

15. Which of the following reactions will occur spontaneously under standard conditions at 25 °C?

- (i) $\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons \text{H}_2\text{O}_2(\text{aq})$
- (ii) $\text{Ni}^{2+}(\text{aq}) + 2 \text{Fe}^{2+}(\text{aq}) \rightleftharpoons \text{Ni}(\text{s}) + 2 \text{Fe}^{3+}(\text{aq})$
- (iii) $\text{H}_2\text{O}_2(\text{aq}) + 2 \text{CO}_2(\text{g}) \rightleftharpoons \text{H}_2\text{C}_2\text{O}_4(\text{aq}) + \text{O}_2(\text{g})$
- (iv) $\text{O}_2(\text{g}) + 2 \text{H}_2\text{S}(\text{aq}) \rightleftharpoons 2 \text{S}(\text{s}) + 2 \text{H}_2\text{O}(\text{l})$

- (a) i and iv
- (b) ii and iii
- (c) iii and iv
- (d) i and ii