

CHEMISTRY

31. In a solid, oxide ions are arranged in CCP. The cations A occupy one-sixth of the tetrahedral voids and cations B occupy one-third of the octahedral voids. The formula of the compound is
(1) ABO_3 (2) AB_2O_3
(3) A_2BO_3 (4) $A_2B_2O_3$
32. How many Cl^- ions are there around Na^+ ion in NaCl crystal?
(1) 3 (2) 4
(3) 6 (4) 8
33. Which of the following exists as covalent crystals in the solid state?
(1) Phosphorous (2) Iodine
(3) Silicon (4) Sulphur
34. Which of the following metal oxides is anti ferromagnetic in nature?
(1) MnO_2 (2) TiO_2
(3) VO_2 (4) CrO_2
35. A certain sample of gas has a volume of 0.2 L measured at 1 atm. pressure and $0^\circ C$. At the same pressure but at $273^\circ C$, its volume will be
(1) 0.4 L (2) 0.8 L
(3) 27.8 L (4) 55.6 L
36. Which of the following gas mixture is not applicable for Dalton's law of partial pressure?
(1) SO_2 and Cl_2
(2) CO_2 and N_2
(3) CO and CO_2
(4) CO and N_2
37. A 10 g of a gas at atmospheric pressure is cooled from $273^\circ C$ to $0^\circ C$ keeping the volume constant, its pressure would become
(1) $\frac{1}{2}$ atm (2) $\frac{1}{273}$ atm
(3) 2 atm (4) 273 atm
38. Which of the following pairs will diffuse at the same rate through a porous plug?
(1) CO, NO_2 (2) NO_2 , CO_2
(3) NH_3 , PH_3 (4) NO, C_2H_6
39. An ideal gas will have maximum density when
(1) $P = 0.5$ atm, $T = 600$ K
(2) $P = 2$ atm, $T = 150$ K
(3) $P = 1$ atm, $T = 300$ K
(4) $P = 1.0$ atm, $T = 500$ K
40. The ratio of root mean square velocity to average velocity of gas molecules at a particular temperature is
(1) 1.086 : 1 (2) 1 : 1.086
(3) 2 : 1.086 (4) 1.086 : 2