***Chemistry***

**17: Electrochemistry**

**17.3: Standard Reduction Potentials**

23. For each reaction listed, determine its standard cell potential at 25 °C and whether the reaction is spontaneous at standard conditions.

(a) 

(b) 

(c) 

(d) 

Solution

(a) ;

(b) ;

(c) ;

(d) 

25. Determine the overall reaction and its standard cell potential at 25 °C for the reaction. Is the reaction spontaneous at standard conditions?



Solution



27. Determine the overall reaction and its standard cell potential at 25 °C for the reaction involving the galvanic cell in which cadmium metal is oxidized to 1 *M*cadmium(II) ion and a half-cell consisting of an aluminum electrode in 1 *M* aluminum nitrate solution. Is the reaction spontaneous at standard conditions?

Solution

Oxidation occurs at the anode and reduction at the cathode:



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