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For Entrance Hub Natural Science Class A Students

Chemistry Entrance Hub Mid Examianation

Prepared by Entrance hub Teachers Expert..

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Choose the Correct Alternative using below Regarding Information

Entrance Hub 1st Round Mid Examination For EH Natural A Class



A. Say True or False

1. Oxidation number of an element can be zero but valency is never zero.
2. The decomposition of calcium carbonate to calcium oxide and carbon dioxide is a redox reaction.
3. Nitrous acid can act both as an oxidising as well as reducing agent.
4. The reaction : $\text{Cr}_2\text{O}_7^{2-} + \text{H}_2\text{O} \rightleftharpoons 2\text{CrO}_4^{2-} + 2\text{H}^+$ cannot be regarded as a redox reaction.
5. A weak acid has a strong conjugate base and a strong acid has a weak conjugate base.
6. In the reaction : $\text{CO}_2 + \text{OH}^- \longrightarrow \text{HCO}_3^-$, CO_2 acts as a Lewis acid.
7. S^{2-} is conjugate acid of HS^- .

CHOOSE THE CORRECT ANSWER BELOW ALTERNATIVES

EH8. The $[\text{OH}^-]$ of an aqueous solution is 1×10^{-5} . The pH of the solution is :

- (a) 5 (b) 9
(c) 4.5 (d) 11

EH9. Which of the following species is amphoteric in nature ?

- (a) H_3O^+ (b) Cl^-
(c) HSO_4^- (d) CO_3^{2-}

EH10. Which of the following pairs constitutes a buffer?

- (a) NaOH and NaCl (b) HNO_3 and NH_4NO_3
(c) HCl and KCl (d) HNO_2 and NaNO_2

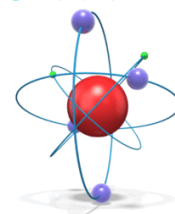
EH11. When a salt of strong base and weak acid is hydrolysed, the resulting solution has :

- (a) $\text{pH} = 7$ (b) $\text{pH} = 0$
(c) $\text{pH} < 7$ (d) $\text{pH} > 7$

EH12. pOH of 10^{-8} M solution of NaOH will be :

- (a) 8 (b) between 6 and 7
(c) between 7 and 8 (d) below 6

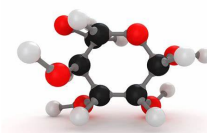
Chemistry Grade 12



Chemistry Chapter 1

Most Powerful Concepts

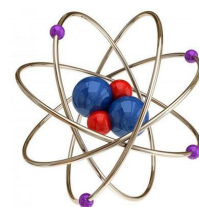
- Acid base concepts
- Dissociation Weak Acid
- Common ion effect
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- Acid-base titrations



Chemistry Chapter 2

Most Powerful Concepts

- Oxidation and reduction
- Balancing redox reactions
- Conductivity
- Electrolytic cells
- Galvanic cells
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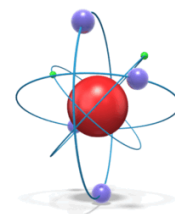
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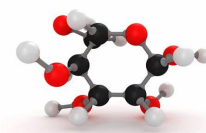


Chemistry Grade 12



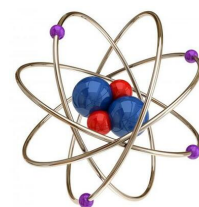
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EH13. Which of these is least likely to act as a Lewis base ?

- (a) BF_3 (b) PF_3
(c) CO (d) F

EH14. Which one of the following species cannot act as both Bronsted acid and base?

- (a) H_2O (b) HCO_3^-
(c) HSO_4 (d) NH_2
(e) NH_3

EH15. Which of the following behave both as Bronsted acids as well Bronsted bases?

- (a) H_2O (b) H_3PO_4
(c) HCO_3^- (d) HCOOH

EH16. Which of the following are Lewis acids?

- (a) Ag^+ (b) $[\text{SiF}_6]^{2-}$ (c) CO_2 (d) O^{2-}

EH17. Which of the following aqueous solutions are acidic ?

- (a) CuSO_4 (b) $\text{CH}_3\text{COONH}_4$
(c) AlCl_3 (d) Na_2CO_3

EH18. Reduction involves :

- (a) gain of electrons
(b) addition of oxygen
(c) increase in oxidation number
(d) loss of electrons.

EH19. Oxidation number of P in PO_4^{3-} ion is :

- (a) -3 (b) +7
(c) +5 (d) +3.

