

Questions

MathonGo

Q1 - 2024 (04 Apr Shift 1)

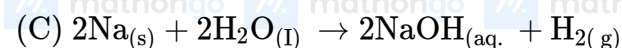
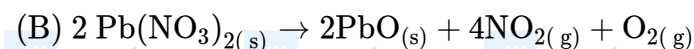
Only 2 mL of KMnO_4 solution of unknown molarity is required to reach the end point of a titration of 20 mL of oxalic acid (2M) in acidic medium. The molarity of KMnO_4 solution should be _____ M.

Q2 - 2024 (06 Apr Shift 2)

Match List - I with List - II.

List - I

Reaction



List - II

Type of redox reaction

(I) Decomposition

(II) Displacement

(III) Disproportionation

(IV) Combination

Choose the correct answer from the options given below :

(1) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)

(2) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)

(3) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)

(4) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

Q3 - 2024 (08 Apr Shift 1)

Among the following halogens

F_2 , Cl_2 , Br_2 and I_2

Which can undergo disproportionation reactions?

(1) F_2 , Cl_2 and Br_2

(2) F_2 and Cl_2

(3) Only I_2

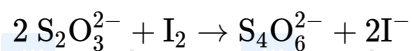
(4) Cl_2 , Br_2 and I_2

Q4 - 2024 (08 Apr Shift 1)

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Thiosulphate reacts differently with iodine and bromine in the reactions given below:



Which of the following statement justifies the above dual behaviour of thiosulphate?

- (1) Bromine is a stronger oxidant than iodine
- (2) Thiosulphate undergoes oxidation by bromine and reduction by iodine in these reaction
- (3) Bromine is a weaker oxidant than iodine
- (4) Bromine undergoes oxidation and iodine undergoes reduction in these reactions

Q5 - 2024 (09 Apr Shift 1)

Identify the incorrect statements regarding primary standard of titrimetric analysis.

- (A) It should be purely available in dry form.
- (B) It should not undergo chemical change in air.
- (C) It should be hygroscopic and should react with another chemical instantaneously and stoichiometrically.
- (D) It should be readily soluble in water.
- (E) KMnO_4 & NaOH can be used as primary standard.

Choose the correct answer from the options given below :

- (1) (A) and (B) only
- (2) (C) and (E) only
- (3) (B) and (E) only
- (4) (C) and (D) only

Questions

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Answer Key

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Q1 (8) mathongo /// ma **Q2 (3)** /// mathongo **Q3 (4)** mathongo /// mc **Q4 (1)**o /// mathongo

Q5 (2) athongo /// mathongo /// mathongo /// mathongo /// mathongo /// mathongo

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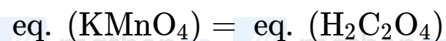
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#MathBoleTohMathonGo

Solutions

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Q1



$$M \times 2 \times 5 = 2 \times 20 \times 2$$

$$M = 8M$$

Q2

A \rightarrow (IV)B \rightarrow (I)C \rightarrow (II)D \rightarrow (III)

Q3

F_2 do not disproportionate because fluorine do not exist in positive oxidation state however Cl_2 , Br_2 & I_2 undergoes disproportionation.

Q4

In the reaction of $\text{S}_2\text{O}_3^{2-}$ with I_2 , oxidation state of sulphur changes to +2 to +2.5

In the reaction of $\text{S}_2\text{O}_3^{2-}$ with Br_2 , oxidation state of sulphur changes from +2 to +6 .

\therefore Both I_2 and Br_2 are oxidant (oxidising agent) and Br_2 is stronger oxidant than I_2 .

Q5

KMnO_4 & $\text{NaOH} \rightarrow$ Secondary standard.

Primary standard should not be Hygroscopic.