



CHEMISTRY

RESONANCE ENGLISH

HYDROGEN AND ITS COMPOUNDS

Inorganic Chemistry Hydrogen Its Compunds Y Environment Chemistry

1. Hydrogen molecule differs from chlorine molecule in the following respect :

- A. hydrogen molecule is non-polar but chloride molecule is polar.
- B. hydrogen molecule is polar while chlorine molecule is non-polar.
- C. hydrogen molecule can form intermolecular hydrogen bonds but chloride molecule does not.

D. hydrogen molecule cannot participate in co-ordinate bond formation but chlorine molecule can.

Answer: 4

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2. Which one of the following properties shows that hydrogen resembles alkali metals ?

- A. It shows metallic character like alkali metals.
- B. It is diatomic like alkali metals.
- C. Its ionization energy is of the same order as that of alkali metals.
- D. When hydrogen halides and alkali metal halides are electrolysed, hydrogen and alkali metals are liberated at the cathode.

Answer: 4

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3. A deuterium atom :

- A. has the same atomic mass as the hydrogen atom.
- B. has the same electronic configuration as the hydrogen atom.
- C. has the same composition of the nucleus as the hydrogen atom.
- D. contains one proton more than a hydrogen atom.

Answer: 2



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4. Which of the following statements is most applicable to hydrogen ?

- A. It can act as a reducing agent only
- B. It can act as an oxidising agent only
- C. It can act as both as oxidising and reducing agents
- D. It can act neither as an oxidising nor as a reducing agent.

Answer: 3

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5. Hydrogen combines with other elements by

- A. losing an electron
- B. gaining an electron
- C. sharing an electron
- D. losing, gaining and sharing of an electron

Answer: 4

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6. Hydrogen gas will not reduce:

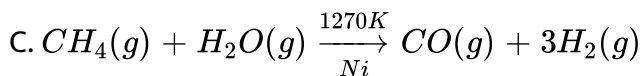
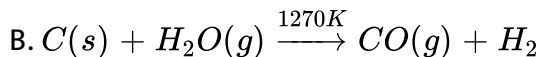
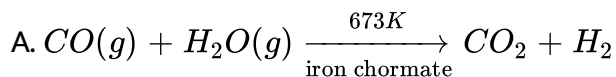
- A. heated cupric oxide

- B. heated ferric oxide
- C. heated stannic oxide
- D. heated aluminium oxide

Answer: 4

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7. Which one of the following reactions represents water – gas shift reaction ?



D. None of these

Answer: 1

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8. The alkali metals form salt-like hydrides by the direct synthesis at elevated temperature. The thermal stability of these hydrides decreases in which of the following order ?



Answer: 2



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9. Select the correct statement for heavy water.

A. It is less denser than common water.

B. It is an oxide of deuterium

C. It has a heavy or bad taste

D. It has a heavier isotope of oxygen.

Answer: B

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10. Which of the following is not correctly matched ?

A. Heavy water- Used as moderator in nuclear reactors.

B. Zeolites-Used for removing permanent hardness of water.

C. "Syn gas"- Mixture of N_2 and H_2 .

D. Hydrolith - On hydrolysis with water produces H_2 .

Answer: 3

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11. Heavy water is manufactured by :

- A. combination of hydrogen and heavier isotope of oxygen.
- B. electrolysis of water containing heavy hydrogen dissolved in it.
- C. repeated electrolysis of 3% aqueous solution of $NaOH$.
- D. none of the above.

Answer: 3



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12. Heavy water is used in atomic reactor as

- A. coolant
- B. moderator
- C. both coolant and moderator
- D. neither coolant nor moderator

Answer: 3

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13. In lab H_2O_2 is prepared by

A. cold dilute H_2SO_4 on hydrated BaO_2

B. dil. HCl on MnO_2

C. cold H_2SO_4 on MnO_2

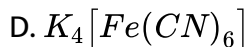
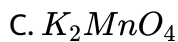
D. aqueous alkali on Na_2O_2

Answer: 1

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14. In acidic medium, H_2O_2 acts as a reducing agent in its reaction with :

A. $FeSO_4$



Answer: 2

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15. Which of the following statements is incorrect ?

A. H_2O_2 can act as an oxidising agent

B. H_2O_2 can act as a reducing agent

C. H_2O_2 has acidic properties

D. H_2O_2 has basic properties.

Answer: 4

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16. Normality of a '30 volume H_2O_2 ' solution is:

A. 3.57

B. 7.53

C. 5.36

D. 5.73

Answer: 3

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17. One of the following is an incorrect statement. Point out the incorrect one.

