CHEMISTRY

BOOKS - MARVEL CHEMISTRY (HINGLISH)

SOLID STATE

Multiple Choice Questions

1. Hydrogen was discovered by

A. Aristotle

B. Henry Cavendish

C. Antoine Lavoisier

D. Gay Lussac

Answer: B

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2. Hydrogen resembles halogens in many respects for which several factors are responsible. Of the following factors which one is most important in this respect ?

A. Its small size

B. its tending to lose an electron to form a cation

C. its tending to gain a single electron in its valence shell to attain stable electronic configuration

D. its low ionisation potential

Answer: C

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3. Hydrogen is placed

A. in group 1 as it forms monovalent cation H^+

B. in group 17 as it forms monovalent anion H^-

C. in group 13

D. both (a) and (b)

Answer: D

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4. Which of the following statements is incorrect for hydrogen ?

A. It has very high ionisation enthalpy

B. It is always collected at cathode

C. It can form bonds in +1 as well as -1 oxidation state

D. It has same electronegativity as halogens

Answer: D

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5. Free hydrogen is found in

A. Acids

B. Water

C. Marsh gas Water gas

D.

Answer: D

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6. Abundance of H_2 in the earth's atmosphere is very small. This is because

A. the earth's gravitation field is too small to hold so light element

B. H_2 exists in ortho and paraform .

C. H_2 is diatomic gas

D. H_2 is not the metal

Answer: A

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7. The isotope of hydrogen which is radioactive is

A. Nascent hydrogen

B. Dihydrogen molecule

C. Tritium

D. Deuterium

Answer: C

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8. Deuterium oxide is used as a moderator in nuclear reactors because

A. it slows down the fast moving neutrons

B. it is a great source of dihydrogen

C. it is radioactive

D. it is heavy

Answer: A

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9. The nucleus of tritium contains

A. 4

B. 1

C. 3

D. 2

Answer: D

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10. The radioactive isotopes of hydrogen is :

A. Hydronium

B. Deuterium

C. Protium

D. Tritium

Answer: D

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11. The number of neutrons in deuterium is

A. 2

B. 1

C. 3

D. 0

Answer: B

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12. The least abundant isotope of hydrogen is

A. Protium

B. Deuterium

C. Tritium

D. Dihydrogen

Answer: C

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13. The nucleus of tritium contains

A. 1

B. 2

C. 3

D. 4

Answer: B

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14. 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 more proton than a hydrogen atom

Answer: B

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15. The radioactive isotopes of hydrogen is :

A. Tritium

B. Deuterium

C. Nascent hydrogen

D. Parahydrogen

Answer: A

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16. Tritium is a radioactive isotope of hydrogen . It emits

A. Neutrons

B. α -particles

C. β- particles

D. γ -rays

Answer: C

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17. The number of protons , electrons and neutrons in tritium are

A. $1:1:0$

B. $1:1:1$

C. $1:1:2$

D. $1:2:1$

Answer: C

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18. The sum of the number of neutrons and proton in the isotope of hydrogen is

A. 6

B. 5

C. 4

D. 3

Answer: D

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19. The notation $_{1}^{2}H$ stands for

A. Protium

B. Heavy hydrogen

C. Deuterium

D. Tritium

Answer: C

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20. The composition of the nucleus of deuterium is

A. one proton , one electron

B. one proton , one neutron

C. one neutron,one electron

D. one electron, two protons

Answer: B

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21. Uyeno's method for preparation of hydrogen involves action of

A. water on sodium hyride

B. KOH on scrap aluminium or silicon

C. pura dil. H_2SO_4 on magnesium ribbon

D. aqueous alkali on zinc

Answer: B

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22. Water gas is a mixture of

A. Co and H_2

B. CO_2 and H_2

C. CO_2 and H_2O

D. CO_2, O_2 and H_2O

Answer: A

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23. When fluorine gas reacts with water ,

A. water gets oxidised to oxygen

B. water gets reduced to oxygen

C. hydrogen gas is evolved

D. nascent hydrogen is produced

Answer: A

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24. Dihydrogen can be prepared on a commercial scale by the action of steam on hydrocarbons, when a mixture of CO and H_2 gas is formed. It is known as

A. Syngas

B. Industrial gas

C. Producer gas

D. Marsh gas

Answer: A

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25. Coal gasification is a process of

A. obtaining marsh gas

B. preparation of dihydrogen

C. softening of hard water

D. producing syngas from coke

Answer: D

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26. Hydrogen can be prepared by the action of dil. H_2SO_4 on

A. Copper

B. Iron

C. Lead

D. Mercury

Answer: B

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27. Commercial hydrogen is obtained from

