SAINIK SCHOOL GOPALGANJ
SUB: CHEMISTRY
CLASS – XII

ASSIGNMENT - 2

MCQ QUESTIONS

Q1 Which of the solutions is an example of non- ideal solution ?

(a) n- hexane + n – heptanes
(b) benzene and toluene
(c) bromoethane + chloroethane
(d) none of these

Q2 Which of the following are the example of colligative properties ?

(a) relative lowering of vapour pressure
(b) elevation of boiling point
(c) depression of freezing point
(d) all of these

Q3 The number of moles of NaCl in 5 litres of of 2 M solution is :

(a) 1
(b) 3
(c) 10
(d) 27

Q4 Which of the solutions is an example of non- ideal solution ?

(a) n- hexane + n – heptanes
(b) benzene and toluene
(c) bromoethane + chloroethane
(d) none of these

Q5 Which of the following are the example of colligative properties ?

(a) relative lowering of vapour pressure
(b) elevation of boiling point
(c) depression of freezing point
(d) all of these

Q6 Which has the highest freezing point ?

(a) 1 M glucose
(b) 1 M NaCl
(c) 1 M $CaCl_2$
(d) 1 M AlF_3

Q7 A10 % solution of urea is isotonic with 20% solution of 'x' at same temperature .

Molecular weight of 'x' will be ;

(a) 120 g mol^{-1}
(b) 60 g mol^{-1}
(c) 80 g mol^{-1}
(d) none of these.

Q8 Measurement of which colligative property is preferred for determination of molar mass ?

(a) relative lowering of vapour pressure (b) osmotic pressure

(c) elevation of boiling point (d) depression of freezing point

Q9 Colligative properties depend upon :

(a) no. of particles (b) nature of particle

(c) both of these (d) none of these

Q10 If solute undergo association , what will be the possible values of 'i' ?

(a) less than 1 (b) greater than 1

(c) equal to 1 (d) can't be predicted

SA type questions

Q11 Define ideal solution . Give any two examples .

Q12 How is vapour pressure of solvent affected when a non- volatile solute is added to it ?

Q13 Find the boiling point of a solution containing 0.50 g of glucose ($C_6H_{12}O_6$) dissolved in. 80.2 g of water. [Given K_b for water is 0.52 K kg mol^{-1}].

Q14 1.00 g of a non- electrolyte solution dissolved in 50 g of benzene lowered the freezing point of benzene by 0.40 K . The freezing point depression constant of benzene is 5.12 K kg mol^{-1} . Find the molar mass of the solute .

Q15 Explain abnormal molar mass giving example of potassium chloride and acetic acid .

LA type questions

Q16 (a) Explain why a solution of chloroform and acetone shows negative deviation from Raoult's law .

(b) Phenol associates in benzene to certain extent to form a dimer . A solution containing 20 g of phenol in 1.0 kg of benzene has its freezing point lowered by 0.69 K . Calculate the fraction of phenol that has dimerised .[Given K_f for benzene is 5.1 Km^{-1}.

Q17 (a) Define the following terms:

(i) Azeotropes (ii) Osmotic pressure

(b) Calculate the molarity of 9.8% (w/w) solution of H_2SO_4, if the density of the

solution is 1.02 g m L^{-1} . (molar mass of sulphuric acid is 98 g mol^{-1}).

Q18 2 g of benzoic acid (C_6H_5COOH) dissolved in 25 g of benzene shows a depression in Freezing point equal to 1.62 K . Molal depression constant of benzene is 4.9 K kg mol^{-1}. What is the percentage association of acid , if it forms dimer in solution ?

Q19 With the help of a neat diagram describe reverse osmosis . How can water be purified by this process ? Explain its importance in the context of gulf countries .

Q20 Explain the positive and negative deviation from ideal behaviour with the help of a neat diagram .