A. H_2O_2 decomposes rapidly in presence of MnO_2

B. Ice at its melting point is lighter than water because ice crystals have hollow hexagonal arrangement of H_2O molecules.

C. D_2O will have maximum density at $11.5^\circ C$.

D. Water gas contains greater proportion of CO than that of H_2

Answer: 4



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18. Arrange the following

a. CaH_2 , BeH_2 and TiH_2 in order of increasing electrical conductance.

b. LiH , NaH and CsH in order of increasing ionic character.

c. $H - H$, $D - D$ and $F - F$ in order of increasing bond dissociation enthalpy.

d. NaH , MgH_2 and H_2O in order of increasing reducing property.

A. (a), (b) and (c)

B. (b), (c) and (d)

C. (a), (c) and (d)

D. (a), (b), (c) and (d)

Answer: 2



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19. Hydrogen is evolved by the action of cold dil. HNO_3 , on

- A. Fe
- B. Mn
- C. Cu
- D. Al

Answer: 2



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20. Water softening by Clarke's process uses

- A. calcium hydroxide
- B. sodium bicarbonate
- C. sodium chloride

D. sodium hex-meta phosphate

Answer: 1

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21. Polyphosphates like sodium hexametaphosphate (calgon) are used as water softening agents because they

- A. form soluble complexe with anionic species
- B. precipitate anionic species
- C. form soluble complexes with cationic species
- D. precipitate cationic species.

Answer: 3

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22. Which of the following statements regarding hydrogen peroxide is / are incorrect ?

- A. The two hydroxyl groups in hydrogen peroxide lie in the different plane
- B. Aqueous solution of H_2O_2 turns blue litmus red.
- C. When H_2O_2 behaves as a reducing agent, the $O - O$ bond in its molecules is not broken down.
- D. Aqueous solution of H_2O_2 is stored in plastic bottles and some urea, phosphoric acid or glycerol is added to that solution.

Answer: 2



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23. In transforming 0.01 mole of PbS to $PbSO_4$, the volume of '10 volume H_2O_2 required will be :

A. 11.2ml

B. 22.4ml

C. 33.6ml

D. 44.8ml

Answer: 4

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24. Which of the following hydrides are generally non-stoichiometric in nature?

A. Ionic hydride

B. Molecular hydrides

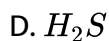
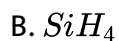
C. Interstitial hydride

D. Covalent hydrides

Answer: 3

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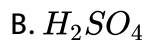
25. Among the hydrides given below which is reasonably electron precise hydride?



Answer: 2

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26. Which of the following is present in maximum amount in acid rain?



C. HCl

D. H_2CO_3

Answer: 2

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27. Which is not correct about greenhouse effect ?

A. It results in global warming

B. Carbon dioxide is one of the main chemical species responsible for it.

C. It results in lowering of ocean water over the years

D. CH_4CO_3 , CFC also contribute to greenhouse effect.

Answer: C

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28. Which of the following produces another air pollutant by reacting with oxides of nitrogen in presence of sunlight ?

A. HCl

B. SO_2

C. O_3

D. HCN gas

Answer: 3



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29. Smog is essentially caused by the presence of :

A. O_2 and N_2

B. O_3 and N_2

C. Oxides of sulphur and nitrogen

D. O_2 and O_3

Answer: 2



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30. Ozone shield is component of

A. troposphere

B. stratosphere

C. mesosphere

D. exosphere

Answer: 2



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31. Depletion of ozone layer causes :

A. blood cancer

B. lung cancer

C. skin cancer

D. bronchitis

Answer: 3



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32. Green chemistry has helped in developed of process for manufacture of polystyrene foam sheet packaging material by using as the blowing agent.

A. steam

B. CO_2

C. *CFCs*

D. methane.

Answer: 2



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33. Match List I with List II and select the correct answer using the codes

given below the list :

List I

List II

(i) Heavy water

(A) Bicarbonates of Mg and Ca in water

(ii) Temporary hard

(B) lather with soap water

(iii) Soft water

(C) D_2O

(iv) Permanent hard

(D) Sulphates and water chloride of Mg and Ca

Code :

A. *i - C, ii - D, iii - B, iv - A*

B. *i - B, ii - A, iii - C, iv - D*

C. *i - B, ii - D, iii - C, iv - A*

D. *i - C, ii - A, iii - B, iv - D*

Answer: 4



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