EH20. Oxidation number of Mn in MnO_4^- ion is :

- (a) +1 (b) -7
(c) -1 (d) +7.

EH22. Oxidation number of C in CH_3OH , CH_2O , HCOOH and C_2H_2 is respectively :

- (a) -2, 0, +2, -1 (b) +2, 0, +2, -2
(c) -2, 0, +2, 0 (d) -2, -4, +2, -2

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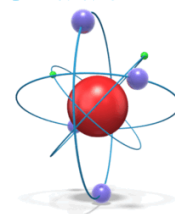
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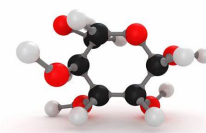


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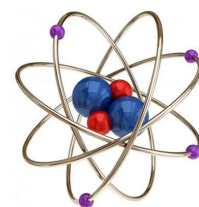
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EH23. Which of the following statement is not correct ?

- (a) Oxidant is a substance which increases the oxidation number of other substance.
- (b) Reductant is a substance which decreases the oxidation number of other substance.
- (c) The oxidation number of oxidant decreases.
- (d) In oxidation there is decrease in oxidation number.

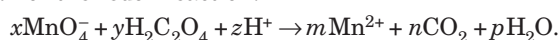
EH24. In the reaction : $\text{Cl}_2 + 2\text{OH}^- \longrightarrow \text{OCl}^- + \text{Cl}^- + \text{H}_2\text{O}$

- (a) OH^- is oxidising and Cl^- is reducing agent
- (b) Cl_2 is oxidising and OH^- is reducing agent
- (c) OH^- is both oxidising and reducing agent
- (d) Cl_2 is both oxidising and reducing agent.

EH25. Which of the following have been arranged in decreasing order of oxidation number of sulphur ?

- (a) $\text{Na}_2\text{S}_4\text{O}_6 > \text{H}_2\text{S}_2\text{O}_7 > \text{Na}_2\text{S}_2\text{O}_3 > \text{S}_8$
- (b) $\text{H}_2\text{SO}_4 > \text{SO}_2 > \text{H}_2\text{S} > \text{H}_2\text{S}_2\text{O}_8$
- (c) $\text{SO}_2^{2+} > \text{SO}_4^{2-} > \text{SO}_3^{2-} > \text{HSO}_4^-$
- (d) $\text{H}_2\text{SO}_5 > \text{H}_2\text{SO}_3 > \text{SCL}_2 > \text{H}_2\text{S}$

EH26. For the redox reaction:



The values of x , y , m and n are

- (a) 10, 2, 5, 2
- (b) 2, 5, 2, 10
- (c) 6, 4, 2, 4
- (d) 3, 5, 2, 10

EH27. Which of the following statements are wrong ?

- (a) Reduction involves gain of electrons.
- (b) The oxidation number of reducing agent decreases.
- (c) Oxidising agent helps to increase the oxidation number of reducing agent.
- (d) Oxidation involves gain of electrons.

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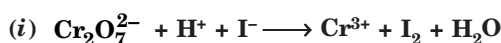
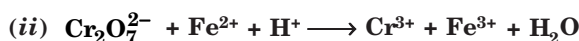
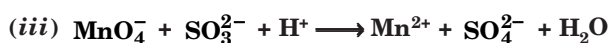
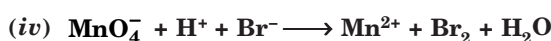
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A.

WORKOUT

EH28. Balance the following ionic equations

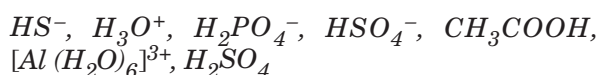


EH29. Calculate the oxidation number of phosphorus in the following species.

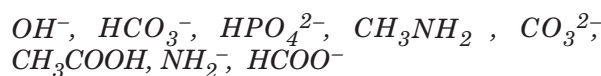


EH30. Show below question based on Information

(a) What are conjugate bases of each of the following :



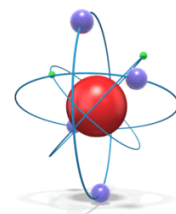
(b) Give the conjugate acids of the following :



(c) Which of the following behave both as Bronsted acids as well as Bronsted bases ?

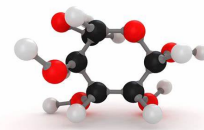


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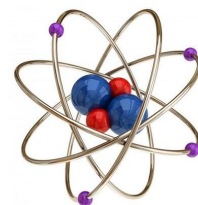
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