

# Lebanon Evangelical School for Boys and Girls

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## Mid Year Exams : February 2012

Please place on this sheet the contents of your course that you will be examining in your Mid Year Exam. Details are expected. Chapter numbers, section headings and the like. A photocopy of what you send back to me will be sent to parents next week.

Teacher :Ludvik Ayvazian

Subject :Chemistry-12M

### Chapter One : The Gaseous State

- 1- Partial pressure of gasses
- 2- Ideal gas equation-Ideal gas law
- 3- Mole fraction- Mean molar mass of a gaseous mixture
- 4- Relative density of gasses

### Chapter Two: Rate Of Reactions

- 1- Rate of formation- Rate of disappearance-Rate of reaction
- 2- Units of rate
- 3- Kinetic curves and interpretation of results
- 4- Average rate- Initial rate-Instantaneous rate

### Chapter Three : Kinetic Factors

- 1- Rate Law - Rate constant
- 2- Kinetic factors: Temperature-Concentration-Catalyst
- 3- Reaction Order-Partial order
- 4- Half-life of a reaction
- 5- Homogeneous and heterogeneous catalysis- Autocatalysis
- 6- Activity and selectivity of a catalyst-Mechanism- Importance

### Chapter Four: Chemical Equilibrium

- 1- Homogeneous and heterogeneous equilibrium
- 2- Equilibrium constants  $K_c$  and  $K_p$
- 3- Degree of conversion  $\alpha$
- 4- Shifting equilibrium- Le Chatelier's principle
- 5- Effect of concentration-Pressure-Temperature

### Chapter Five: Strong Acids And Bases-pH metric Titrations

- 1- Strong acid-Strong base
- 2- Auto ionization of water-Ionization constant (ion product)  $K_w$
- 3- Definition and measure of pH
- 4- Acid-Base indicators
- 5- pH-metric titration of strong acids and bases

### Chapter Six: Weak Acids And Bases

- 1- Conjugate acid/Base pairs
- 2- Acidity Constant  $K_a$
- 3- Domain of predominance
- 4- Reaction constant  $K_R$
- 5- Quantitative and limited reactions

## **Chapter Seven: Reaction Between Strong Acids And Bases**

- 1- Relation between  $K_R$  ,  $K_w$  and  $K_a$
- 2- pH- metric titration of a weak acid with a strong base
- 3- Half-equivalence - equivalence point
- 4- Titration of a weak base with a strong acid
- 5- Buffer solutions