



CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

REDOX REACTIONS

Exercise 1

1. Which one of the following statements is correct?

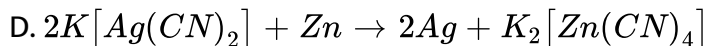
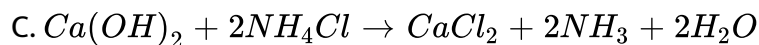
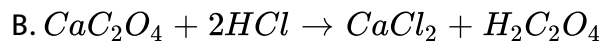
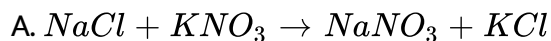
- A. Oxidation of a substance is followed by the reduction of another
- B. Reduction of a substance is followed by the reduction of another
- C. Oxidation and reduction are complementary reactions
- D. It is not necessary that both oxidation and reduction should take place in the same reaction

Answer: C



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2. which of the following is a redox reaction ?

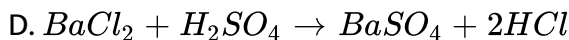
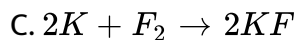
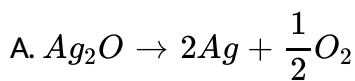


Answer: D



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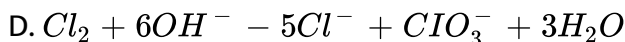
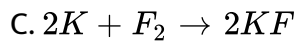
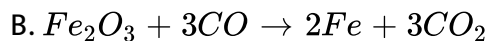
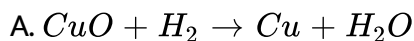
3. In which of the following transformations, oxygen is not the reducing agent?



Answer: B

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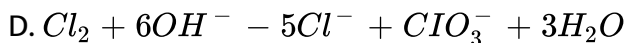
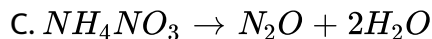
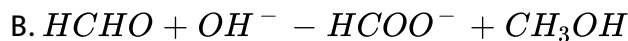
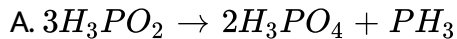
4. Which of the following is not an example of redox reaction?



Answer: D

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5. Which is not an example disproportionation reaction?

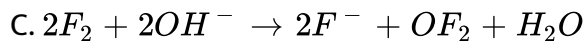
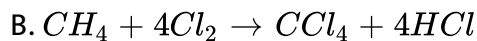
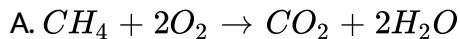


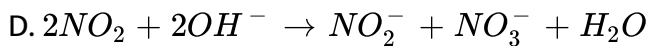
Answer: C



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6. Which of the following is a disproportionation reaction?

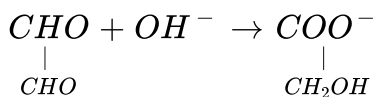




Answer: D

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7. Consider the following reaction.



Select the incorrect statement.

- A. It is disproportion reaction.
- B. It is intramolecular redox reaction
- C. OH^- is a reducing as well as oxidising agent
- D. $\begin{array}{c} \text{CHO} \\ | \\ \text{CHO} \end{array}$ is a reducing as well as oxidising agent.

Answer: C

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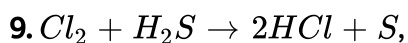
8. The oxidation number of an element in a compound is evaluated on the basis of certain rules. Which of the following rules is not correct in this respect ?

- A. The oxidation number of hydrogen is always +1
- B. The algebraic sum of all the oxidation numbers in a compound is zero.
- C. An element in the free or the uncombined state bears oxidation number zero.
- D. In all its compounds, the oxidation number of fluorine is -1.

Answer: A



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In that above reaction oxidation state of chlorine changes from

A. zero to -1

B. 1 to zero

C. zero to 1

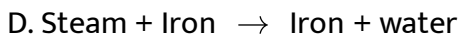
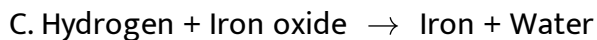
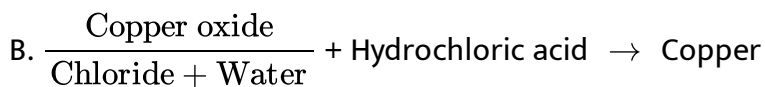
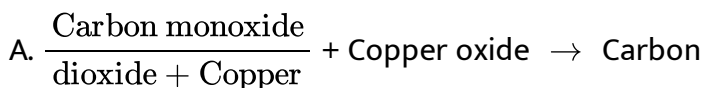
D. remains unchanged

Answer: A



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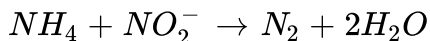
10. Which of the following reactions has the underlined substance been reduced ?



