

**CBSE TEST PAPER 02**  
**CLASS XI CHEMISTRY**  
**(Hydrogen)**

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**General Instruction:**

- All questions are compulsory.
  - Marks are given along with their questions.
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1. Why is dihydrogen gas not preferred for filling up in balloons? [1]
2. What is the pH of water? [1]
3. How is methanol prepared using dihydrogen? [1]
4. How is ammonia prepared using dihydrogen? [1]
5. How can the production of dihydrogen obtained from 'coal gasification be increased'? [2]
6. Why is dihydrogen used in fuel cells for generating electrical energy? [2]
7. What is understood by hydrogenation? [2]
8. Which fuel is used as a rocket fuel? [1]

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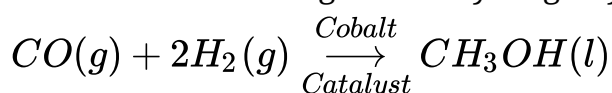
**CBSE TEST PAPER 02**  
**CLASS XI CHEMISTRY (Hydrogen)**  
**[ANSWERS]**

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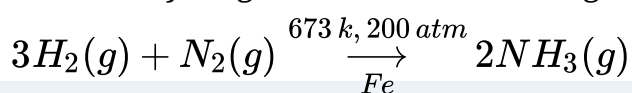
Ans 1. Dihydrogen is the lightest gas and should have been used in filling up of balloons. But it is not preferred due to its highly combustible nature.

Ans 2. The pH value of water is 7.

Ans 3. CO on reacting with dihydrogen yields bulk amount of methanol.

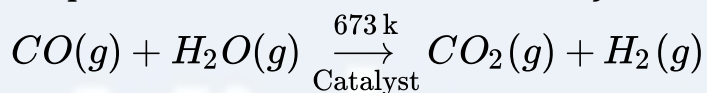


Ans 4. Dihydrogen reacts with dinitrogen to form ammonia.



This is the method for the manufacture of ammonia which is known as Haber process.

Ans 5. By reacting carbon monoxide of syngas mixtures (mixture of CO and H<sub>2</sub>) with steam in the presence of iron chromate as catalyst



Ans 6. Because it does not produce any pollution and releases greater energy per unit mass of fuel in comparison to gasoline or any other fuel.

Ans 7. When dihydrogen is added to unsaturated hydrocarbons (alkenes and alkynes) in the presence of a catalyst to form saturated hydrocarbons, the process is called hydrogenation.

Hydrogenation is used for the conversion of polyunsaturated oils into solid fats.

Ans 8. Dihydrogen is used as a rocket fuel in space research.