

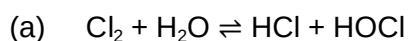
Name of the Student: _____

Max. Marks : 20 Marks

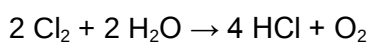
Time : 20 Minutes

Mark Schemes

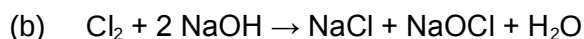
Q1.

*Allow $\rightarrow$*

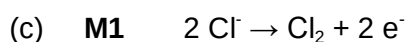
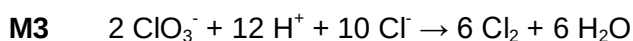
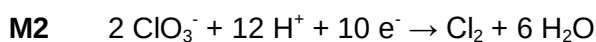
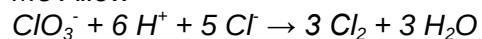
OR

*Allow multiples*

1

*Allow multiples*

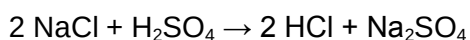
1

*Allow multiples**M3 Allow*

3



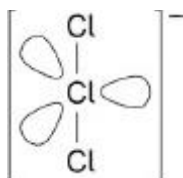
OR



Base/proton acceptor

2

(e)

*Ignore absence of minus sign*

1

(f) 180° (2) bond pairs repel to be as far apart as possible

Allow (2) bond pairs repel equally
Ignore linear

2

[10]

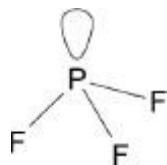
Q2.

- (a) (Central) metal atom/ion surrounded by ligands

Allow complex in which number of coordinate bonds exceeds oxidation state of the metal

1

- (b)



Allow diagram with 3 bonds and 1 lone pair

Pyramidal or tetrahedral

Allow triangular pyramid

2

- (c) PF_3 is neutral **and** the complex is neutral

*Allow PF_3 has no charge **and** the complex has no charge*

Ignore electronegativity

1

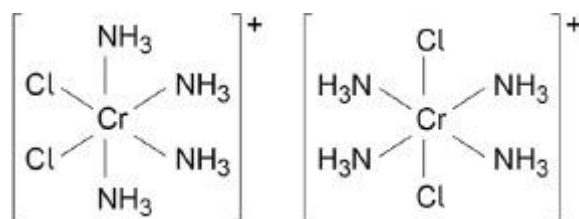
- (d) (+)3

1

- (e) Covalent (bond)

1

- (f)



M1 for the two isomers

M2 for the charge on the complex ion.

Allow 1 mark for one correct isomer with + charge

Cis-trans/geometric/E-Z isomerism

Ignore stereoisomerism

3

- (g) $[\text{Cr}(\text{H}_2\text{O})_5\text{Cl}]\text{Cl}_2$

Allow $[\text{Cr}(\text{H}_2\text{O})_5\text{Cl}]^{2+} + 2 \text{Cl}^-$

1

[10]