

Hydrogen & Its Compounds

LEVEL-I

Occurrence, Isotopes, Preparation, Properties, Uses of Hydrogen

- The element which has no suitable position in the periodic table is**
 - 1) Hydrogen
 - 2) Oxygen
 - 3) Carbon
 - 4) Nitrogen
- Hydrogen differs from alkali metals in**
 - 1) Nature of oxide
 - 2) Valency Electrons
 - 3) The formation of cation
 - 4) Electropositive Nature
- Correct statement among the following is**
 - 1) Oxide of hydrogen is basic
 - 2) Hydrogen exhibits flame colouration like alkali metals
 - 3) Hydrogen has high I.P value like halogens
 - 4) Electrolysis of fused saline hydride gives hydrogen from cathode
- Hydrogen mainly resembles halogens in the property**
 - 1) It contains one electron only
 - 2) It is short of one electron to get inert gas configuration
 - 3) It is a diatomic gas like halogens
 - 4) It exhibits colour like halogens
- Hydrogen mainly resembles alkali metals in the property**
 - 1) It forms H^+ (aq) ion
 - 2) Its I.P is similar to alkali metals
 - 3) It is electropositive
 - 4) It has ns^2 configuration
- Hydrogen is available in Free State in**
 - 1) Clay
 - 2) Coal
 - 3) Volcanic gases
 - 4) Petroleum

7. The Ionization energy of hydrogen is

- 1) Greater than inert gases 2) Nearer to inert gases
3) Nearer to Halogens 4) Nearer to alkaline earth metals

8. The ionization energy of hydrogen is

- 1) 1312 KJ mole⁻¹ 2) 520 KJ mole⁻¹ 3) 495 KJ mol⁻¹ 4) 1681 KJ mol⁻¹

9. The element without neutron is

- 1) H 2) C 3) He 4) Na

10. 1_1H , 2_1H and 3_1H differ in their

- 1) Atomic radius 2) Position in the periodic table
3) Chemical properties 4) Physical properties

11. 1_1H , 2_1H and 3_1H will have the same

- 1) Mass number 2) Chemical reactivity
3) Electron configuration 4) Nuclear radius

12. The radioactive isotope of hydrogen is

- 1) 1_1H 2) 2_1H 3) 3_1H 4) 0_1H

13. Among the radioactive elements tritium is used as better tracer because

- 1) It is cheaply available 2) It emits low energy b-rays
3) It does not emit γ -rays 4) All the above

14. Which property is same for both normal hydrogen and deuterium?

- 1) Boiling point 2) Freezing point 3) Bond energy 4) Bond length

15. Which property is lower for deuterium than hydrogen?

- 1) Latent heat of vaporization 2) Latent heat of fusion
3) Reactivity 4) Atomic weight

16. The number of possible hydrogen molecules formed from its isotopes is
1) 3 2) 6 3) 9 4) 12
17. Adsorption of hydrogen by palladium is known as
1) Reduction 2) Hydrogenation 3) Occlusion 4) Dehydrogenation
18. The total number of fundamental particles in tritium atom is
1) 4 2) 3 3) 2 4) 1
19. The catalyst used in Fisher-Tropsch process is
1) Iron oxide 2) Cobalt 3) Iron 4) $ZnO \cdot CrO_3$
20. The catalyst in the hydrogenation of oils is
1) Pt 2) Ni 3) Fe 4) Co
21. Hydrogen is used as reducing agent in metallurgy for the reduction of --- oxide
1) Zinc 2) Iron 3) Molybdenum 4) Aluminium
22. When 'n' moles of CO combines with $(2n+1)$ moles of H_2 , the hydrocarbon formed is
1) Alkene 2) Alkane 3) Alkyne 4) None
23. Bond length is more in
1) H-H 2) D-D 3) T-T 4) Same in all
24. (A): Tritium is used as tracer element in preference to deuterium.
(R): Tritium is non - toxic and it emits low energy beta radiation.
The correct answer is
1) Both (A) and (R) are true and (R) is the correct explanation of (A).
2) Both (A) and (R) are true and (R) is not the correct explanation of (A).
3) (A) is true but (R) is false.
4) (A) is false but (R) is true.