A. Coal gas

B. Water gas

C. Marsh gas

D. producer gas

Answer: B

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28. Hydrogen can be prepared by the action of dil. H_2SO_4 on

A. Zinc

B. Copper

C. Silver

D. Mercury

Answer: A

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29. When the same amount of zinc is treated separately with excess of sulphric acid and excess of sodium hydroxide, the ratio of volume of hydrogen evolved is

A. $1:1$

B. $1:2$

C. $2:1$

D. $9:4$

Answer: A

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30. Electrolysis of brine gives

A. Carbon dioxide

B. Fluorine

C. Dihydrogen

D. Ammonia

Answer: C

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31. Some covalent organic compounds dissolve in water due to

A. high heat of vapourization of water

B. high dielectric constant of water

C. high specific heat of water

D. their capabiliby of forming hydrogen bonds with water

Answer: D

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32. Ice floats on water because

A. it is in the solid form

B. the density of ice is less then that of water

C. H is in the condensed form

D. heat is evolved in the formation of ice

Answer: B

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33. Hydrogen is :

A. neither electropositive nor electronegative

B. electropositive

C. electronegative

D. both electropositive as well as electronegative

Answer: D

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34. Hydrogen does not combine with

A. He

B. Na

C. Cu

D. Zn

Answer: A

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35. Which of the following statements is most appropriate about hydrogen ? It can act

A. as an oxidising agent

B. as an reducing agent

C. both as an oxidising and reducing agent

D. neither as an oxidising nor as a reducing agent

Answer: C

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36. The oxidation states exhibites by hydrogen in its various compounds are :

A. $+1$ only

B. -1 only

C. zero only

D. $+1, \ -1$ and zero

Answer: D

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37. Hydrogen combines with other elements by

A. losing an electron

B. sharing an electron

C. losing, gaining and sharing of an electron

D. gaining an electron

Answer: C

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38. Which of the following is most reactive towards dihydrogen ?

A. Cl_2

B. Br_2

C. F_2

D. I_2

Answer: C

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39. Dihydrogen reacts with CO at 700 k in the presence of a catalyst $Zn\emptyset Cr_2O_3$ to form

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40. Hydrogen is :

A. electropositive

B. electronegative

C. both as well as electonegative

D. neither electropositive nor electronegative

Answer: C

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41. In which of the following compounds does hydrogen have an oxidation state of -1?

A. CH_4

B. NH_3

C. HCl

D. CaH_2

Answer: D

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42. Hydrogen acts as an oxidising agent in the reaction with :

A. Bromine

B. Calcium

C. Nitrogen

D. Sulphur

Answer: B

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43. Hydrogen does not combine with

A. Sb

B. Na

C. He

D. Zn

Answer: C

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44. The hydrogen gas is

A. Colourless

B. Yellow

C. Orange

D. Red

Answer: A

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45. Which of the following compounds is converted from a liquid state to solid by hydrogen ?

A. Ethylene

B. Glycerol

C. Triolein

D. Tristearin

Answer: C

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46. Hydrogen gas will not reduce

A. heated cupric oxide

B. heated ferric oxide

C. heated sannic oxide

D. heated aluminium oxide

Answer: D

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47. Hydrogen acts as an oxidising agent in the reaction with :

A. Br_2

B. Ca

C. N_2

D. S

Answer: B

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48. Ortho and para hydrogen have :

A. identical physical and chemical properties

B. different physical but identical chemical properties

C. identical physical but different chemical properties

D. different physical and chemical properties .

Answer: B

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49. The metal which given hydrogen with very dil . HNO_3 is

A. Al

B. Mg

C. Au

D. Sn

Answer: B

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50. Water gas is a mixture of

A. Co and H_2

B. CO and N_2

C. CO and H_2

D. CO and CH_4

Answer: C

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51. Which of the following is used as rocket fuel?

A. Hydrogen gas

B. Hydrogen in liquid state

C. Atomic hydrogen

D. Nascent hydrogen

Answer: B

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52. The hydrogenation of oil is carried out by using

A. Dihydrogen

B. Hydrogen atom

C. Hydrides

D. Hydrogen peroxide

Answer: A

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53. Hydride ion is a strong

A. conjugate base of H^+

B. conjugate acid of H^-

C. conjugate acid of H_2

D. conjugate base of H_2

Answer: C

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54. Among the following hydrides , which is not an ionic hydride ?

A. LiH

B. CaH_2

C. CsH

D. GeH_2

Answer: D

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55. Covalent hydride will not be formed by

A. Fluorine

B. Phosphorus

C. Potassium

D. Sulphur

Answer: C

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56. Which of the following hydrides is electron-precise hydride ?

