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NEET REDOX REACTIONS — PYQS

Max. Marks: 100 **Questions:** 25

Section A (MCQ) — 25 questions

Q.1 In an acidic medium, 10 mL of 0.25 M oxalic acid is titrated with $KMnO_4$ solution. If the volume of $KMnO_4$ solution required to reach end point is 10 mL, the strength of the $KMnO_4$ solution is

[RE-NEET (UG) 2026]

(1) 0.15 M (2) 0.10 M (3) 0.20 M (4) 0.25 M

Scan or tap for the full solution

Q.2 The correct decreasing order of oxidation state of the underlined atom in each molecule is

[RE-NEET (UG) 2026]

(1) $\underline{P}_4O_6 > \underline{Cl}_2O_7 > \underline{Al}H_3$

(2) $\underline{P}_4O_{10} > \underline{S}O_3 > H_2\underline{O}$

(3) $\underline{N}_2O_5 > \underline{Al}_2O_3 > H_2\underline{S}$

(4) $\underline{Pb}O_2 > \underline{N}_2O_3 > \underline{S}O_3$

Solution

Q.3 Consider the following compounds :

$\underline{K}O_2$, $H_2\underline{O}_2$ and $H_2\underline{S}O_4$

The oxidation state of the underlined elements in them are, respectively, [NEET (UG) 2025]

(1) +1, −2, and +4 (2) +4, −4, and +6

(3) +1, −1, and +6 (4) +2, −2, and +6

Scan or tap for the full solution

Q.4 Which reaction is NOT a redox reaction?

[NEET (UG) 2024]

(1) $Zn + CuSO_4 \longrightarrow ZnSO_4 + Cu$

(2) $2KClO_3 + I_2 \longrightarrow 2KIO_3 + Cl_2$

(3) $H_2 + Cl_2 \longrightarrow 2HCl$

(4) $BaCl_2 + Na_2SO_4 \longrightarrow BaSO_4 + 2NaCl$

Scan or tap for the full solution

Q.5 On balancing the given redox reaction,

$$aCr_2O_7^{2-}(aq) + bSO_3^{2-}(aq) + cH^+(aq) \longrightarrow 2aCr^{3+}(aq) + bSO_4^{2-}(aq) + \frac{c}{2}H_2O(\ell)$$

the coefficients a, b and c are found to be, respectively - [NEET (UG) 2023]

(1) 3, 8, 1 (2) 1, 8, 3 (3) 8, 1, 3 (4) 1, 3, 8

Scan or tap for the full solution

Q.6 Which of the following reactions is a decomposition redox reaction?

[NEET (UG) 2022 (Phase 2)]

(1) $P_4(s) + 3OH^-(aq) + 3H_2O(l) \longrightarrow PH_3(g) + 3H_2PO_2^-(aq)$

(2) $2Pb(NO_3)_2(s) \longrightarrow 2PbO(s) + 4NO_2(g) + O_2(g)$

(3) $N_2(g) + O_2(g) \longrightarrow 2NO(g)$

(4) $Cl_2(g) + 2OH^-(aq) \longrightarrow ClO^-(aq) + Cl^-(aq) + H_2O(l)$

Scan or tap for the full solution

Q.7 Which of the following reactions is the metal displacement reaction? Choose the right option.

[NEET (UG) 2021]

(1) $2Pb(NO_3)_2 \longrightarrow 2PbO + 4NO_2 + O_2 \uparrow$

(2) $2KClO_3 \xrightarrow{\Delta} 2KCl + 3O_2$

(3) $Cr_2O_3 + 2Al \xrightarrow{\Delta} Al_2O_3 + 2Cr$

(4) $Fe + 2HCl \longrightarrow FeCl_2 + H_2 \uparrow$

Scan or tap for the full solution

Q.8 What is the change in oxidation number of carbon in the following reaction?

$CH_4(g) + 4Cl_2(g) \longrightarrow CCl_4(l) + 4HCl(g)$

[NEET (UG) 2020]

(1) 0 to +4 (2) −4 to +4

(3) 0 to −4 (4) +4 to +4

Scan or tap for the full solution

Q.9 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 :

[NEET (UG) 2019]

(1) A, C and D (2) A and B only

(3) A and D only (4) A, B and C

Scan or tap for the full solution

Q.10 Consider the change in oxidation state of bromine corresponding to different emf values as shown in the given diagram :

$$BrO_4^- \xrightarrow{1.82\ V} BrO_3^- \xrightarrow{1.5\ V} HBrO \xrightarrow{1.595\ V} Br_2 \xrightarrow{1.0652\ V} Br^-$$

Then the species undergoing disproportionation is : [NEET 2018]

(1) BrO_4^- (2) BrO_3^- (3) Br_2 (4) HBrO

Scan or tap for the full solution

Q.11 The correct order of N-compounds in its decreasing order of oxidation states is [NEET 2018]

