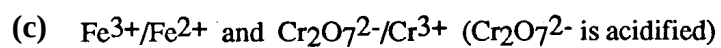
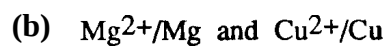
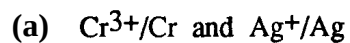


Electrochemistry

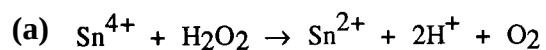
Question 1

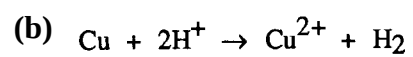
Calculate the standard cell voltages and write the overall chemical reactions for cells which consist of the following half-cells



Question 2

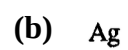
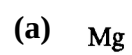
Predict whether the following reactions could occur under standard conditions:





Question 3

Which of the following species could react with $1 \text{ mol L}^{-1} \text{ HCl}$ to form hydrogen gas?



(c) Zn

Question 4

From the table of reduction potentials supplied, identify

(a) an oxidising agent which could convert Cl^- to Cl_2 , but not F^- to F_2 .

(b) an oxidant which could convert Ag to Ag^+ , but not Hg to Hg^{2+} .

Question 5

Predict whether the following disproportionation reactions could occur in aqueous solution:

(a) Iron(II) ion to iron(III) ion and iron metal

(b) chlorine to hypochlorous acid and chloride ion

Question 6

Predict whether reactions could occur in each of the following. Assume standard conditions.

(a) Iron(II) nitrate is mixed with sodium iodide.

(b) An iron nail is placed in a tin(II) chloride solution.

(c) Hydrogen sulfide is bubbled through an acidified potassium dichromate solution.

(d) Chlorine gas is bubbled through an acidified solution of iron(II) bromide.