HYDRIDES, IONIC, COVALENT AND INTERSTITIAL COMPOUNDS

25. Ionic hydrides react with water to give

- 1) Acidic solutions 2) Basic solutions 3) Hydride ion 4) Protons

26. Which ionic hydride is stable up to its M.P?

- 1) NaH 2) CaH_2 3) LiH 4) BaH_2

27. The co-ordination number of Na in solid NaH is

- 1) 4 2) 6 3) 8 4) 12

28. Which is polymeric hydride?

- 1) CaH_2 2) MgH_2 3) BaH_2 4) SrH_2

29. Which element form hydride

- 1) Cr 2) Mo 3) W 4) Sg

30. The hydride gap is used for elements of group

- 1) 1, 2, 3 2) 3, 4, 5 3) 7, 8, 9 4) 6, 7, 8

31. Hydrolith, a source of H_2 is

- 1) NaH 2) CaH_2 3) LiH 4) BaH_2

32. For binary hydrides of formula MX_n the value of n can be fractional for

- 1) Salt like hydrides 2) Covalent hydrides
3) Interstitial hydrides 4) Polymeric hydrides

33. Which type of hydrides are non-stoichiometric hydrides

- 1) Hydrides of group 7, 8, 9 2) Hydrides of group 3, 4, 5
3) Hydrides of group 14, 15 4) Hydrides of group 1, 2

34. When electric current is passed through an ionic hydride in molten state

- 1) Hydrogen is liberated at anode 2) Hydrogen is liberated at cathode
3) Hydrogen is migrates towards cathode 4) Hydride ion remains in solution

35. Which of the following metals can't liberate H_2 on reacting with dilute HCl ?

- 1) Cu 2) Mg 3) Fe 4) Zn

36. Which of the following metals adsorb hydrogen?

- 1) Zn 2) Pd 3) Pt 4) K

37. Matching type

Column-I

Column-II

- | | |
|-------|-------------------------------|
| A) K | p) Covalent hydride |
| B) La | q) Salt-Like ionic hydride |
| C) Fe | r) Complex hydride |
| D) Sn | s) Non-stoichiometric hydride |

- | | A | B | C | D |
|------|---|---|---|---|
| 1) q | s | r | p | |
| 2) p | q | r | s | |
| 3) p | q | s | r | |
| 4) q | p | r | s | |

PHYSICAL AND CHEMICAL PROPERTIES OF WATER

38. Chemically soap is

- 1) Sodium Stearate 2) Calcium Stearate 3) Magnesium Stearate 4) Ferric Stearate

39. Hard water is one which

- 1) Contains dissolved sodium salts
2) Contains dissolved gases
3) Does not give good lather immediately with soap
4) Violently reacts with Na metal

40. Which salt is water soluble?

- 1) Calcium Stearate 2) Magnesium Stearate 3) Ferric Stearate 4) Sodium Stearate

The correct match is

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
(1)	2	1	5	4
(2)	3	1	4	5
(3)	1	3	2	4
(4)	4	2	1	5

58. **List - 1**

- A) Anion exchange
- B) Cation exchange
- C) Permutit
- D) Calgon

List - 2

- 1) Ca^{+2} and Mg^{+2} resin ions are removed by ion exchange
- 2) The exhausted resin substance is re-generated by soaking with 10% NaCl.
- 3) Cl^{-1} and are removed
- 4) Ca^{+2} and Mg^{+2} ions are removed in the form of water soluble complexes
- 5) Only permanent hardness is removed

The correct match is

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
(1)	5	1	2	4
(2)	4	5	3	1
(3)	3	1	2	4
(4)	3	2	4	5