A. B_2H_6

B. H_2O

C. CH_4

D. NH_3

Answer: C

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57. Which of the following hydrides is molecular hydride ?

A. NaH

B. H_2S

C. HF

D. H_2O

Answer: B

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58. Which of the following statements is not corrct ?

A. Ionic hydrides do not conduct electricity in solid state

B. Metallic hydrides are deficient of hydrogen

C. Ionic hydrides are very good conductors of electricity in solid state

D. Metallic hydrides conduct heat and electricity

Answer: A

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59. In which of the following pairs, both the hydrides are not of the same type?

A. CH_4, H_2S

B. NaH, CaH_2

C. BaH_2, SiH_4

D. LaH_3, TiH_2

Answer: C

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60. Ionic hydrides react with water to

A. give basic solution

B. give acidic solution

C. Produce hydride ion

D. Produce protons

Answer: A

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61. SiH_4 is an example of which of the following types of hydirdes ?

A. Ionic

B. Metallic

C. Interstitial

D. Covalent

Answer: D

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62. Which one the following is a covalent hydride ?

A. BaH_2

B. CaH_2

C. KH

D. BH_3

Answer: D

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63. The reaction taking place during photosynthesis is

A. $H_2O_{(l)} + NH_{3(aq)} \Leftrightarrow OH^-_{(aq)} + NH^+_{4(aq)}$

B. $H_2O_{(l)} + H_2O_{(l)} \Leftrightarrow H_3O^+_{(aq)} + OH^-_{(aq)}$

C. $6CO_2 + 6H_2O \Leftrightarrow C_6H_{12}O_{6\,(aq)} + 6O_{2\,(g)}$

D. $CaC_2 + 2H_2O \Leftrightarrow C_2H_2 + Ca(OH)_2$

Answer: C

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64. Which of the following can produce hydrogen from water

A. Heated iron

B. Heated stannic oxide

C. Heated aluminium oxide

D. Heated copper oxide

Answer: A

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65. The unusual properties of water in the condensed phases are due to

A. its molecular weight

B. existence of isotopes of hydrogen

C. extensive hydrogen bonding between water molecules

D. high dielectric constant

Answer: C

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66. Which of the following reactiona is an example of use of water gas in the synthesis of other compounds?

A. $C_nH_{2n+2} + nH_2O_{(g)} \xrightarrow[Ni]{1270k} 2CO + (2n+1)H_2$

B. $CO_{(g)} + H_2O_{(g)} \xrightarrow[catalyst]{673k} CO_{2(g)} + H_{2(g)}$

C. $CH_{4(g)} + H_2O_{(g)} \xrightarrow[Ni]{1270k} CO_{(g)} + H_{2(g)}$

D. $CO_{(g)} + 2H_{2(g)} \xrightarrow[catalyst]{CO} CH_3OH_{(l)}$

Answer: D

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67. Amongst the properties of water given below , which is not correct ?

A. water is considered as universal solvent

B. Hydrogen bonding is present to a large extent in liquid water

C. There is no hydrogen bonding in frozen state of water

D. frozen water is lighter then liquid water

Answer: C

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68. The bond angle and dipole moment of water respectively are :

A. $109.5^\circ, 1.84D$

B. $104.5^\circ, 1.84D$

C. $107.5^\circ, 1.56D$

D. $102.5^\circ, 1.56D$

Answer: B

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69. Heavy water is

A. Deuterium oxide

B. sodium peroxide

C. Carbon dioxide

D. Dihydrogen oxide

Answer: A

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70. Heavy water is

A. $H_2^{16}O$

B. H_2O_2

C. $H_2^{18}O$

D. D_2O

Answer: D

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71. Which one of the following processes will produce permanent hard water ?

A. Saturation of water with $CaSO_4$

B. Saturation of water with $CaCO_3$

C. Saturation of water with $MgCO$

D.

Answer: A

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72. The reagent commonly used to determine hardness of water titrimetrically is :

A. Sodium citrate

B. Disodium salt of EDITA

C. Oxalic acid

D. Sodium thiosulphate

Answer: B

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73. Which of the following ions will cause hardness in water sample?

A. Ca^{2+}

B. $Na(+)$

C. K^+

D. Cl^-

Answer: A

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74. Which of the following statement(s) is/are correct in the case of heavy water ?

A. Heavy water is more effective as solvent than ordinary water

B. Heavy water has lower boiling point than ordinary water

C. Heavy water is available easily

D. Heavy water is used as a moderator in nuclear reactor

Answer: D

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75. The permanent hardness of water is due to the presence of

A. hydrogen carbonates of Ca and Mg in water

B. carbonates of alkali metals in water

C. sulphates of CO and Cu in water

D. chlorides and sulphates of Ca and Mg in water

Answer: D

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76. Which of the following is used as a moderator in nuclear reactors ?

