

JEE MAINS QUIZ 1

1. When heated above 916°C , iron changes its crystal structure from bcc to ccp structure without any change in the radius of atom. The ratio of density of the crystal before heating and after heating is:

- (A) 1.089 (B) 0.918
(C) 0.725 (D) 1.231

2. The ratio of van't Hoff factor, if PBr_5 and PCl_5 are assumed to be soluble in water and remains same as in solid state, is

- (A) 2 (B) 1
(C) 1.5 (D) 2.5

3. Insulin $(\text{C}_2\text{H}_{10}\text{O}_5)_n$ is dissolved in a suitable solvent and the osmotic pressure (π) of solution of various concentration (Kg/m^3) is measured at 20°C . The slope of a plot of π against C is found to be 4.65×10^{-3} (SI units). The molecular weight of the insulin (in Kg) is

- (A) 4.8×10^5 (B) 9×10^5
(C) 3×10^5 (D) 5.24×10^5

3. When 0.1 mole of AgCl is dissolved in 1L of water then relative lowering of vapour pressure is 3.6×10^{-7} . The solubility product of AgCl is

- (A) 10^{-10} (B) 2×10^{-10}
(C) 2×10^{-9} (D) Can not calculate

4. A constant current of 2 ampere was passed for 16 minutes when 250 ml, 0.2 M $\text{CuSO}_4(\text{aq})$ solution was electrolysed using a platinum anode and Cu cathode. Then at what temperature the solution will freeze, after passage of current? ($K_f(\text{H}_2\text{O}) = 1.86$ unit)

- (A) 0.67°C (B) 0.67°C
(C) 1.86°C (D) $+1.86$

5. Which is correct statements about P_4O_6 and P_4O_{10} ?

- (A) Both form oxyacids H_3PO_3 and H_3PO_4 respectively.
(B) In P_4O_6 each P is joined to three O and in P_4O_{10} each P is joined to four O atoms.
(C) Both of these
(D) None of these

6. Temperature of 4 moles of an ideal gas is raised from 300 K to 350 K. What is value of

ΔH for this process? ($R = 8.314 \text{ J mol}^{-1}\text{K}^{-1}$)

- (A) 0 (B) 415 J
(C) 41.5 (D) 1660 J

7. K_{sp} of CdS is 8.0×10^{-27} and that of H_2S is 1×10^{-22} . 1×10^{-14} M CdCl_2 solution is precipitated on passing H_2S when pH is about

- (A) 4 (B) 6
(C) 5 (D) 7

8. For the following equilibrium reaction $\text{N}_2\text{O}_4 \rightleftharpoons 2\text{NO}_2$, NO_2 is 50% of total volume at

given temperature. Hence, vapour density of equilibrium mixture is:

- (A) 34.5 (B) 25.0
(C) 23.0 (D) 20.0

9. Holm's signal can be given by using

- (A) $\text{CaC}_2 + \text{CaCN}_2$ (B) $\text{CaC}_2 + \text{Ca}_3\text{P}_2$
(C) $\text{CaC}_2 + \text{CaCO}_3$ (D) $\text{Ca}_3\text{P}_2 + \text{CaCN}$

10. Which of the following order is incorrect?

- (A) $\text{Na}_2\text{O} < \text{K}_2\text{O} < \text{Rb}_2\text{O}$ (basic nature)
(B) $\text{CH}_4 > \text{SiH}_4 > \text{GeH}_4 > \text{SnH}_4$ (stability of hydride)
(C) $\text{NH}_3 < \text{PH}_3 < \text{AsH}_3$ (basic nature)
(D) $\text{N}_2\text{O}_5 < \text{P}_2\text{O}_5 < \text{As}_2\text{O}_5$ (acidic nature)