59. The formula of exhausted permutit

- i) $\text{Na}_2\text{Al}_2\text{Si}_2\text{O}_8 \cdot x\text{H}_2\text{O}$
- ii) $\text{Ca Al}_2\text{Si}_2\text{O}_8 \cdot x\text{H}_2\text{O}$
- iii) $\text{Mg Al}_2\text{Si}_2\text{O}_8 \cdot x\text{H}_2\text{O}$
- iv) $\text{Ca Al}_2 \text{Si}_2\text{O}_8$

The correct combination is

- 1) All are correct
2) Only i and ii are correct
3) Only ii and iii are correct
4) Only iv is correct

60. The products formed when heavy water is reacted with magnesium nitride, are..

- 1) NH_3 , $\text{Mg}(\text{OH})_2$ 2) NH_3 , $\text{Mg}(\text{OD})_2$
3) ND_3 , $\text{Mg}(\text{OH})_2$ 4) ND_3 , $\text{Mg}(\text{OD})_2$

61. Sulphur trioxide is dissolved in heavy water to form a compound X.

Hybridisation of sulphur in X is

- 1) sp^2 2) sp^3 3) sp 4) dsp^2

62. Exhausted permutit does not contain ---- ion

- 1) Na^+ 2) Mg^{2+} 3) Al^{3+} 4) Si^{4+}

63. The formula of exhausted permutit is

- 1) $\text{CaAl}_2\text{Si}_2\text{O}_8 \cdot x\text{H}_2\text{O}$ 2) $\text{Na}_2\text{Al}_2\text{Si}_2\text{O}_8 \cdot x\text{H}_2\text{O}$
3) $\text{CaB}_2\text{Si}_2\text{O}_8 \cdot x\text{H}_2\text{O}$ 4) $\text{K}_2\text{Al}_2\text{Si}_2\text{O}_8 \cdot x\text{H}_2\text{O}$

64. The formula of calgon is

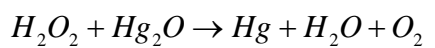
- 1) $(\text{NaPO}_3)_6$ 2) $\text{Mg}_3(\text{PO}_4)_2$ 3) Na_3PO_4 4) MgSO_4

65. pH of the water coming out of cation exchange resin

- 1) 7 2) > 7 3) < 7 4) Cannot say

66. Which of the following not correct?

- 1) Temporary hardness of water is due to the presence of bicarbonates of calcium and magnesium in it.
2) Permutit is artificial zeolite.
3) H_2O_2 acts as an oxidizing agent in the following reaction:



4) H_2O_2 is used as bleaching agent for delicate textiles.

Heavy Water, Hydrogen Peroxide, Preparation, Reactions, Uses and Structure

67. Oxygenated water is

- 1) D_2O 2) H_2O_2 3) Soft water 4) Hard water

68. H_2O_2 is obtained by adding dil H_2SO_4 to

- 1) PbO_2 2) MnO_2 3) $\text{BaO}_2 \cdot 8\text{H}_2\text{O}$ 4) BaCO_3

69. In the preparation of H_2O_2 by auto oxidation method the starting substance is

- 1) 2-ethyl anthraquinone 2) 2-ethyl anthraquinone
3) p-benzoquinone 4) N-methyl aniline

70. $\text{H}_2\text{O}_2 + \text{H}_2\text{O} \rightarrow \text{H}_3\text{O}^+ + \text{HO}_2^-$

This reaction indicates

- 1) H_2O_2 is more acidic than H_2O 2) H_2O is more acidic than H_2O_2
3) Both H_2O and H_2O_2 are acidic 4) H_2O_2 is a bleaching agent