A. Hard water

B. Deionised water

C. Distilled water

D. Heavy water

Answer: D

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77. The reagent(s) used for softening the temporary hardness of water is (are):

A. $Ca_3(PO_4)_2$

B. $Ca(OH)_2$

C. NaCl

D. NaOCl

Answer: B

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78. Polyphosphates are used as water softening agents because they

A. form soluble complexes with anionic species

B. precipitate anionic species

C. form soluble complexes with cotionic species

D. precipitate cationic species

Answer: C

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79. Which of the following molecules have practically the same mass ?

A. H_2O and D_2O

B. H_2O and HTO

C. D_2O and HTO

D. DTO and HDO

Answer: C

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80. Heavy water is

A. $H_2^{18}O$

B. water obtained by repeated distillation

C. D_2O

D. water$4^\circ C$

Answer: C

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81. The degree of hardness of water is usually expressed in terms of

A. ppm of CaCO_3 actually present in water

B. g/L of CaCO_3 and MgCO_3 present

C. ppm by weight of CaCO_3 irrespective of whether it is actually present

D. ppm by weight of $MgSO_4$

Answer: C

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82. Explain why calcuim ion makes water hard, but sodium ion does not.

A. Calcium forms soluble compounds with stearate ions present in soap

B. Both ions form insoluble compounds with stearate ions present soap

C. Calcium forms insoluble compounds with stearate ions present in soap

D. Sodium form insoluble compounds with stearate ions in the soap

Answer: C

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83. When zeolite (hydrated sodium aluminium silicate) is treated with hard water the sodium ions are exchanged with

A. H^+ ions

B. SO_4^{2-} ions

C. Ca^{2+} and Mg^{2+} ions

D. OH^- ions

Answer: C

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84. The compound which cannot be oxidesed by H_2O_2 is

A. $NaSO_3$

B. Pbs

C. HCl

D. O_3

Answer: D

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85. When hydrogen peroxide is oxidised by a suitable oxidant one of the product is

A. H_3O^+

B. O_2

C. O^{2-}

D. OH^-

Answer: D

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86. Industrial preparation of H_2O_2 , involves auto oxidation of

A. 1-Ethylanthraquinol

B. 1-Ethylantraquinone

C. 2-Ethylanthraquinone

D. 2-Ethylanthraquinol

Answer: D

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87. H_2O_2 is always stored in black bottles because

A. it is highly unstable

B. it undergoes auto oxidation on prolonged standing

C. it evaporates fast

D. its is diamagnetic

Answer: B

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88. The compound useful for restoring aerobic conditions to sewage waste is

A. Ammonia

B. Heavy water

C. Hydrogen peroxide

D. Carbon dioxide

Answer: C

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89. Hydrogen peroxide is not stored in glass bottle as

A. it gets evaporated fast

B. it is highly unstable

C. alkali oxides present in glass catalyses its decomposition

D. it is diamagnetic

Answer: C

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90. Reaction of ethylene with H_2O_2 gives

A. Ethanol

B. Acetaldehyde

C. Ethylene glycol

D. Ethene

Answer: C

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91. H_2O_2 is a good bleaching agent due to its

A. Acidic nature

B. Reducing nature

C. Oxidising nature

D. Non polar nature

Answer: C

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92. Which one of the following compounds is a peroxide?

A. Cu_2O

B. BaO_2

C. NO_2

D. MnO_2

Answer: B

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93. Bond angles in H-O-O and H-O-H in H_2O_2 and water respectively are

A. $94.8^\circ, 104.5^\circ$

B. $104.5^\circ, 94.8^\circ$

C. $104.5^\circ, 104.5^\circ$

D. $94.8^\circ, 94.8^\circ$

Answer: A

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94. Bleaching action of H_2O_2 is due to its :

A. oxidation of colouring matter by nascent oxygen

B. recuction of coloring matter by nascent hydrogen

C. presence of proton

D. presence of water molecule

Answer: A

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95. When sodium peroxide is trated with the dilute sulphuric acid, we getâ€¦â€¦..

A. sodium sulphate and oxygen

B. sodium sulphate and hydrogen peroxide

C. sodium sulphate and water

D. sodium sulphate ,hydrogen and oxygen

Answer: B

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96. Hydrogen peroxide is

A. oxidisting now reducing agent

B. both oxidising and reducing agent

C. reducing agent

D.

