YAKEEN NEET 2.0

2026

Redox Reaction

MPQ Solution - 03 | **Physical Chemistry**

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Magarmach Practice Questions (MPQ)

QUESTION (NEET 2024)

Which reaction is **NOT** a redox reaction?

(A) $H_2 + Cl_2 \rightarrow 2HCl$

(B) $BaCl_2 + Na_2SO_4 \rightarrow BaSO_4 + 2NaCl$

(C) $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$

(D) $2KClO_3 + I_2 \rightarrow 2KIO_3 + Cl_2$

QUESTION (NEET 2023)

On balancing the given redox reaction,

$aCr_2O_7^{2-} + bSO_3^{2-}(aq) + cH^+(aq) \rightarrow$

$2aCr^{3+}(aq) + bSO_4^{2-}(aq) + c/2\ H_2O(l)$

the coefficients a, b and c are found to be respectively:

(A) 8, 1, 3

(B) 1, 3, 8 ✓

(C) 3, 8, 1

(D) 1, 8, 3

$2\,\overset{+6}{Cr_2O_7^{2-}} + 6\,\overset{+4}{SO_3^{2-}} + 16\,H^+ \rightarrow 4Cr^{3+} + 6\,\overset{+6}{SO_4^{2-}} + 8H_2O$

$n_f = 2|6-3| = 6$

$n_f = 1|4-6| = 2$

32 ox.

25 ox.

$1Cr_2O_7^{2-} + 3SO_3^{2-} + 8H^+ \rightarrow 2Cr^{3+} + 3SO_4^{2-} + 4H_2O$

$a=1,\ b=3,\ c=8$

QUESTION (NEET 2020)

What is the change in oxidation number of carbon in the following reaction?

$$\overset{-4}{CH_4}(g) + 4Cl_2(g) \rightarrow \overset{+4}{CCl_4}(l) + 4HCl(g)$$

$n_f = |1|-4-4|| = 8$

(A) 0 to +4

(B) −4 to +4

(C) 0 to −4

(D) +4 to +4

QUESTION (NEET 2020-Covid)

The oxidation number of the underlined atom in the following species.

Identify the incorrect option.

Cu_2O

$2x - 2 = 0$

$2x = 2$

$x = +1$

(A) $\underline{Cl}O_3^-$ is +5

$x - 6 = -1 \Rightarrow x = +5$

(B) $K_2\underline{Cr}_2O_7$ is +6

$2 + 2x - 14 = 0 \Rightarrow 2x = 12$

$x = +6$

(C) $H\underline{Au}Cl_4$ is +3

$1 + x - 4 = 0 \Rightarrow x = +3$

(D) $Cu_2\underline{O}$ is −1

$x + 2 = 0$

$x = -2$

QUESTION – (AIEEE 2019)

Which of the following reactions are disproportionation reaction?

A. $2Cu^{+} \longrightarrow Cu^{2+} + Cu^{0}$

B. $3MnO_4^{2-} + 4H^{+} \longrightarrow 2MnO_4^{-} + MnO_2 + 2H_2O$

C. $2KMnO_4 \xrightarrow{\Delta} K_2MnO_4 + MnO_2 + O_2$

D. $2MnO_4^{-} + 3Mn^{2+} + 2H_2O \longrightarrow 5MnO_2 + 4H^{+}$

Select the correct option from the following:

A. (A) and (B) only

B. (A), (B) and (C)

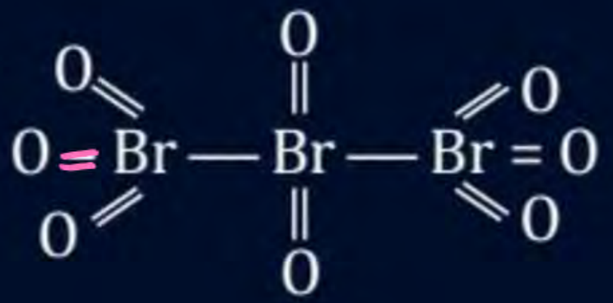
C. (A), (C) and (D)

D. (A) and (D) only

QUESTION – (AIEEE 2019)

The correct ~~statement~~ Structure of tribromooctaoxide is:

