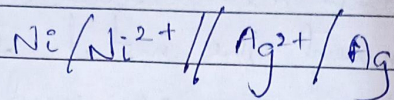
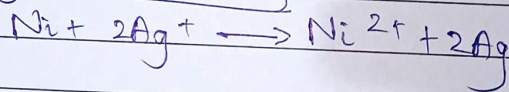
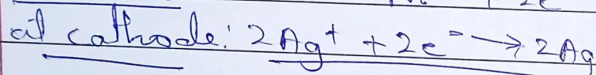
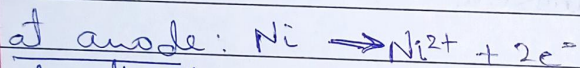


Q.1.

Cell representation:-



$$E^\circ_{\text{Ni}^{2+}} = -0.25, \quad E^\circ_{\text{Ag}} = 0.8$$

Cell reactions

$$\begin{aligned} E_{\text{cell}} &= E^\circ_{\text{right}} - E^\circ_{\text{left}} \\ &= 0.8 + (-0.25) \\ &= 0.8 + 0.25 \\ &= 1.05\text{V} \end{aligned}$$

Q.2.

- (i) Though aluminium is with lower electrode potential than iron it has higher corrosion resistance than Iron in oxidising environment. This is because Al in an oxidising environment gets coated with an oxide film which is impervious in nature. It acts as protective layer and prevents corrosion, therefore has higher corrosion resistance.

(ii) Two bolts in Cu vessels are undesirable because it undergoes galvanic corrosion. In galvanic corrosion, when dissimilar metals are electrically connected and exposed to an environment, the metal of lower electrode potential in the electrochemical series undergoes corrosion.

(iii) Part of the nail inside the frame undergoes corrosion, but the important part doesn't because it goes through differential aeration corrosion.