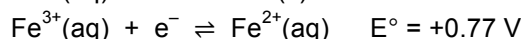
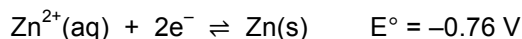




Solutions containing Fe^{3+} can be reduced to Fe^{2+} using zinc.

Half cells for the following redox half equations were connected using a wire and salt bridge under standard conditions. The $\text{Fe}^{3+}/\text{Fe}^{2+}$ half cell also contained a piece of platinum.



a Write the standard cell notation (cell representation) for this cell.

..... (2)

b Calculate the emf of this cell. (1)

c What was the role of the platinum in the $\text{Fe}^{3+}/\text{Fe}^{2+}$ half cell
.....
..... (1)

d What was the role of the salt bridge in this cell and how does it work?
.....
..... (2)

e Write a balanced equation for the reaction that takes place in this cell.
..... (2)

f The $\text{Fe}^{3+}/\text{Fe}^{2+}$ half cell contained a mixture of iron(III) sulfate and iron(II) sulfate. Give the concentration of each reagent in the mixture for this to be done under standard conditions.
iron(III) sulfate
iron(II) sulfate (2)

g If the concentration of Zn^{2+} ions was changed from 1.0 mol dm^{-3} to 0.5 mol dm^{-3} , how would this affect the emf of the cell. Explain your answer.
.....
.....
.....
.....
..... (3)