A



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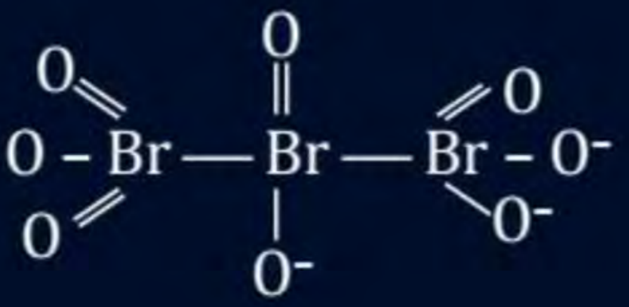
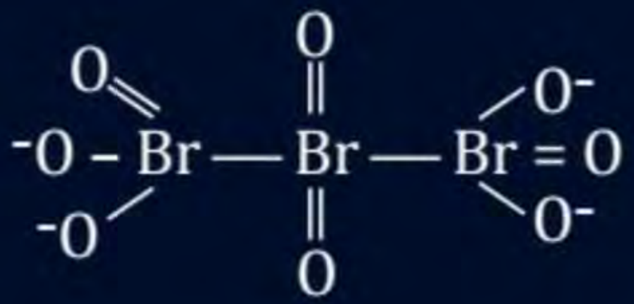


C



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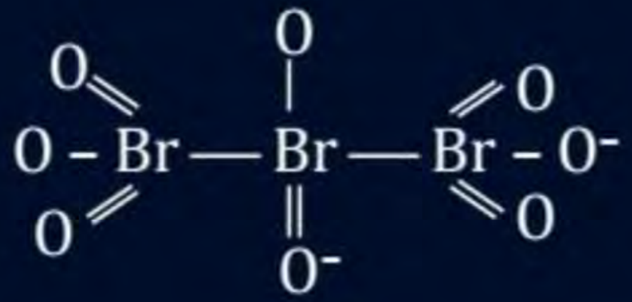


QUESTION (NEET 2018)

For the redox reaction

$$2MnO_4^- + 5C_2O_4^{2-} + 16H^+ \rightarrow 2Mn^{2+} + 10CO_2 + 8H_2O$$

The correct coefficients of the reactants for the balanced equation are:

	MnO_4^-	$C_2O_4^{2-}$	H^+
A	16	5	2
B	2	5	16
C	5	16	2
D	2	16	5

QUESTION (NEET 2016 - I)

Hot concentrated Sulphuric acid is a moderately strong oxidizing agent. Which of the following reactions does not show oxidizing behavior?

A $C + 2H_2SO_4 \rightarrow CO_2 + 2SO_2 + 2H_2O$

B $CaF_2 + H_2SO_4 \rightarrow CaSO_4 + 2HF$

C $Cu + 2H_2SO_4 \rightarrow CuSO_4 + SO_2 + 2H_2O$

D $3S + 2H_2SO_4 \rightarrow 3SO_2 + 2H_2O$

QUESTION (NEET 2014)

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:

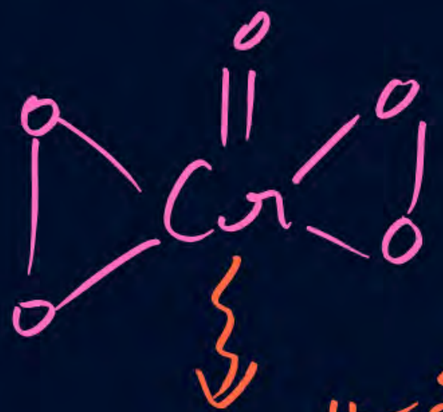
(A) +3

(B) +6

(C) –10

(D) +5

$H_2O_2 + H^+ + Cr_2O_7^{2-} \rightarrow CrO_5$



$x - 4 - 2 = 0$

$x = +6$

QUESTION (NEET 2014)

The oxidation state of Cr in CrO_5 is:

A. −6

B. +12

C. +6

D. +4

QUESTION (AIPMT 2012)

When Cl_2 gas reacts with hot and concentrated sodium hydroxide solution, the oxidation number of chlorine changes from:

$\overset{0}{Cl_2} + NaOH \xrightarrow[\text{Hot \& Conc}]{} \underset{}{\overset{-1}{NaCl}} + \underset{}{\overset{+5}{NaClO_3}} + H_2O$