Answer: C

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97. Hydrogen peroxide is obtained by the electrolysis of â€¦â€¦â€¦

A. Water

B. Fused sodium peroxide

C. Sulphuric acid

D. Hydrochloric acid

Answer: C

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98. The chemical formula of perhydrol is

A. H_2O

B. CO_2

C. H_2O_2

D. H_3O^+

Answer: C

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99. 10 volume H_2O_2 means _____.

A. 10 cm^3 of the solution contains 1 g of H_2O_2

B. $1cm^3$ of the solution liberates 10 $cm^3 of O_2$ at STP

C. $10cm^3$ of the solution contain 1 mole of H_2O_2

D. $10\ \%\ H_2O_2$

Answer: B

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100. in alkaline medium, H_2O_2 reacts with Fe^{3+} and $Mn^{\circ+}$ respectively to give :

A. Fe^{4+} and Mn^{4+}

B. Fe^{2+} and Mn^{2+}

C. Fe^{2+} and Mn^{4+}

D. Fe^{4+} and Mn^{4+}

Answer: C

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101. Unhydrous BaO_2 cannot be used in the preparation of H_2O_2 because

A. it is expensive

B. $BaSO_4$ gets precipitated which forms a protective

C. it decomposes on heating

D. it is highly unstable

Answer: B

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102. Which of the following reactions represents the reducing nature of H_O_2 ?

A. $Mn^{2+} + H_2O_2 \rightarrow Mn^{4+} + 2OH^-$

B. $PbS + 4H_2O_2 \rightarrow PbSO_4 + 4H_2O$

C.

$$2\left[Fe(CN)_6\right]^{4-} + 2H^+ + H_2O_2 \rightarrow 2\left[Fe(CN)_6\right]^{3-} + 2H_2O$$

D. $I_2 + H_2O_2 + 2OH^- \rightarrow 2I^- + 2H_2O + O_2$

Answer: D

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103. Which of the statements is not correct about H_2O_2 ?

A. Acts as both oxidising and reducing agent

B. Pale blue liquid

C. Two OH bonds lie in the same plane

D. Can be oxidised by O_3

Answer: C

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104. H_2O_2 acts as an oxidising agent in

A. Neutral medium

B. Acidic medium

C. Alkaline medium

D. Acidic and alkaline medium

Answer: D

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105. The gas evolved by the action of water on Na_2O_2

A. NH_3

B. H_2

C. O_2

D. N_2

Answer: C

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106. What is the mass of hydrogen peroxide in 1 L of 3M solution?

A. 10.2 gm

B. 11.3 gm

C. 102 gm

D. 68 gm

Answer: C

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107. Decomposition of hydrogen peroxide is prevented by

A. NaOH

B. Glycerol

C. MnO_2

D. Oxalic acid

Answer: B

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108. The oxidation number of oxygen in hydrogen peroxide is

A. $+1$

B. $+2$

C. -1

D. -2

Answer: C

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109. Hydrogen peroxide is used as an antiseptic under the name of

A. Nessler's reagent

B. Catechol

C. Bleaching powder

D. Perhydrol

Answer: D

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110. The strengh of 20 volume of H_2O_2 is

A. 60.7gm/litre

B. 13.6 gm /litre

C. 160gm/litre

D. 20.2gm/litre

Answer: A

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111. 35 volume of H_2O_2 means

A. $35\ \%\ H_2O_2$

B. $35cm^3$ of solution liberates 1 gm of H_2O_2

C. $35cm^3$ of solution containing 1 mole of H_2O_2

D. $1cm^3$ of the solution librates 25 cm^3 of O_2 and NTP

Answer: A

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112. The volume stregth of 1 N H_2O_2 solution is

A. 17

B. 4.8

C. 5.6

D. 3.4

Answer: C

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113. When hydrogen peroxide is oxidised by a suitable oxidant one of the product is

A. O^{2-}

B. HO^{2-}

C. OH^{-}

D. O_2

Answer: D

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114. Which of the following cannot be oxidised by H_2O_2 ?

A. Kl+HCl

B. O_3

C. PbS

D. $NaSO_3$

Answer: B

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115. H_2O_2 is always stored in black bottles because

A. it is highly unstable

B. it enthalpy of dissociation is high

C. it under goes auto oxidation on proposed standing

D. none of these

Answer: C

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116. H_2O_2 on reacting with ethylene gives

A. Ethylene glycol

B. Ethanol

C. Ethanol

D. Ethane

Answer: A

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117. The decomposition of H_2O_2 can be checked by addition of

A. Alkali metal oxide

B. Benzene

C. Acetamide

D. MnO_2

Answer: C

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118. Bleaching action of H_2O_2 is due to its :

A. Oxidising nature

B. Reducing nature

C. Acidic nature

D. Thermal instability

Answer: A

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119. HCl is added to the following oxides, which one would give H_2O_2?

