Since activity of solid silver is 1.0.

$$\therefore\ n = 1 \text{ and } K_{eq} = \frac{a_{Ag^+}\, a_{Fe^{2+}}}{a_{Fe^{3+}}}$$

$$\therefore\ E^o_{cell} = \frac{0.0591}{n} \log K_{eq}$$

$$\therefore\ \log K_{eq} = \frac{0.0281 \times 1}{0.0591} = 0.4751$$

$$\therefore\ K_{eq} = 0.335$$

SELF EVALUATION

(A) Choose the correct answer :

1. The potential of a single electrode is a half cell is called the
   (a) Reduction potential (b) Half-wave potential
   (c) Single electrode potential (d) cell potential
2. The relationship between free energy change and e.m.f. of a cell is
   (a) $\Delta G = -nFE$ (b) $\Delta H = -nFE$ (c) $\Delta E = nFG$ (d) $\Delta F = nEG$
3. The feasibility of a redox reaction can be predicted with the help of
   (a) Electronegativity (b) Electrochemical series
   (c) Electron affinity (d) Equivalent conductance
4. The metals near the bottom of the electrochemical series are
   (a) strong reducing agents (b) strong oxidising agents
   (c) weak reducing agents (d) weak oxidising agents
5. The emf of a cell with 1 M solutions of reactants and products in solution at 25° C is called
   (a) Half cell potential (b) Standard emf
   (c) Single electrode potential (d) Redox potential
6. The relationship between equilibrium constant and standard emf of a cell is
   (a) $E^o = 0.0591 \log K$ (b) $0.0591\ E^o = \log K$
   (c) $nE^o = 0.0951 \log K$ (d) $nE^o = 0.0591 \log K$