Answer: D

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11. Select the correct statement about the following reactions.

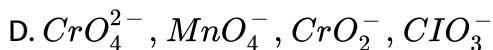
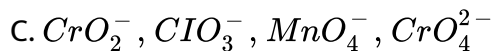
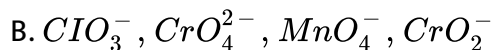
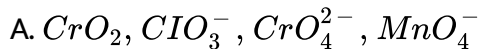


- A. Oxidation number of N in NH_4^- changed from -2 to $+2$
- B. Oxidation number of N in NH_4^+ changed from -3 to 0 and that in NO_2^- changed from $+3$ to 0
- C. Oxidation number of N in NH_4^+ changed from $+1$ to 0 and than in NO_2^- changed from -1 to 0
- D. No change in oxidation number

Answer: B

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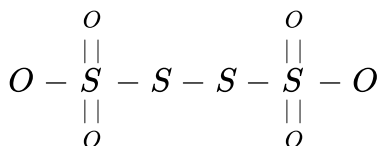
12. Which of the following arrangements represent increasing oxidation number of the central atom?



Answer: A

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13. The oxidation states of S atom in $S_4O_6^{2-}$ from left to right respectively are



A. +3, +1, +1, +3

B. +4, +1, +1, +4

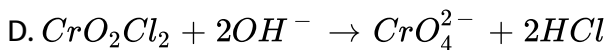
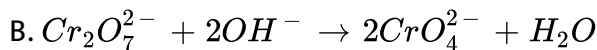
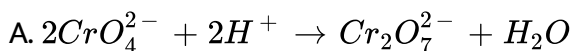
C. +5, 0, 0, +5

D. +6, 0, 0, +6

Answer: C

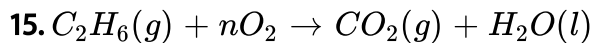
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14. In which of the following reaction, oxidation number of Cr has been affected?



Answer: C

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In this equation, the ratio of the coefficients of CO_2 and H_2O is

A. 1:1

B. 2:3

C. 3:2

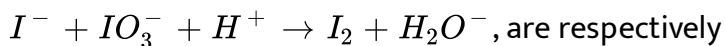
D. 1:3

Answer: B



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16. The coefficients of I^- , IO_3^- and H^+ in the balanced redox reaction,



A. 5,1,6

B. 1,5,6

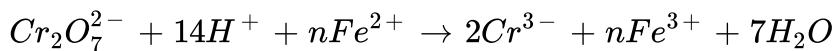
C. 6,1,5

D. 5,6,1

Answer: A

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17. The values of n in the following equation is



A. 4

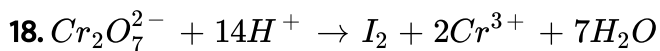
B. 3

C. 7

D. 6

Answer: D

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Which ions are not in balanced position in above reaction?

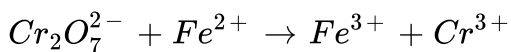
- A. H^+ and H_2O
- B. $Cr_2O_7^{2-}$ and Cr^{3+}
- C. I^- and I_2
- D. All are balanced

Answer: C



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19. In the following redox reactionn,



1 mole of $Cr_2O_7^{2-}$ oxidises.

- A. 1 mole of Fe^{2+}
- B. 3 mole of Fe^{2+}

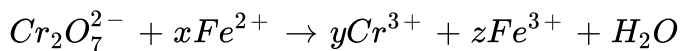
C. 4 moles Fe^{2+}

D. 6 moles of Fe^{2+}

Answer: D

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20. The coefficients w, x, y, z in the reaction w



A. $w-1, x-2, y-6, z-6$

B. $w-6, x-1, y-2, z-4$

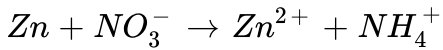
C. $w-1, x-6, y-2, z-6$

D. $w-1, x-2, y-4, z-6$

Answer: C

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21. For the redox reaction,



In basic medium, coefficients of Zn, NO_3^- and OH^- in the balanced equation are respectively.