A. MnO_2

B. PbO

C. BaO_2

D. NO_2

Answer: C

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120. One of the methods for the manufacture of H_2O_2 involve the electrolysis of

A. $conc.\ H_2SO_4$

B. $dil.\ H_2SO_4$

C. $50\ \%\ H_2SO_4$

D. an alkali solution

Answer: C

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121. The compound that gives hydrogen peroxide on treatment with a dilute cold acid is:

A. PbO_2

B. Na_2O_2

C. MnO_2

D. TiO_2

Answer: A

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122. Decomposition of H_2O_2 can be slowed down by addittion of smass amount phosphoric acid which act as

A. Stopper

B. Inhibitor

C. Detainer

D. Promoter

Answer: B

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123. Decomposition of H_2O_2, is a first order reaction. A 16 volume solution of H_2O_2 of half life 30 min is present at start. When will the solution become one volume?

A. After 60 minutes

B. After 90 minutes

C. After 150 minutes

D. After 150 minutes

Answer: C

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124. A sample of H_2O_2 is labelled 10 vol. Its percentage strength will be nearly___ %.

A. 0.01

B. 0.03

C. 0.1

D. 0.9

Answer: B

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125. The strength of 15 volume solution of hydrogen peroxide is

A. 15.2g/L

B. 45.53g/L

C. 34 g/L

D. 4.533g/L

Answer: B

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126. The structure of H_2O_2 is

A. Linear

B. Tetrahedral

C. Planar

D. Spherical

Answer: C

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127. The strength of 10 ml H_2O_2 solution is

A. 10

B. 68

C. 60.70

D. 30.36

Answer: D

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128. Commerical 11.2 volume H_2O_2 solution has a molarity of

A. 0.5

B. 1.0

C. 1.12

D. 0.75

Answer: B

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129. Hydrogen is used in

A. Diesel

B. Gasoline

C. LPG

D. Synthetic petrol

Answer: D

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130. Which of the following uses hydrogen to generate electricity?

A. Voltameter

B. Daniel cell

C. Fuel cell

D. Dry cell

Answer: C

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131. The reaction occuring in fuel cell is

A. formation of hydrogen

B. formation of oxygen

C. combustion of hydrogen

D. combustion of oxygen

Answer: C

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132. Water gas is prepared by

A. passing steam over red hot coke

B. prolonged electrolysis of ordinary water containing 3% NaOH

C. adding metal hydrides of water bubbling CO_2 through water

D.

Answer: A

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133. Rocket fuel used in space research is a mixture of

A. liquid hydrogen mixed liquid oxygen

B. hydrogen gas mixed with carbon dioxide

C. liquid hydrogen mixed with ammonia gas

D. metal hydrides

Answer: A

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134. The chemical composition of zeolite is

A. $FeSO_4.(NH_4)_2SO_4$

B. $Al_2SO_4.K_2SO_4$

C. $Na_2Al_2SiO_8.XH_2O$

D. $NaAlO_3$

Answer: C

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135. H_2O_2 is called as antichlor as

A. it reduces chlorine to hydrogen chloride

B. it is a good oxidising agent

C. it neutralises alkalies

D. it acts as a bleaching agent

Answer: A

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136. Why is dihydrogen not preferred in weather balloons these days?

A. it is insoluble in water

B. it is relatively inert at room temperature

C. it is highly combustible and can catch fire in excess of air

D. it is colourless gas

Answer: C

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137. Temporary hardness of water due to $Mg(HCO_3)_2$ can be completely removed by boiling because

A. boiling evaporates $Mg(HCO_3)_2$

B. it is conveted into insoluble $MgCO_3$ which can be removed by filtration

C. boiling converts $Mg(HCO_3)_2$ into H_2CO_3 and makes it slightly acidic

D. it evolves CO_2

Answer: B

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138. The number of lone pairs in hydrogen fluoride molecule are

A. 1

B. 2

C. 3

D. 0

Answer: C

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139. In the electrolysis of acidified water using Pt electrodes, for the production of water sulphate ions are not discharged at anode as

A. size of sulphate ions is small

B. less sulphate ions are produced

C. the discharge potential of sulphate ions is higher than that of hydrogen ions

D. sulphate ions dissolve in water

Answer: C

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140. Atomic hydrogen is produced by _____.

A. its orbital is incomplete

B. it has high bond dissociation enthlpy and is inert at room temperature

C. it decoposes at high temperature

D. it combines with almost all the elements

Answer: B

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141. The volume strength of $2NH_2O_2$ solutions is

A. 2

B. 4.8

C. 11.2

D. 3.4

Answer: C

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142. In which of the following reactions, H_2O_2 is acting as a reducing agent?