71. The number of moles of H_2O_2 needed to reduce 1 mole of KMnO_4 in acidic medium is

- 1) 2 2) 2.5 3) 5 4) 3

72. When treated with H_2O_2 , aqueous KMnO_4 in acidic medium gives finally

- 1) Mn^{2+} 2) Mn^{3+} 3) Mn^{4+} 4) Mn^{6+}

73. H_2O_2 reduces

- 1) PbS 2) KI solution 3) Cl_2 4) $\text{Cr}(\text{OH})_3$

74. Oxidation state of oxygen in H_2O_2 is

- 1) -1 2) -2 3) +1 4) +2

75. In H_2O_2 molecule, the H–O–O angle is

- 1) $94^\circ 48'$ 2) $11^\circ 30'$ 3) 90° 4) $116^\circ 48'$

76. In H_2O_2 molecule, the O–O bond length is

- 1) 1.34A° 2) 1.48A° 3) 1.54A° 4) 1.20A°

77. In H_2O_2 molecule the dihedral angle is

- 1) 95° 2) $106^\circ 30'$ 3) $111^\circ 30'$ 4) $120^\circ 18'$

78. Solid H_2O_2 has non planar and non linear structure based on

- 1) Dipole moment 2) X-ray study 3) Both 1 & 2 4) Chemical method

79. The number of moles of electrons involved in the manufacture of 1 mole of H_2O_2 from 50% H_2SO_4 is

- 1) 2 2) 3 3) 1 4) 4

80. Catalytic union of H_2 and O_2 to get H_2O_2 is found in

- 1) Electrolysis of 50% H_2O_2
2) Electrolysis of aqueous solution of
 $(\text{NH}_4)_2\text{SO}_4 + \text{H}_2\text{SO}_4$
3) Treating BaO_2 with cold and dilute H_2SO_4
4) Auto oxidation

81. Which of the following is not correct regarding the electrolytic preparation of H_2O_2 ?

- 1) Lead is used as cathode 2) 50% H_2SO_4 is used
3) Hydrogen is liberated at anode 4) Sulphuric acid undergoes oxidation

82. The oxidation state of the most electronegative element in the products of the reaction BaO_2 with dil. H_2SO_4 is

- 1) 0 and -1 2) -1 and -2 3) -2 and 0 4) -2 and +1

83. Weight of H_2O_2 in 20ml of 10vol, 10ml of 15 volume, 5ml of 20vol of H_2O_2 , solutions is p_1, p_2, p_3 respectively. Then the correct order is

- 1) $p_1 < p_2 < p_3$ 2) $p_2 < p_1 < p_3$ 3) $p_3 < p_2 < p_1$ 4) $p_1 < p_3 < p_2$

