# 331 CHEM Program

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| **No** | **List of Topics** |
| 1. | 1. **NON IONIC SOLUTIONS** |
|  | **1.1 Some notions on the liquid properties**  ***1.2.* The simple mixtures**  1.2.1 The thermodynamic description of mixtures  1.2.2 The Partial molar quantities  *a) Partial molar volume Vp*  *b) Partial molar Gibbs energies*  *c) The wider significance of the chemical potential*  *d) The Gibbs Duhem equation*  **1.3 The Chemical potential of liquids**  *1.3.1* Ideal solutions  1.3.2 Ideal-dilute solutions  *Exercises*  **1.4 Ideal and non ideal solutions of non-electrolytes**  1.4.1 Ideal solutions  1.4.2 Excess functions and regular solutions  *Exercises*  **1.5 Colligative properties**  1.5.1 The commun features of colligative properties  1.5.2 The elevation of boiling point  1.5.3 The depression of freezing point  1.5.4 The solubility  1.5.5 The Osmosis  *Exercises*  **1.6 Activities of solvent and solute**  1.6.1 Ideal-dilute solutions  1.6.2 Real solutes  1.6.3 Activities in terms of molalities  1.6.4 The biological standard state  *Exercises*  **1. 7 Activities coefficient**  1.7.1 The activities of regular solutions  1.7.2 Mean activity coefficients  *Exercises* |
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