

## CHEMISTRY

### BOOKS - PATHFINDER CHEMISTRY (BENGALI ENGLISH)

#### REDOX REACTIONS

#### Question Bank

1.  $Zn(s) + Cu^{2+} \rightarrow Zn^{2+} + Cu(s)$  in this reaction which is oxidant and which is reductant?

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2. What is the oxidation number of alkaline earth metals in their compound?

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3. Find the oxidation number of bromine in



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4. Find the oxidation number of bromine in



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5. Give one example of a chemical reaction in which  $\text{H}_2$  is oxidant and another reaction where  $\text{O}_2$  is reductant.

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6. Complete the reaction  $\text{MnO}_4^- + \dots \rightarrow \text{Mn}^{2+} + 4\text{H}_2\text{O}$

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7. Which one is the strongest oxidising agent among all halogens and why?



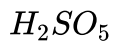
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8. What is the most essential condition that must be maintained in a redox reaction?



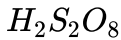
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9. Find the oxidation no. of S in



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10. Find the oxidation no. of S in



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11. Consider the following cell reaction

$Zn|Zn^{2+}(1M)||Cd^{2+}(1M)|Cd$ . Give the cell reaction and calculate the standard

$$(E^0)_{(Zn^{2+})/(Zn)} = -0.76V, (E^0)_{\frac{Cd^{2+}}{Cd}} = 0.40V$$



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12. Give an example of disproportionation reaction.



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13.  $CH_3CH_2OH \xrightarrow{H} 2SO_4 \rightarrow CH_2 = CH_2 + H_2O$  justify whether this is a redox reaction or not.

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14. A solution of  $\text{AgNO}_3$  was stirred with iron rod. Will it cause any change in the concentration of silver and nitrate ions? ( $(E^0)_{\frac{\text{Fe}^{2+}}{\text{Fe}}} = -0.44\text{V}$ ,  $(E^0)_{\frac{\text{Ag}^+}{\text{Ag}}} = 0.80\text{V}$ )

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15. Find the oxidation number of each C atom in

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16. Find the oxidation number of each C atom in

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17. A cell is prepared by dipping a zinc rod in 1(M)  $ZnSO_4$  solution. The standard electrode potential for  $Pb^{(2+)}/Pb$  and  $Zn^{(2+)}/Zn$  electrodes are -0.126V and -0.763 V respectively.

How will you represent the cell?

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18. A cell is prepared by dipping a zinc rod in 1(M)  $ZnSO_4$  solution. The standard electrode potential for  $Pb^{(2+)}/Pb$  and  $Zn^{(2+)}/Zn$  electrodes are -0.126V and -0.763 V respectively.

Write the half cell reactions and overall cell reaction.

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19. Out of aluminium and silver vessel which one will be more suitable to store 1(M) HCl solution .

$$(E^0)_{\frac{Al^{+3}}{Al}} = -1.66v, (E^0)_{\frac{Ag^+}{Ag}} = 0.80V$$

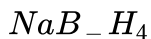
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20. Calculate the oxidation number of underlined element.



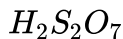
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21. Calculate the oxidation number of underlined element.



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22. Calculate the oxidation number of underlined element.



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23. Calculate the oxidation number of underlined element.





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24.  $\text{HNO}_3$  acts as only oxidant while  $\text{HNO}_2$  acts as both oxidant and reductant. Explain.



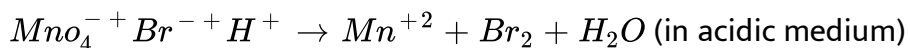
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25. The reduction potential of four elements A, B, C, D are +0.79V, -0.74V, 1.08V, -0.31V respectively. Arrange them in order of reducing character.



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26. Balance the following equations by Ion-Electron method.



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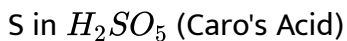


27. Balance the following equations by Ion-Electron method.



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28. Calculate the oxidation no of the following



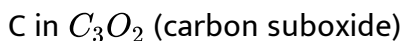
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29. Calculate the oxidation no of the following



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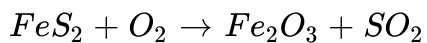
30. Calculate the oxidation no of the following





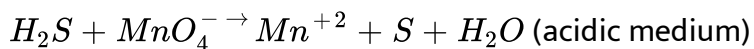
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31. Balance the reaction by oxidation number method.



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32. Balance the reaction by oxidation number method.



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33. Explain

Fe produces  $H_2$  with dil HCl but Cu does not.



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### 34. Explain

Can  $Cl_2$  be stored in copper cylinder ?  $(E^0)_{\frac{Cu^{2+}}{Cu}} = 0.34V$  ,

$$\frac{(E^0)_{Cl^-}}{Cl} = 0.36V$$

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35. A cell is prepared by dipping a copper rod in 1 M  $CuSO_4$  and nickel rod in 1 M  $NiSO_4$  solution.

$$(E^0)_{\frac{Cu^{+2}}{Cu}} = 0.34V, (E^0)_{\frac{Cl^-}{Cl}} = 0.36V$$

Give cell construction.

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36. A cell is prepared by dipping a copper rod in 1 M  $CuSO_4$  and nickel rod in 1 M  $NiSO_4$  solution.

$$(E^0)_{\frac{Cu^{+2}}{Cu}} = 0.34V, (E^0)_{\frac{Cl^-}{Cl}} = 0.36V$$

Give cell construction.

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37. A cell is prepared by dipping a copper rod in 1 M  $CuSO_4$  and nickel rod in 1 M  $NiSO_4$  solution.

$$(E^0)_{\frac{Cu^{+2}}{Cu}} = 0.34V, (E^0)_{\frac{Ni^{+2}}{Ni}} = 0.36V$$

Give cell construction.

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38.  $H_2O + Br_2 \rightarrow HOBr + HBr$  in this reaction what is the best description of bromine and give reasons.

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39. What is the oxidation no. Of Fe in  $Fe_4[Fe(CN)_6]_3$

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40.  $N_2H_4 + ClO_3^- \rightarrow NO + Cl^-$  identify oxidant and reductant.

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41. Find out the oxidation no. of Fe in  $Fe(CO)_5$

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42. Give two important functions of salt bridge.

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