10. Extraction of gold and silver involves leaching the metal with CN<sup>-</sup>ion. The metal is recovered by displacement of metal by some other metal from the complex ion. roasting of metal complex. (iii) calcination followed by roasting. thermal decomposition of metal complex. (iv)

recovered by displacement of metal by some other metal from the complex ion.

**Ans.** (a) Extraction of gold and silver involves leaching the metal with CN<sup>-</sup> ion. The metal is

This is an oxidation reaction.

$$4 \text{ Au(s)} + 8 \text{ CN}^{-} (aq) + 2 \text{ H}_{2}\text{O} (aq) + \text{O}_{2} (g) \longrightarrow 4 [\text{Au (CN)}_{2}]^{-} (aq) + 4 \text{ OH}^{-} (aq)$$
  
 $4 \text{ [Au(CN)}_{-} 1(aq) + 7 \text{ n(s)} \longrightarrow 2 \text{ Au (s)} + [7 \text{ n(CN)}_{-} 1^{2-} (aq)]$ 

 $4 [Au(CN)_2](aq) + Zn(s) \longrightarrow 2 Au(s) + [Zn(CN)_A]^{2-}(aq)$ 

Here, Zn acts as a reducing agent.