Q1.

Which statement about chloride ions is correct?

A They are oxidised by concentrated sulfuric acid. ⬭

B They form a cream precipitate with silver nitrate solution. ⬭

C They form a cobalt(II) complex with a tetrahedral shape. ⬭

D They have the electron configuration $1s^2 2s^2 2p^6 3s^2 3p^4$ ⬭

(Total 1 mark)

Q2.

Which statement about the shapes of ions is **not** correct?

A $[CoCl_4]^{2-}$ is square planar. ⬭

B NH_4^+ is tetrahedral. ⬭

C $[Co(H_2NCH_2CH_2NH_2)_3]^{2+}$ is octahedral. ⬭

D $[Co(H_2O)_6]^{2+}$ is octahedral. ⬭

(Total 1 mark)

Q3.

Which compound can decolourise acidified potassium manganate(VII) solution?

A $AgNO_3$ ⬭

B $CuSO_4$ ⬭

C $FeSO_4$ ⬭

D $Fe_2(SO_4)_3$ ⬭

(Total 1 mark)

Q4.

Which statement about catalysts used in reactions at equilibrium, at a constant temperature, is correct?

A They are always used in the solid state. ⬭

B They increase the rate of the forward reaction but decrease the rate of the reverse reaction. ⬭

C They have no effect on the value of the equilibrium constant. ⬭

D They make the forward reaction more exothermic. ⬭

(Total 1 mark)

Q5.

Which process does **not** involve a heterogeneous catalyst?

A catalytic cracking of alkanes ⬭

B Contact process ⬭

C decomposition of ozone ⬭

D Haber process ⬭

(Total 1 mark)

Q6.

Cobalt(II) chloride solution changes colour when an excess of concentrated hydrochloric acid is added.

What type of reaction takes place?

A hydrolysis ⬭

B ligand substitution ⬭

C precipitation ⬭

D redox ⬭

(Total 1 mark)