(A) zero to +1 and zero to –5

(B) zero to –1 and zero to +5

(C) zero to –1 and zero to +3

(D) zero to +1 and zero to –3

QUESTION (AIPMT 2009)

Oxidation numbers of P in PO_4^{3-}, of S in SO_4^{2-} and the Cr in $Cr_2O_7^{2-}$ are respectively

(A) +3, +6 and +5

(B) + 5, +3 and +6

(C) –3, +6 and +6

(D) +5, +6 and +6

$x - 8 = -3$

$x = +5$

$x - 8 = -2$

$x = +6$

$2x - 14 = -2$

$2x = 12$

$x = +6$

QUESTION (AIPMT 2003)

The oxidation states of Sulphur in the anions SO_3^{2-}, $S_2O_4^{2-}$ and $S_2O_6^{2-}$ follow the order

(A) $S_2O_6^{2-} < S_2O_4^{2-} < SO_3^{2-}$

(B) $S_2O_4^{2-} < SO_3^{2-} < S_2O_6^{2-}$

(C) $SO_3^{2-} < S_2O_4^{2-} < S_2O_6^{2-}$

(D) $S_2O_4^{2-} < S_2O_6^{2-} < SO_3^{2-}$

$x - 6 = -2$
$x = +4$

$2x - 12 = -2$
$2x = 10$
$x = +5$

$2x - 8 = -2$
$2x = 6$
$x = +3$

QUESTION (AIPMT 2000)

A compound contains atoms of three elements A, B and C. If the oxidation number of A is +2, B is +5, and that of C is –2. The possible formula of the compound is:

(A) $A_2(BC_3)_2$ $\quad 4 + 10 \quad -12 \neq 0$

(B) $A_3(BC_4)_2$ $\quad +6 + 10 \quad -16 = 0$

(C) $A_3(B_4C)_2$

(D) ABC_2

QUESTION (AIPMT 1999)

The oxidation number of phosphorus in pyro-phosphoric acid is:

A. +3

B. +1

C. +4

D. +5

H_3PO_4

H_3PO_4

$H_6P_2O_8$

$-H_2O$

$H_4P_2O_7$

$4 + 2x - 14 = 0$

$2x = 10$

$x = 5$

QUESTION (1988, 1995)

The oxidation number of chromium in potassium dichromate is:

(A) +6

(B) −5

(C) −2

(D) +2

$K_2Cr_2O_7$

$2 + 2x - 14 = 0$

$2x = 12$

$x = 6$

QUESTION (1994)

Phosphorus has the oxidation state of +3 in

(A) Phosphorous acid H_3PO_3 $3+x-6=0 \Rightarrow x=+3$

(B) Orthophosphoric acid H_3PO_4

(C) Hypophosphorous acid H_3PO_2

(D) Metaphosphoric acid

$(HPO_3)_3$

QUESTION (1999)

The following redox reaction is balanced by which set of coefficients?

$$a\overset{0}{Zn} + b\overset{+5}{NO_3^-} + cH^+ \rightarrow d\overset{-3}{NH_4^+} + eH_2O + fZn^{2+}$$

	a	b	c	d	e	f
A	1	1	10	1	3	1
B	2	2	10	2	3	2
C	4	2	10	1	3	4
D	4	1	10	1	3	4

$$\frac{8}{2}Zn + \frac{2}{2}NO_3^- + \frac{20}{2}H^+ \rightarrow \frac{2}{2}NH_4^+ + \frac{6}{2}H_2O + \frac{8}{2}Zn^{2+}$$

QUESTION (1994)

In which of the following reactions, there is no change in valency?

A $4KClO_3 \longrightarrow 3KClO_4 + KCl$

B $SO_2 + 2H_2S \longrightarrow 2H_2O + 3S$

C $BaO_2 + H_2SO_4 \longrightarrow BaSO_4 + H_2O_2$

D $3BaO + O_2 \longrightarrow 2BaO_2$

QUESTION (1994)

Which substance serves as a reducing agent in the following reaction?

$14H^+ + Cr_2O_7^{2-} + 3Ni \rightarrow 2Cr^{3+} + 7H_2O + 3Ni^{2+}$

A H_2O

B Ni

C H^+

D $Cr_2O_7^{2-}$

THANK YOU