

CHEMISTRY

41. The vapour pressure will be lowest for
 (1) 0.1 M sugar solution
 (2) 0.1 M KCl solution
 (3) 0.1 M $\text{Cu}(\text{NO}_3)_2$ solution
 (4) 0.1 M AgNO_3 solution
42. The freezing points of equimolar solutions of glucose, KNO_3 and AlCl_3 are in the order of
 (1) $\text{AlCl}_3 < \text{KNO}_3 < \text{Glucose}$
 (2) $\text{Glucose} < \text{KNO}_3 < \text{AlCl}_3$
 (3) $\text{Glucose} < \text{AlCl}_3 < \text{KNO}_3$
 (4) $\text{AlCl}_3 < \text{Glucose} < \text{KNO}_3$
43. Which of the following salt has the same value of Van't Hoff factor i as that of $\text{K}_4[\text{Fe}(\text{CN})_6]$?
 (1) $\text{Al}_2(\text{SO}_4)_3$ (2) NaCl
 (3) Na_2SO_4 (4) $\text{Al}(\text{NO}_3)_3$
44. If α is the degree of dissociation of Na_2SO_4 , the vant Hoff's factor (i) used for calculating the molecular mass is
 (1) $1 + \alpha$ (2) $1 - \alpha$
 (3) $1 + 2\alpha$ (4) $1 - 2\alpha$
45. Acetic acid dissolved in benzene shows a molecular weight of
 (1) 60 (2) 120
 (3) 180 (4) 240
46. If 'Z' is the number of atoms in the unit cell that represents the closest packing sequence ---A B C A B C---, the number of tetrahedral voids in the unit cell is equal to
 (1) Z (2) 2 Z
 (3) $\frac{Z}{2}$ (4) $\frac{Z}{4}$
47. A solid is made of two elements X and Z. The atoms Z are in CCP arrangement while the atom X occupy all the tetrahedral sites. What is the formula of the compound
 (1) XZ (2) XZ_2
 (3) X_2Z (4) X_2Z_3
48. An element occurring in the bcc structure has 12.08×10^{23} unit cells. The total number of atoms of the element in these cells will be
 (1) 24.16×10^{23} (2) 36.18×10^{23}
 (3) 6.04×10^{23} (4) 12.08×10^{23}
49. The number of atoms in 100 g of an fcc crystal with density $d = 10 \text{ g/cm}^3$ and cell edge equal to 100 pm, is equal to
 (1) 4×10^{25} (2) 3×10^{25}
 (3) 2×10^{25} (4) 1×10^{25}
50. A solid has a structure in which 'W' atoms are located at the corners of a cubic lattice 'O' atoms at the centre of edges and 'Na' atoms at the centre of the cube. The formula for the compound is
 (1) NaWO_2 (2) NaWO_3
 (3) Na_2WO_3 (4) NaWO_4