(1) HNO_3, NO, N_2, NH_4Cl

(2) HNO_3, NO, NH_4Cl, N_2

(3) HNO_3, NH_4Cl, NO, N_2

(4) NH_4Cl, N_2, NO, HNO_3

Solution

Q.12 For the redox reaction,

$$MnO_4^- + C_2O_4^{2-} + H^+ \longrightarrow Mn^{2+} + CO_2 + H_2O$$

The correct coefficients of the reactants for the balanced equation are [NEET 2018]

(1)

MnO_4^-	$C_2O_4^{2-}$	H^+
16	5	2

(2)

MnO_4^-	$C_2O_4^{2-}$	H^+
2	5	16

(3)

MnO_4^-	$C_2O_4^{2-}$	H^+
2	16	5

(4)

MnO_4^-	$C_2O_4^{2-}$	H^+
5	16	2

Scan or tap for the full solution

Q.13 Assuming complete ionisation, same moles of which of the following compounds will require the least amount of acidified $KMnO_4$ for complete oxidation? [AIPMT 2015]

(1) $FeSO_3$ (2) FeC_2O_4

(3) $Fe(NO_2)_2$ (4) $FeSO_4$

Scan or tap for the full solution

Q.14 Which of the following processes does not involve oxidation of iron? [AIPMT 2015 (Cancelled)]

(1) Formation of $Fe(CO)_5$ from Fe.

(2) Liberation of H_2 from steam by iron at high temperature.

(3) Rusting of iron sheets.

(4) Decolourisation of blue $CuSO_4$ solution by iron.

Scan or tap for the full solution

Q.15 The pair of compounds that can exist together is [AIPMT 2014]

(1) $FeCl_3$, $SnCl_2$ (2) $HgCl_2$, $SnCl_2$

(3) $FeCl_2$, $SnCl_2$ (4) $FeCl_3$, KI

Scan or tap for the full solution

Q.16 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 [AIPMT 2014]

(1) +5 (2) +3 (3) +6 (4) −10

Scan or tap for the full solution

Q.17 When Cl_2 gas reacts with hot and concentrated sodium hydroxide solution, the oxidation number of chlorine changes from [AIPMT 2012 (Prelims)]

(1) zero to +1 and zero to −5

(2) zero to −1 and zero to +5

(3) zero to −1 and zero to +3

(4) zero to +1 and zero to −3

Solution

Q.18 A mixture of potassium chlorate, oxalic acid and sulphuric acid is heated. During the reaction which element undergoes maximum change in the oxidation number? [AIPMT 2012 (Prelims)]

(1) S (2) H (3) Cl (4) C

Scan or tap for the full solution

Q.19 In which of the following compounds, nitrogen exhibits highest oxidation state? [AIPMT 2012 (Prelims)]

(1) N_2H_4 (2) NH_3 (3) N_3H (4) NH_2OH

Scan or tap for the full solution

Q.20 Oxidation numbers of P in PO_4^{3-}, of S in SO_4^{2-} and that of Cr in $Cr_2O_7^{2-}$ are respectively [AIPMT 2009]

(1) +3, +6 and +5 (2) +5, +3 and +6

(3) –3, +6 and +6 (4) +5, +6 and +6

Scan or tap for the full solution

Q.21 Number of moles of MnO_4^- required to oxidize one mole of ferrous oxalate completely in acidic medium will be [AIPMT 2008]

(1) 7.5 moles (2) 0.2 moles

(3) 0.6 moles (4) 0.4 moles

Scan or tap for the full solution

Q.22 Which is the best description of the behaviour of bromine in the reaction given below?

$H_2O + Br_2 \longrightarrow HOBr + HBr$ [AIPMT 2004]

(1) Proton acceptor only

(2) Both oxidised and reduced

(3) Oxidised only

(4) Reduced only

Solution

Q.23 The oxidation states of sulphur in the anions SO_3^{2-}, $S_2O_4^{2-}$ and $S_2O_6^{2-}$ follow the order

[AIPMT 2003]

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

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

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

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

Solution

Q.24 Which reaction is not feasible? [AIPMT 2002]

(1) $2KI + Br_2 \longrightarrow 2KBr + I_2$

(2) $2KBr + I_2 \longrightarrow 2KI + Br_2$

(3) $2KBr + Cl_2 \longrightarrow 2KCl + Br_2$

(4) $2H_2O + 2F_2 \longrightarrow 4HF + O_2$

Scan or tap for the full solution

Q.25 Oxidation numbers of A, B, C are +2, +5 and −2 respectively. Possible formula of compound is

[AIPMT 2000]

(1) $A_2(BC_2)_2$ (2) $A_3(BC_4)_2$

(3) $A_2(BC_3)_2$ (4) $A_3(B_2C)_2$

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	**2**	**3**	**3**	**4**	**4**	**2**	**3**	**2**	**2**	**4**	**1**
Ques.	12	13	14	15	16	17	18	19	20	21	22
Ans.	**2**	**4**	**1**	**3**	**3**	**2**	**3**	**3**	**4**	**3**	**2**
Ques.	23	24	25								
Ans.	**1**	**2**	**2**								

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