqrt{}^{1/2}$ CO_3^{2-} Cl^-
	Effervescence / bubbles of colours less ordour less gas	$CO_3^{2-}\sqrt{}^{1/2}$

	$\surd^{1/2}$	
	White ppt$\surd^{1/2}$ soluble in excess$\surd^{1/2}$	Pb^{2+} , Zn^{2+}, Al^{3+} $\surd1$
	White ppt$\surd^{1/2}$ insoluble in excess$\surd^{1/2}$	Pb^{2+} , Al^{3+} $\surd1$
	White ppt formed	$Pb^{2+}\surd^{1/2}$

3.

No.	Observation	Inference
a)	Solid melts and burns with yellow sooty flame $\surd1$	 $\surd1$ C = C -
b)	Purple potassium manganate Solution turns colourles $\surd1$	 $\surd1$ R-OH
	Effervescence / bubble of colourles gas $\surd1$	 H^+ / $\surd1$