

(i) KMnO_4 (ii) $\text{K}_2\text{Cr}_2\text{O}_7$ (iii) KClO_4

Answer:

(i) KMnO_4 ; K(+1); Mn(+7), O(-2)

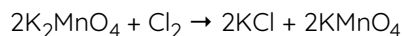
(ii) $\text{K}_2\text{Cr}_2\text{O}_7$; K(+1); Cr(+6); O(-2)

(iii) KClO_4 ; K(+1); Cl(+7); O(-2)

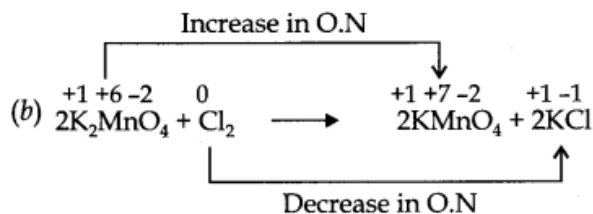
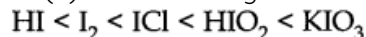
Question 6. (a) Arrange the following in order of increasing O.N of iodine:

I_2 , HI , HIO_2 , KIO_3 , ICl .

(b) Identify the oxidant and reductant in the following redox reaction:

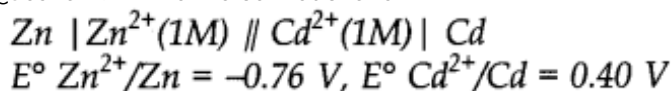


Answer: (a) The increasing order is

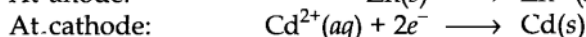


chlorine is an oxidant and K_2MnO_4 is reductant.

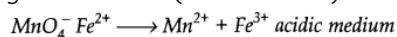
Question 7. Write the cell reactions:



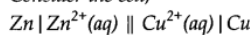
Answer:



Question 8. (a) Balance the following equation by oxidation number method or by ion electron (half reaction) method.

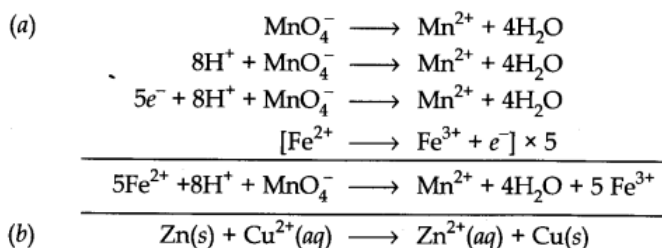


(b) Consider the cell,

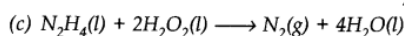
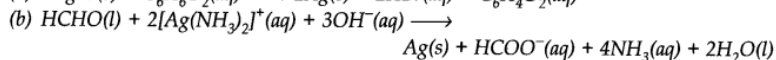
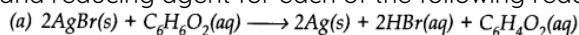


The standard electrode potentials are $E^\circ \text{Zn}^{2+}/\text{Zn} = -0.76 \text{ V}$; $E^\circ \text{Cu}^{2+}/\text{Cu} = +0.34 \text{ V}$ write down the cell reaction.

Answer:



Question 9. Identify the substance oxidised, reduced, oxidising agent and reducing agent for each of the following reactions.



Answer: (a) Ag^+ is reduced, $\text{C}_6\text{H}_6\text{O}_2$ is oxidised. Ag^+ is oxidising agent whereas $\text{C}_6\text{H}_6\text{O}_2$ is reducing agent.

(b) HCHO is oxidised, Ag^+ is reduced. Ag^+ is oxidising agent whereas HCHO is reducing agent.

(c) N_2H_4 is getting oxidised it is reducing agent. H_2O_2 is getting reduced it acts as an oxidising agent.

Question 10. (a) Calculate the oxidation number of

(i) C in CH_3COOH (ii) S in $\text{S}_2\text{O}_8^{-2}$

(b) Give one example of disproportionation reaction.

Answer:

(a) (i)

$$4 \times 1 - 2 \times 2 + 2(x) = 0$$

$$4 - 4 + 2x = 0$$

$$2x = 0$$

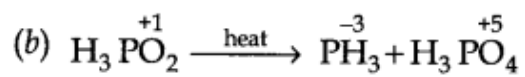
$$x = 0$$

(ii)

$$2x - 12 - 2 = -2$$

$$2x = 12$$

$$x = +6$$



Since P undergoes decrease as well as increase in oxidation state thus it is an example of disproportionation reaction.

***** END *****