A. $PbS + 4H_2O_2 \rightarrow PbSO_4 + 4H_2O$

B. $I_2 + H_2O_2 + 2OH^- \rightarrow 2I^- + 2H_2O + O_2$

C. $SO_2 + H_2O_2 \rightarrow H_2SO_4$

D. $Ag_2O + H_2O_2 \rightarrow 2Ag + H_2O + O_2$

Answer: D

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143. The metal, which gives hydrogen on treatment with acid as well as sodium hydroxide is

A. Fe

B. Zn

C. Cu

D. Mg

Answer: B

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144. The salt which imparts permanent hardness to water is

A. $Mg(HCO_3)_2$

B. NaCl

C. $MgCl_2$

D. Na_2SO_4

Answer: C

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145. Non -stoichiometric hydrides is produced by

A. Vanadium

B. Chromium

C. Calcium

D. Manganese

Answer: A

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146. Which type of hydrides can be used as hydrogen storage media?

A. Platinum ,palladium

B. Iron and manganese

C. Aluminium and sodium

D. Copper and zinc

Answer: A

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147. The oxides which give H_2O_2 on treatment with dilute acid are:

A. BaO_2

B. Na_2O_2

C. PbO_2

D. MnO_2

Answer: B

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148. The structure of H_2O_2 is

A. Diagonal planar

B. Tetrahedral

C. Non-planar open book

D. Trigonal planar

Answer: C

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149. Explain why the freezing point, boiling point, heat of fusion and heat of vaporisation of water are higher as compared to the hydrides of the other members of same group (16).

A. the size of water molecules is small

B. it is polar molecule

C. it has high dielectric constant

D. of the presence of hydrogen bonding

Answer: D

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150. The correct formula of hydrolith is :

A. $NiAlH_4$

B. $NaBH_4$

C. CaH_2

D. B_2H_6

Answer: C

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151. When heavy water is added to calcium carbide the compound formed is

A. Deuteroacetylene

B. Deuterochloroform

C. Acetylene

D. Hydrogen peroxide

Answer: A

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152. Ortho and para hydrogen differn in

A. Nature of spin of electrons

B. Nature of spin of protons

C. Clockwise spin of electrons only

D. Anticlockwise spin of electrons only

Answer: B

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153. The colour of hydrogen is

A. Blue

B. Yellow

C. Orange

D. Coloursless

Answer: D

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154. Hydrogen cannot reduce

A. $Hot Al_2O_3$

B. $Hot Fe_2O_3$

C. $Hot CuO$

D. $Hot Sn_2$

Answer: A

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155. Which of the following is heavy water ?

A. H_2O

B. D_2O

C. T_2O

D. Water at 0°

Answer: B

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156. Which substance does not speed up to decomposition of H_2O_2 ?

A. Glycerol

B. Pt

C. Gold

D. MnO_2

Answer: A

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157. 10 V H_2O_2 means that

A. 10 ml of this H_2O_2 evolves 10 ml of O_2 at NTP

B. 10 ml of this H_2O_2 evolves 1 ml of O_2 at NTP

C. 1 ml of this H_2O_2 evolves 10 ml of O_2 gas at NTP

D. All of above

Answer: C

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158. Which of the following is not an example of ionic hydride ?

A. NaH

B. CaH_2

C. CsH

D. GeH_4

Answer: D

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159. The volume of oxygen evolved at STP by decomposition of $0.68g$ '20 volume ' hydrogen peroxide solution is

A. 2.24 mL

B. 22.4 mL

C. 224mL

D. 2240 mL

Answer: C

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160. (a) $H_2O_2 + O_3 \rightarrow H_2O + 2O_2$

(b) $H_2O_2 + Ag_2O \rightarrow 2Ag + H_2O + O_2$

Role of hydrogen peroxide in the above reactions is respectively

A. Oxidising in (i) and reducing in (ii)

B. Reducing in (i) and oxidising in (ii)

C. Reducing in (i) and (ii)

D. oxidising in (i) and (ii)

Answer: A

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161. In acidic medium, H_2O_2 changes $Cr_2O_7^{2-}$ to CrO_5 which has two (-O-O-) bonds. Oxidation state of Cr in CrO_5 is

A. $+5$

B. $+3$

C. $+6$

D. -10

Answer: C

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162. The reaction of aqueous $KMnO_4$ with H_2O_2 in acidic conditions gives_____.

A. Mn^{4+} and O_2

B. Mn^{2+} and O_2

C. Mn^{2+} and O_3

D. Mn^{4+} and MnO_2

Answer: B

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163. In which of the following reactions H_2O_2 acts as a reducing agent ?

