Lesson Plan

B. Sc. IIInd Year (VIth Semester)

Paper-XIX (CH-305) Physical Chemistry

Teacher name: Dr. Neha Aggarwal

April 2021

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| Introduction to statistical mechanics Need for statistical thermodynamics, thermodynamic probability, Maxwell Boltzmann distribution statistics, Born oppenheimer approximation, partition function and its physical significance. Factorization of partition function. Photochemistry Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of photochemistry: Grotthus-Drapper law, StarkEinstein law (law of photochemical equivalence), Jablonski diagram depiciting various processes occurring in the excited state,. |

May 2021

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| qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), quantum yield, photosensitized reactions-energy transfer processes (simple examples). Solutions, Dilute Solutions and Colligative Properties Ideal and non-ideal solutions, methods of expressing concentrations of solutions, Dilute solutions, Raoult’s law. Colligative properties: (i) relative lowering of vapour pressure (ii) Elevation in boiling point (iii) depression in freezing point (iv) osmotic pressure |

June 2021

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| Thermodynamic derivation of relation between amount of solute and elevation in boiling point and depression in freezing point.. Applications in calculating molar masses of normal, dissociated and associated solutes in solution. Phase Equillibrium Statement and meaning of the terms – phase, component and degree of freedom, thermodynamic derivation of Gibbs phase rule, |

July 2021

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| phase equilibria of one component system –Example – water system. Phase equilibria of two component systems solid-liquid equilibria, simple eutectic Example Pb-Ag system, desilverisation of lead. |