A. 7,4,1

B. 1,4,10

C. 4,1,10

D. 4,1,7

Answer: C



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22. In balancing the half reaction



The number of electrons that must be added is

A. 0

B. 1 on the right

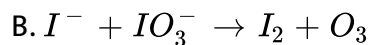
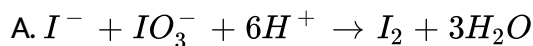
C. 1 on the left

D. 2 on the right

Answer: D

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23. I^- reduces IO_3^- to I_2 and itself oxidised to I_2 in acidic medium. Thus, final reaction is

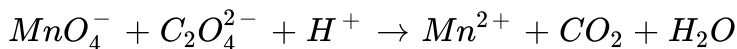


D. None of the above

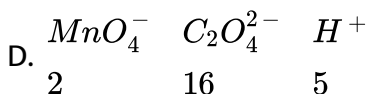
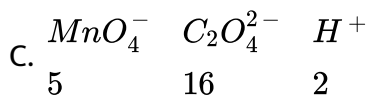
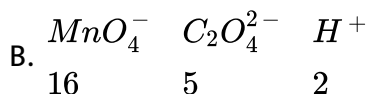
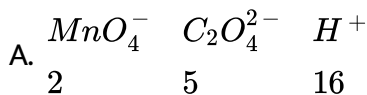
Answer: C

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24. For the redox reaction,



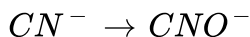
the correct coefficients of the reactants for the balanced reaction are



Answer: D

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25. Which of the following statement is true regarding the following balanced half-reaction?



- A. Carbon is losing two electrons per atom
- B. Oxidation number of carbon increases from +1 to +3
- C. Oxidation number of nitrogen remains constant
- D. Statements (a) and (c) both are true

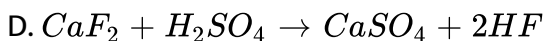
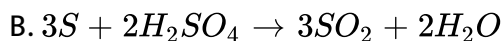
Answer: D

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Exercise 2

1. Hot concentrated sulphuric acid is a moderately strong oxidizing agent.

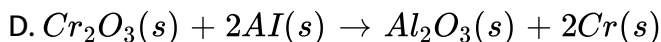
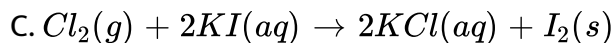
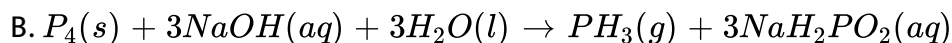
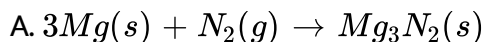
Which of the following reactions does not show oxidizing behaviour?



Answer: D

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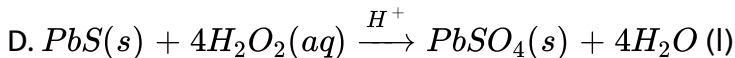
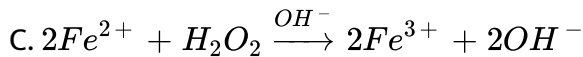
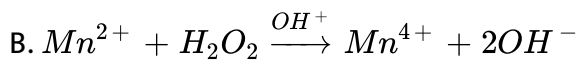
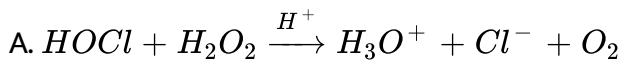
2. Choose the disproportionation reaction among the following redox reactions.



Answer: B

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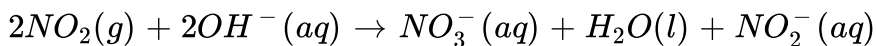
3. In which of the following reactions, H_2O_2 acts as a reducing agent?



Answer: A

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4. Observe the following reaction,



in this reaction,

A. OH^- is oxidised to H_2O

B. OH^- is reduced to H_2O

C. $\text{NO}_2(g)$ is reduced to $\text{NO}_2^-(aq)$ and oxidised to $\text{NO}_3^-(aq)$

D. $\text{NO}_2(g)$ is reduced to $\text{NO}_3^-(aq)$ and oxidised to $\text{NO}_2^-(aq)$

Answer: C

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5. In acidic medium, H_2O_2 changes $Cr_2O_7^{2-}$ to CrO_5 which has two (-O-O-) bonds. Oxidation state of Cr in CrO_5 is

- A. +5
- B. +3
- C. +6
- D. -10

Answer: C

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6. The oxidation number of Cr in $K_2Cr_2O_7$ is

A. +2

B. +4

C. +6

D. +7

Answer: B



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7. Oxidation number of sulphur in $Na_2S_2O_3$ is

A. +1

B. +2

C. +3

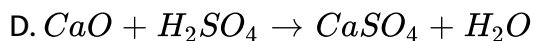
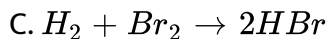
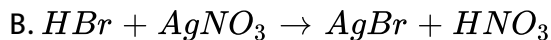
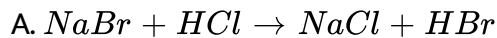
D. -3