(i) $H_2O_2 + 2H^+ + 2e^- \rightarrow 2H_2O$

(ii) $H_2O_2 - 2e^- \rightarrow O_2 + 2H^+$

(iii) $H_2O_2 + 2e^- \rightarrow 2OH^-$

(iv) $H_2O_2 + 2OH^- - 2e^- \rightarrow O_2 + 2H_2O$

A. (i) and (iii)

B. (ii) and (iv)

C. (i) and (ii)

D. (iii) and (iv)

Answer: B

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164. The unusual properties of water in the condensed phases are due to

A. its molecular weight

B. existence of isotopes of hydrogen

C. extensive hydrogen bonding between water molecules

D. high dielectric constant

Answer: C

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165. Syngas is a mixture of

A. CO_2 and H_2O

B. CO_2 and O_2

C. CO and H_2

D. CO_2 and H_2

Answer: C

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166. Water has the ability to dissolve most of the inorganic compounds due to

A. it's structure

B. orbital overlap

C. high dielectric constant

D. bond angle of $104^\circ 35'$

Answer: C

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167. Blackened oil painting can be restored into original form by the action of

A. BaO_2

B. MnO_2

C. H_2O_2

D. Chlorine

Answer: C

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168. In the electrolysis of brine, the byproduct obtained is

A. Carbon dioxide

B. Fluorine

C. Dihydrogen

D. Ammonia

Answer: C

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169. Methanol is prepared by using

A. CO_2 and H_2

B. CO_2 and H_2O

C. CO and H_2

D. CO and H_2O

Answer: C

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170. Heavy water is obtained by

A. prolongen electrolysis of H_2O

B. fractional distillation of H_2O

C. boiling water above 100° C

D. heating of H_2O_2

Answer: A

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171. Caol gassifiaction is a process of

A. obtaining marsh gas

B. preparation of dihydrogen

C. softening of hard water

D. producing syngas from coke

Answer: D

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172. The antiseptic marketed as perhydrol is

A. 2-Ethylanthraquinol

B. Hydrogen sulphide

C. Hydrogen peroxide

D. Porassium permanganate

Answer: C

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173. Nascent hydrogen consists of

A. hydrogen ions in the excited state

B. hydrogen atoms with excess energy

C. solvated protons

D. hydrogen molecules with excess energy

Answer: D

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174. Decomposition of hydrogen peroxide is prevented by

A. NaOH

B. Glycerol

C. MnO_2

D. Oxalic acid

Answer: B

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175. Metals like platinum and palladium can adsorb large volumes of hydrogen under special conditions. Such adsorbed hydrogen by the metal is known as

A. Absorbed hydrogen

B. Nascent hydrogen

C. Reactive hydrogen

D. Occluded hydrogen

Answer: D

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176. Pure water does not conduct electricity because it :

A. basic

B. decomposed easily

C. acidic

D. almost not ionised

Answer: D

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177. Reaction taking place in a fuel cells are:

A. formation of hydrogen

B. formation of oxygen

C. combustion of hydrogen

D. combustion of oxygen

Answer: C

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178. Hydride ion is a strong

A. conjugate base of H^+

B. conjugate acid of H^-

C. conjugate acid of H_2

D. conjugate base of H_2

Answer: C

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179. Of the two solvent H_2O and D_2O, $NaCl$ dissolves

A. equally in both the solvents

B. only in H_2O but remains insoluble in D_2O

C. more in D_2O

D. more in H_2O

Answer: C

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180. Permanent hardness of water is due to the presence of

A. hydrogen carbonates of Ca and Mg in water

B. carbonates of alkali metals in water

C. sulphates of CO and Cu in water

D. chlorides and sulphates of Ca and Mg in water

Answer: D

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181. When hydrogen peroxide is added to acidified potassium dichromate, a blue colour is produced due to formation of :

A. CrO_3

B. Cr_2O_3

C. CrO_5

D. CrO_4^{2-}

Answer: C

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182. The reaction taking place during photosynthesis is

A. $H_2O_{(l)} + NH_{3(aq)} \Leftrightarrow OH^-_{(aq)} + NH^+_{4(aq)}$

B. $H_2O_{(l)} + H_2O_{(l)} \Leftrightarrow H_3O^+_{(aq)} + OH^-_{(aq)}$

C. $6CO_2 + 6H_2O \Leftrightarrow C_6H_{12}O_{6(aq)} + 6O_{2(g)}$

D. $CaC_2 + 2H_2O \Leftrightarrow C_2H_2 + Ca(OH)_2$

Answer: C

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183. The compound useful for restoring aerobic conditions to sewage waste is

A. Ammonia

B. Heavy water

C. Hydrogen peroxide

D. Carbon dioxide

Answer: C

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