

Name of the Student: _____

Max. Marks : 21 Marks

Time : 21 Minutes

Mark Schemes

Q1.

- (a) (ligand) substitution
Allow 'ligand exchange'. 1

- (b) To displace the equilibrium to the right
To ensure reaction goes to completion. 1

To improve the yield
Allow 'to replace all chlorines'. 1

- (c) (i) $K_2PtCl_4 + 4KI \rightarrow K_2PtI_4 + 4KCl$
Allow correct ionic equations $PtCl_4^{2-} + 4I^- \rightarrow PtI_4^{2-} + 4Cl^-$
Allow multiples and fractions. 1

- (ii) $= (780.9) \times 100 / (415.3 + 664)$
Working must be clearly shown.
Allow one mark for correct relationship even if M_r values are incorrect eg using values from ionic equation. 1

$= 72.4$
Allow 72% 1

- (d) (i) $Ag^+ + I^- \rightarrow AgI$
Ignore state symbols even if incorrect.
This equation only. 1

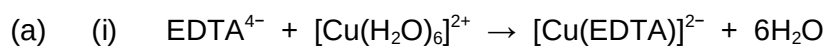
- (ii) Stops the reverse reaction / equilibrium displaced to the right 1

- (e) Number of steps in the process
Allow 'equilibrium may lie on the reactant side' / side reactions / isomer formation. 1

Losses at each stage of the synthesis
Equilibrium losses or practical losses or yield not 100% for each step. 1

(f)	Minimum amount of hot solvent <i>Accept 'small' for minimum.</i> <i>Accept water.</i>	1
	Cool / crystallise	1
	Filter	1
(g)	(i) Small amounts are more likely to kill cancer cells rather than the patient	1
	(ii) Wear gloves / wash hands after use <i>Ignore masks.</i> <i>Apply the list principle if more than one answer.</i>	1
		[15]

Q2.



1

(ii) $(\text{Mol EDTA} = (6.45/1000) \times 0.015 =)9.68 \times 10^{-5} \text{ mol Cu(II)}$

1

$\text{Conc. Cu(II)} = ((9.68 \times 10^{-5}) / 0.025 =) 0.00387 \text{ mol dm}^{-3}$

Correct answer without working gains M2 only.

1

(b) Samples may not be consistent throughout the river
OR

Concentration may vary over time

Ignore comments on technique.

1



Accept name eg diamminesilver(I) ion.

1

aldehyde

Allow CHO.

1

[6]