Answer: C



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8. Both oxidation and reduction takes place in

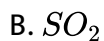


Answer: A



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9. The oxidant which cannot act as a reducing agent is

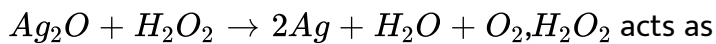


D. $CICO_2$

Answer: A

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10. In the reaction

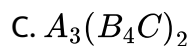
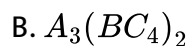
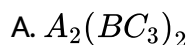


- A. reducing agent
- B. oxidising agent
- C. bleaching agent
- D. None of these

Answer: B

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11. A compound contains three elements A , B and C , if the oxidation number of $A = +2$, $B = +5$ and $C = -2$ then possible formula of the compound is

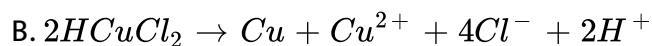
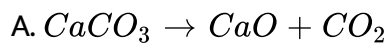


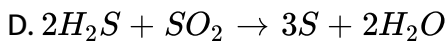
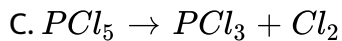
Answer: B



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12. Which of the following is the example of a disproportionation reaction?

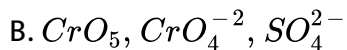
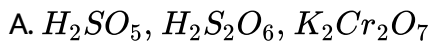




Answer: B

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13. Which combination appears odd with respect to oxidation number per atom of the underlined?



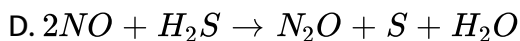
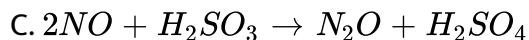
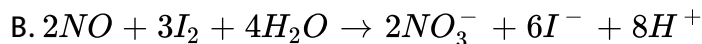
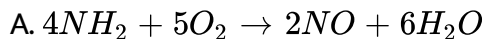
C. Both (a) and (b)

D. None of the above

Answer: D

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14. Nitric oxide acts as a reducing agent in which of the following reaction ?

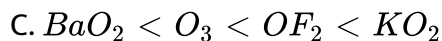
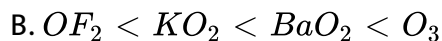
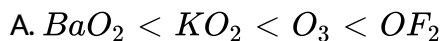


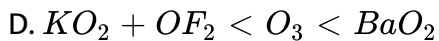
Answer: B



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15. In which of the following, increasing orders the oxidation number of oxygen has been arranged ?

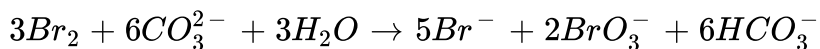




Answer: A

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16. In the reaction

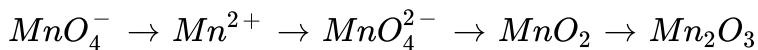


- A. bromine is oxidised and the carbonate radical is reduced
- B. bromine is reduced and the carbonate radical is oxidised
- C. bromine is neither reduced nor oxidised
- D. bromine is both reduced and oxidised

Answer: D

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17. MnO_4^- is a good oxidising agent in different medium changing to



Changes in oxidation number respectively,are

A. 1,3,4,5

B. 5,4,3,2

C. 5,1,3,4

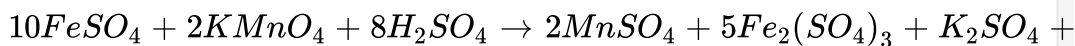
D. 2,6,4,3

Answer: C



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18. The reaction,



is an example of reaction of

A. disproportionation

B. intermolecular redox

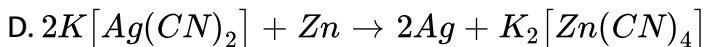
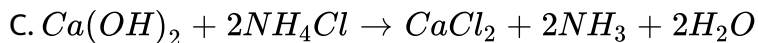
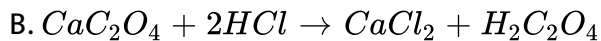
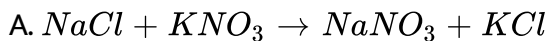
C. intramolecular redox

D. None of these

Answer: B

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19. Which of the following is a redox reaction?



Answer: D

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20.

Given,



The value of x,y and z in the above redox reaction respectively are

A. 2,1,2

B. 2,1,3

C. 3,1,6

D. 3,1,4

Answer: C



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