

CHEMISTRY

BOOKS - VGS PUBLICATION-BRILLIANT

HYDROGEN AND ITS COMPOUNDS

Very Short Answer Questions 2 Marks

1. The three isotopes of hydrogen differ in their rates of reaction. Give the reasons.



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2. Why is helium used in diving apparatus ?



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3. Describe one method of producing high purity hydrogen.



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4. Explain the term "SYNGAS".



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5. What is meant by coal gasification? Explain with relevant, balanced equation.



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6. Define the term Hydride. How many categories of hydrides are known? Name them.



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7. The unusual property of water in condensed phase leads to its high heat of vapourization.

What is that property?



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8. During photosynthesis, water is oxidized to O_2 . What element is reduced?



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9. What do you mean by autoprotolysis? Give the equation to represent the autoprotolysis of water.



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10. Water behaves as an amphoteric substance in the Bronsted sense. How do you explain?



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1. The boiling points of NH_3 , H_2O and HF are higher than those of the hydrides of the subsequent members of the group. Give your reasons.



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2. Discuss the position of hydrogen in the periodic table on the basis of its electronic configuration.



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3. How is the electronic configuration of hydrogen suitable for its chemical reactions ?



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4. What happen when dihydrogen reacts with
(a) Chlorine ? Explain.



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5. What happen when dihydrogen reacts with

(b) Sodium metal ? Explain.



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6. Write a note on heavy water.



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7. Name the isotopes of hydrogen. What is the ratio of the masses of these isotopes?



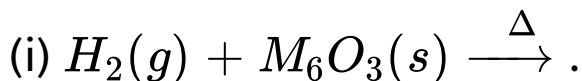
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8. What is water - gas shift reaction? How can the production of didydrogen be increased by this reaction?



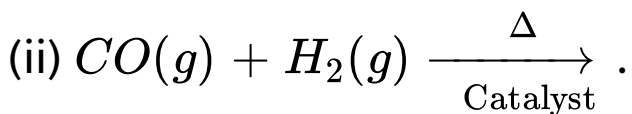
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9. Complete and balance the following reactions :



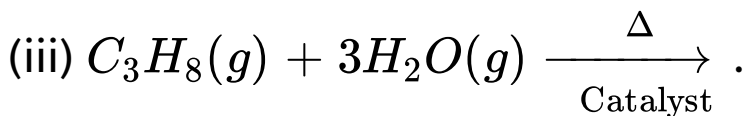
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10. Complete and balance the following reactions :



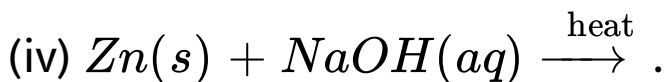
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11. Complete and balance the following reactions :



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12. Complete and balance the following reactions :



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13. What is the nature of the hydrides formed by elements of 13 group?



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14. Discuss the principle and the method of softening of hard water by synthetic, ionexchange resins.



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15. Write a few lines on the utility of hydrogen as a fuel.



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16. A 1% solution of H_2O_2 is provided to you. What steps do you take to prepare pure H_2O_2 from it?



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17. Mention any three uses of H_2O_2 in modern times.



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1. Write an essay on the commercial preparation of dihydrogen. Give balanced equations.



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2. Illustrate the chemistry of dihydrogen by its reaction with

(i) N_2



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3. Illustrate the chemistry of dihydrogen by its reaction with

(b) Metal ions and metal oxides



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4. Illustrate the chemistry of dihydrogen by its reaction with

(c) Organic compounds

How is dihydrogen used in the manufacture of chemicals?





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5. Explain, with suitable examples, the following:

(i) Electron-deficient.



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6. Explain, with suitable examples, the following:

(ii) Electron - precise.



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7. Explain, with suitable examples, the following:

(iii) Electron-rich hydrides.



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8. Write in brief on

(i) ionic hydrides



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9. Write in brief on

(ii) interstitial hydrides.



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10. Explain any four of the chemical properties of water.



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11. Explain the terms hard water and soft water. Write a note on the

(i) Ion - exchange method.



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12. Explain the terms hard water and soft water. Write a note on the

(ii) Calgon method for the removal of hardness of water.



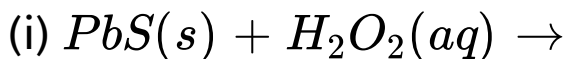
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13. Write the chemical reaction to justify that hydrogen peroxide can function as an oxidizing as well as reducing agent.



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14. Complete and balance the following chemical reactions:

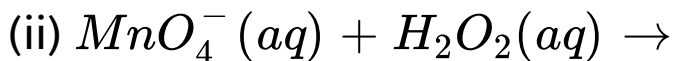


Classify the above into (a) hydrolysis (b) redox and (c) hydration reactions.



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15. Complete and balance the following chemical reactions:

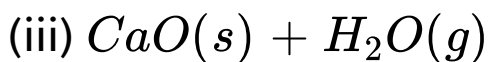


Classify the above into (a) hydrolysis (b) redox and (c) hydration reactions.



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16. Complete and balance the following chemical reactions:

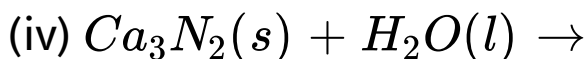


Classify the above into (a) hydrolysis (b) redox and (c) hydration reactions.



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17. Complete and balance the following chemical reactions:



Classify the above into (a) hydrolysis (b) redox and (c) hydration reactions.



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18. Discuss, with relevant chemical equations, various methods of preparing hydrogen peroxide. Which of these methods is useful to prepare D_2O_2 ?



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19. In how many ways can you express the strength of H_2O_2 ? Calculate the strength of 15 volume solution of H_2O_2 . in g/l . Express the strength in normality and molarity.



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20. Explain the structure of Hydrogen peroxide molecule.



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