SHREE H. N. SHUKLA GROUP OF COLLEGES

(AFFILIATED TO SAURASHTRA UNIVERSITY & GTU)

2-Vaishali nagar,
Near amrapali railway crossing,
Raiya road, Rajkot- 360 001.
Ph.No.-(0281) 2440478, 2472590

3-Vaishali nagar, Near
amrapali railway crossing,
Raiya road, Rajkot- 360 001.
Ph.No.-(0281) 2224362

Behind marketing yard,
Near Lalpari lake, Between
Amargadh-Bhichri,
Rajkot- 360 002.
Ph.No. 90990 63150

M.Sc. Chemistry Semester I (CBSE)

C-103 Physical chemistry

Question bank

Prepared by,

Rahul Talaviya

2-Vaishali nagar, Near amrapali railway crossing, Raiya road, Rajkot- 360 001. Ph.No.-(0281) 2440478, 2472590	3-Vaishali nagar, Near amrapali railway crossing, Raiya road, Rajkot- 360 001. Ph.No.-(0281) 2224362	Behind marketing yard, Near Lalpari lake, Between Amargadh-Bhichri, Rajkot- 360 002. Ph.No. 90990 63150

1. Give answer of any Five out of given questions

Q 1. Define the Raoult's law and prove that if Raoult's law is applicable to one constituent of an ideal solution, it will be applicable to the other constituent of a Solution as well?

Q 2. Explain that there is no heat change when two liquid mix to form ideal solution?

Q 3. Explain vapor pressure curve for non ideal solution?

Q 4. Explain that there is no change in volume when two liquid mix to form ideal solution?

Q 5. A solution contains 25% water, 25% ethanol and 50 % acetic acid by mass. Calculate the mole fraction of these three constituents in a solution?

Q 6. The vapor pressure of liquid ethane at 25 ºC is 42 atm. Calculate the ideal solubility of ethane in a liquid solvent at the same temperature at a pressure of one atm, assuming gas behaves ideally?

Q 7. 10 gram of a substance of molecular weight 186, when dissolve in 100 grams of water lowered the freezing point of latter by 1ºC. Calculate the molal freezing point constant of water.

2. Give answer of any Five out of given questions

Q 1. Derived the Duhem-Margules equation?

Q 2. Determine composition of constant in liquid and vapour phase when they are in equilibrium with each other?

Q 3. Explain vapor pressure curve using two constituents assumes that solution behave ideally?

Q 4. Explain fractional distillation?

Q 5. Explain vapor pressure curve for non ideal solution?

Q 6. Explain partial miscible liquid?

Q 7. The freezing point of a solution of 0.321 gm of a substance S is 52.12 gm of benzene was found to be 5.155ºC. The freezing point of pure benzene is 5.4 ºC. If molal depression of freezing point per 1000 gm of solvent be 0.512 ºC, calculate the molecular weight of substance S.

3. Give answer of any Five out of given questions

Q 1. Plot the standard pressure curve and explain it.

Q 2. Explain the general method for the determination of fugacity.

Q 3. How to calculate EMF of the cell, derived the equation taking appropriate example.

Q 4. Explain Boltzman law and derived it equation.