84. Volume strength of perhydrol is

- 1) 30 2) 60 3) 100 4) 11.2

85. Complete decomposition of 10 ml of perhydrol gives --- lit of O_2 at STP

- 1) 1000 2) 100 3) 10 4) 1

86. The volume of O_2 liberated at STP from 20ml of 10 Vol H_2O_2 is

- 1) 20 ml 2) 10 ml 3) 200 ml 4) 100 ml

87. The volume strength of 1.5 N H_2O_2 is

- 1) 4.8V 2) 8.4V 3) 3.9V 4) 8.0V

88. A commercial sample of H_2O_2 is labelled as 10 volumes. Its percentage strength is nearly

- 1) 1% 2) 3% 3) 10% 4) 90%

89. The molarity of 5.6V H_2O_2 is

- 1) 0.2 2) 0.5 3) 1 4) 2

90. The volume strength of 1M H_2O_2 is

- 1) 10V 2) 11.2V 3) 16.8V 4) 22.4V

91. The volume of perhydrol which on decomposition gives 2 lit of O_2 gas at STP is

- 1) 100 ml 2) 2 ml 3) 10 ml 4) 20 ml

92. The volume of 10 Vol H_2O_2 required to get 200 ml of O_2 gas at STP is

- 1) 10 ml 2) 20 ml 3) 30 ml 4) 40 ml

93. The molarity of 22.4 vol H_2O_2 solution is

- 1) 1 M 2) 2 M 3) 0.5 M 4) 0.893 M

94. The normality of 2.24 vol H_2O_2 is

- 1) 1.786 2) 4 3) 0.4 4) 0.2

95. W/V percentage of 1 M H_2O_2 solution is

- 1) 3.03 2) 3.4 3) 6.8 4) 1.7

96. The volume strength of 1.7% w/v H_2O_2 is

- 1) 5.6 2) 11.2 3) 22.4 4) 2.8

97. Volume strength of 500 ml solution containing 3.4 gr of H_2O_2 is

- 1) 11.2 2) 6.8 3) 1.12 4) 2.24

98. Weight of H_2O_2 present in 1000 ml of 2.24 vol H_2O_2 is

- 1) 3.4 2) 6.8 3) 34 4) 68

99. 10 ml of a H_2O_2 solution, on decomposition liberated 200ml of O_2 at STP.

Then the weight/volume percentage of that H_2O_2 solution is

- 1) 3.03 2) 6.07 3) 9.1 4) 3.4

100. Hyperol is

- 1) $(\text{NH}_4)_2\text{SO}_4 \cdot \text{H}_2\text{O}_2$ 2) $\text{CO}(\text{NH}_2)_2 \cdot \text{H}_2\text{O}_2$ 3) $\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}_2$ 4) $\text{CuSO}_4 \cdot 5\text{D}_2\text{O}$

101. Normality of 100 volume H_2O_2 is

- 1) 1.78 2) 8.9 3) 17.86 4) 0.89

102. The more viscous liquid is

- 1) H_2O 2) H_2O_2 3) D_2O 4) $\text{C}_2\text{H}_5\text{OH}$

103. Which of the following is correct?

- i) 30% H_2O_2 is perhydrol
- ii) 1M H_2O_2 solution is 11.2 Volume H_2O_2 solution
- iii) 1M H_2O_2 has 34 gr in 100ml solution
- iv) Hyperol is 100Volumes H_2O_2

- 1) Only (i) is correct
2) Both (i) and (ii) are correct
3) Only (iii) is incorrect
4) (i, ii, iii) are correct

104. Which of the following is correct?

- A) H_2O_2 has open book structure
B) H_2O_2 is harmful disinfectant
C) H_2O_2 is slightly basic in solutions
D) H_2O_2 acts as oxidant in rocket fuels

Among the above, the in-correct statements are

- 1) B and C
2) A and C
3) C and B
4) A and D

105. The reaction between H_2O_2 and KMnO_4 is $2\text{KMnO}_4 + 3\text{H}_2\text{SO}_4 + 5\text{H}_2\text{O}_2 \rightarrow \text{K}_2\text{SO}_4 + 2\text{MnSO}_4 + 8\text{H}_2\text{O} + 5\text{O}_2$. In a reaction excess of H_2O_2 is added to 0.1 mole of acidified KMnO_4 solution. Then the volume of O_2 gas liberated at STP is

- 1) 5.6 lit
2) 6.6 lit
3) 11.2 lit
4) 22.4 lit

106. The concentration of the same solution of H_2O_2 in different methods is given below.

List - 1

List - 2

- A) Molarity
B) Normality
C) % W/V
D) Volume strength
- 1) 6.8
2) 22.4
3) 4
4) 2
5) 10

The correct match is

- | | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> |
|-----|----------|----------|----------|----------|
| (1) | 5 | 3 | 1 | 2 |
| (2) | 4 | 3 | 1 | 2 |
| (3) | 3 | 4 | 1 | 2 |

