

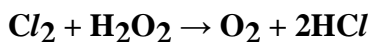
## HYDROGEN

1. The degree of hardness of water is usually expressed in terms of [AMU 2010]
- 1) ppm weight of  $MgSO_4$
  - 2) g/L of  $CaCO_3$  and  $MgCO_3$  present
  - 3) ppm weight of  $CaCO_3$  irrespective of whether it is actually present
  - 4) ppm of  $CaCO_3$  actually present in water
2. Which of the following statements is incorrect ? (M-2010)
- 1)  $H_2O_2$  has weak acidic property
  - 2)  $H_2O_2$  has weak basic property
  - 3)  $H_2O_2$  can act as oxidising agent
  - 4)  $H_2O_2$  can act as a reducing agent
3. The orange coloured compound formed when  $H_2O_2$  is added to  $TiO_2$  solution acidified with conc.  $H_2SO_4$  is (E-2010)
- 1)  $Ti_2O_3$
  - 2)  $H_2Ti_2O_8$
  - 3)  $H_2TiO_3$
  - 4)  $H_2TiO_4$
4. permanent hardness of water is due to the presence of [PMT2011]
- 1) bicarbonates of sodium and potassium
  - 2) chlorides and sulphates of sodium and potassium
  - 3) bicarbonates of Calcium and magnesium
  - 4) chlorides and sulphates of Calcium and magnesium
5. The value of ..... is less for  $D_2O$  compared to that of  $H_2O$ . (M - 2005)
- 1) density ( $g.ml^{-1}$ ) at  $20^{\circ}C$
  - 2) boiling point
  - 3) dielectric constant at  $20^{\circ}C$
  - 4) latent heat of vapourisation
6. If 11.1 mg of  $CaCl_2$  and 12mg of  $MgSO_4$  are present in 2 litres of water, what is its hardness (in grams of  $CaCO_3/ppm$ )? (M - 2008)
- 1) 5
  - 2) 10
  - 3) 15
  - 4) 20
7. Electrolysis of X gives Y at anode. Vacuum distillation of Y gives  $H_2O_2$ . The number of peroxy (O - O) bonds present in X and Y respectively are : (E -2006)
- 1) 1,1
  - 2) 1,2
  - 3) 0,1
  - 4) 0, 0
8. The reaction of  $H_2O_2$  with X does not liberate gaseous product. Which of the following is X ? (M - 2006)
- 1)  $PbO_2$
  - 2)  $KMnO_4/H^+$
  - 3)  $PbS$
  - 4)  $Cl_2$

9. Which of the following is not correct ?

(M - 2006)

- 1) Temporary hardness of water is due to the presence of bicarbonates of calcium and magnesium in it
- 2) Permutit is an artificial zeolite
- 3)  $\text{H}_2\text{O}_2$  acts as an oxidizing agent in the following reaction:



- 4)  $\text{H}_2\text{O}_2$  is used as bleaching agent for delicate textiles

10. Which one of the following reactions represents the oxidizing property of  $\text{H}_2\text{O}_2$ ?

(E - 2008)

- 1)  $2\text{KMnO}_4 + 3\text{H}_2\text{SO}_4 + 5\text{H}_2\text{O}_2 \rightarrow \text{K}_2\text{SO}_4 + 2\text{MnSO}_4 + 8\text{H}_2\text{O} + 5\text{O}_2$
- 2)  $2\text{K}_3[\text{Fe}(\text{CN})_6] + 2\text{KOH} + \text{H}_2\text{O}_2 \rightarrow 2\text{K}_4[\text{Fe}(\text{CN})_6] + 2\text{H}_2\text{O} + \text{O}_2$
- 3)  $\text{PbO}_2 + \text{H}_2\text{O}_2 \rightarrow \text{PbO} + \text{H}_2\text{O} + \text{O}_2$
- 4)  $2\text{KI} + \text{H}_2\text{SO}_4 + \text{H}_2\text{O}_2 \rightarrow \text{K}_2\text{SO}_4 + \text{I}_2 + 2\text{H}_2\text{O}$

11. The pH of a solution of  $\text{H}_2\text{O}_2$  is 6.0. Some chlorine gas is bubbled into this solution. Which of the following is correct?

(E- 2005)

- 1) The pH of resultant solution becomes 8.0
- 2) Hydrogen gas is liberated
- 3) The pH of resultant solution become less than 6.0 and oxygen gas is liberated
- 4)  $\text{Cl}_2\text{O}$  is formed in the resultant solution.

12. The formula of exhausted permutit is :

(M - 2004)

- 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)  $\text{K}_2\text{Al}_2\text{Si}_2\text{O}_8 \cdot x\text{H}_2\text{O}$

13. 15 volume sample of  $\text{H}_2\text{O}_2$  solution is equivalent to

[BHU2009]

- 1) 5.3N
- 2) 1.77 N
- 3) 2.68N
- 4) 7.5N

14. Which of the following compound is a peroxide?

[AIPMT2010]

- 1)  $\text{NO}_2$
- 2)  $\text{KO}_2$
- 3)  $\text{BaO}_2$
- 4)  $\text{MnO}_2$

15. The isotope of hydrogen which is radioactive is

[JIPMER2003]

- 1) para hydrogen
- 2) tritium
- 3) nascent hydrogen
- 4) deuterium

16. The volume strength of 1.5N  $\text{H}_2\text{O}_2$  solution is

[BHU2004]

- 1) 8.4 litre
- 2) 2.2 litre
- 3) 5.5 litre
- 4) 3.9 litre

17. Match the following :

( M - 2007)

**Set - I**

(A) 10 Vol  $H_2O_2$

(B) 20 Vol  $H_2O_2$

(C) 30 Vol  $H_2O_2$

(D) 100 Vol  $H_2O_2$

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

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

**Set - II**

(1) perhydrol

(2) 5.358 N

(3) 1.785 M

(4) 3.03%

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

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

18. For the decolourisation of one mole of  $KMnO_4$  , the number of moles of  $H_2O_2$  required is [AIIMS2004]

1) 3.5 Mole

2) 1.5 Mole

3) 2.5 Mole

4) 5 Mole

19. Hardness of water is due to presence of salts of

[AMU2007]

1)  $Na^+$  and  $K^+$

2)  $Ca^{+2}$  and  $Mg^{+2}$

3)  $Ca^{+2}$  and  $K^+$

4)  $Ca^{+2}$  and  $Na^+$

20. Which of the following is not correct regarding electrolytic preparation of  $H_2O_2$ ? [CPMT2008]

1) Lead is used as cathode

2) 50%  $H_2SO_4$  is used

3) Hydrogen is liberated at anode

4) Sulphuric acid undergoes oxidation

Key

1) 3

2) 2

3) 4

4) 4

5) 3

6) 2

7) 3

8) 3

9) 3

10) 4

11) 3

12) 1

13) 3

14) 3

15) 2

16) 1

17) 1

18) 3

19) 2

20) 3