(4) 1 2 3 4

107. One liter of 0.5 M H_2O_2 is diluted to 2 lit. The volume strength of the resultant solution

- 1) 5.6 2) 2.8 3) 11.2 4) 22.4

108. The weight of H_2O_2 present in 0.5 lit of 11.2 vol H_2O_2 solution is

- 1) 34 g 2) 17 g 3) 68 g 4) 8.5 g

109. The volume strength of solution formed by mixing 1 lit 0.5 M H_2O_2 with 2 lit 0.5 M H_2O_4

- 1) 11.2 2) 5.6 3) 22.4 4) 2.8

110. Number of moles of O_2 gas evolved by the decomposition of 1 lit of 1N H_2O_2 solution is

- 1) 0.5 2) 0.375 3) 0.25 4) 1

111. 1 Kg of a sample of water contained 222 mg of CaCl_2 and 219 mg of $\text{Mg}(\text{HCO}_3)_2$. So the permanent and temporary hardness are __ ppm and __ ppm

- 1) 200, 200 2) 200, 150
3) 200, 300 4) 150, 220

112. 1 Kg of water containing the following mass of MgCl_2 has a hardness of 1000 p.p.m.

- 1) 9.5 gm 2) 0.95 gm
3) 95 gm 4) 950 gm

113. The weight of H_2O_2 present in 70 ml of 6% (w/v) H_2O_2 solution is

- 1) 6 g 2) 4.2 g 3) 4.5 g 4) 4.8 g

114. The weight of H_2O_2 present in 1 lit of 5.6 vol H_2O_2 is

- 1) 17 g 2) 34 g 3) 68 g 4) 8.5 g

115. Ferrous ion change to X ion, on reacting with acidified hydrogen peroxide. The number of d-electrons present in X and its magnetic moment (in BM) are respectively

- 1) 6 and 6.95 2) 5 and 5.92 3) 5 and 4.9 4) 4 and 5.92

116. 20 ml H_2O_2 is added to excess of KI in acidic medium. The liberated I_2 required 10 ml of 1M hypo. The molarity of H_2O_2 is

- 1) 0.5 M 2) 0.25M 3) 0.025 M 4) 5M

117. 40 ml H_2O_2 solution is added to excess of KI in the presence of H_2SO_4 . The liberated I_2 requires 20 ml of 0.4N hypo. The volume strength of H_2O_2 solution is

- 1) 11.2 2) 1.12 3) 22.4 4) 2.24

118. The weight of hypo ($Na_2S_2O_3 \cdot 5H_2O$) required to react with the I_2 liberated by 17 gr of H_2O_2 in iodometry titration is

- 1) 496 gr 2) 248 gr
3) 124 gr 4) 62 gr

119. The weight of iodine liberated when excess of KI reacts with 500 ml of 1 M H_2O_2 is (Mol wt of I_2 is 254)

- 1) 254 gr 2) 127 gr 3) 535 gr 4) 508 gr

120. Which one of the following reactions represents the oxidizing property of H_2O_2 ?

- 1) $2KMnO_4 + 3H_2SO_4 + 5H_2O_2 \rightarrow K_2SO_4 + 2MnSO_4 + 8H_2O + 5O_2$
2) $2K_3[Fe(CN)_6] + 2KOH + H_2O_2 \rightarrow 2K_4[Fe(CN)_6] + 2H_2O + O_2$
3) $PbO_2 + H_2O_2 \rightarrow PbO + H_2O + O_2$
4) $2KI + H_2SO_4 + H_2O_2 \rightarrow K_2SO_4 + I_2 + 2H_2O$

121. Match the following.

Set-I

Set-II

A) 10 vol H_2O_2

1) Perhydrol

B) 20 vol H_2O_2

2) 5.358 N

C) 30 vol H_2O_2

3) 1.785 M

D) 100 vol H_2O_2

4) 3.03%

1) A-4, B-3, C-2, D-1

2) A-1, B-2, C-3, D-4

3) A-1, B-3, C-2, D-4

4) A-4, B-2, C-3, D-1

122. Electrolysis of X gives Y at anode. Vacuum distillation of Y gives H_2O_2 . The number of (O–O) bonds present in X and Y respectively are

1) 1, 1

2) 1, 2

3) Zero, 1

4) Zero, zero

123. The reaction of H_2O_2 with X does not liberate gaseous product. Which of the following is X?

1) PbO_2

2) KMnO_4/H^+

3) PbS

4) Cl_2

124. Which of the following equations denotes that H_2O_2 acts as a reducing agent?

1) $\text{PbS} + 4\text{H}_2\text{O}_2 \rightarrow \text{PbSO}_4 + 4\text{H}_2\text{O}$

2) $\text{NaNO}_2 + \text{H}_2\text{O}_2 \rightarrow \text{NaNO}_3 + \text{H}_2\text{O}$

3) $\text{Ag}_2\text{O} + \text{H}_2\text{O}_2 \rightarrow 2\text{Ag} + \text{O}_2 + \text{H}_2\text{O}$

4) $2\text{KI} + \text{H}_2\text{O}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{I}_2 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$

125. The solution is used for the preparation of H_2O_2 by electrolytic procedure is

1) 0.2N NaOH

2) 50% H_2SO_4

- 3) 20% NaOH 4) 5% NaCl

126. In which of the following reactions, H_2O_2 acts as a reducing reagent?

- 1) $PbO_2(g) + H_2O_2(aq) \rightarrow PbO(s) + H_2O(l) + O_2(g)$
2) $Na_2SO_3(aq) + H_2O(aq) \rightarrow Na_2SO_4(aq) + H_2O(l)$
3) $2KI(aq) + H_2O_2(aq) \rightarrow 2KOH(aq) + I_2(s)$
4) $PbS + 4H_2O_2 \rightarrow PbSO_4 + 4H_2O$

127. _____ process is used for the removal of hardness of water.

- 1) Calgon 2) Bayer's
3) Sempeck 4) Hoopes

128. What is the oxidation state of Fe in the product formed when acidified potassium ferrocyanide is treated with H_2O_2 ?

- 1) +2 2) +6 3) +1 4) +3

129. Which one of the following compounds undergoes hydrolysis during distillation to yield hydrogen peroxide?

- 1) $H_2S_2O_8$ 2) $H_2S_2O_6$ 3) HNO_3 4) $H_4P_2O_7$

130. What is the gas liberated when alkaline formaldehyde solution is treated with H_2O_2 ?

- 1) CO_2 2) O_2 3) CH_4 4) H_2

131. The orange coloured compound formed when H_2O_2 is added to TiO_2 solution acidified with conc. H_2SO_4 is

- 1) Ti_2O_3 2) $H_2Ti_2O_8$
3) H_2TiO_4 4) $H_2Ti_2O_8$

KEY

LEVEL - I

- 1) 1 2) 1 3) 3 4) 2 5) 1 6) 3 7) 3 8) 1 9) 1 10) 4
11) 3 12) 3 13) 4 14) 4 15) 3 16) 2 17) 3 18) 4 19) 2 20) 2
21) 3 22) 2 23) 4 24) 1 25) 2 26) 3 27) 2 28) 2 29) 1 30) 3
31) 2 32) 3 33) 1 34) 1 35) 1 36) 2 37) 1 38) 1 39) 3 40) 4
41) 3 42) 4 43) 2 44) 1 45) 1 46) 3 47) 3 48) 2 49) 2 50) 3
51) 2 52) 4 53) 2 54) 3 55) 3 56) 4 57) 1 58) 3 59) 3 60) 4
61) 2 62) 1 63) 1 64) 1 65) 3 66) 3 67) 2 68) 3 69) 2 70) 1
71) 2 72) 1 73) 3 74) 1 75) 1 76) 2 77) 3 78) 3 79) 1 80) 4
81) 3 82) 2 83) 3 84) 3 85) 4 86) 3 87) 2 88) 2 89) 2 90) 2
91) 4 92) 2 93) 2 94) 3 95) 2 96) 1 97) 4 98) 2 99) 2 100) 2
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