SARASWATI MAHILA MAHAVIDHYALAYA, PALWAL

LESSON-PLAN

Class: B.Sc(II) **Semester: EVEN(IV)**

Subject: Physical chemistry **Session: 2021-2022**

Lecture Number	Topic
1	Unit-1 Introduction of Thermodynamics, second law of Thermodynamics,need for the law.
2	Different statements of the law,Carnot's cycle and its efficiency, Carnot's theorem.
3	Thermodynamics scale of temperature, concept of entropy-entropy as a state function.
4	Entropy as a function of V and T, entropy as a function of P and T, entropy change in physical changes.
5	Entropy as a criteria of spontaneity and equilibrium,entropy change in ideal gas and mixing of gases.
6	Revision Test
7	Unit-2 Nernst heat theorem, statement of concept of residual entropy.
8	Evaluation of absolute entropy from heat capacity data,Gibbs function as thermodynamic quantity.
9	Helmholtz function (A)as thermodynamic quantity A and G as criteria for thermodynamic equilibrium.
10	A and G as criteria for spontaneity, their advantage over entropy change.
11	Variation of G and A with P,V and T
12	Revision Test
13	Unit-3 Reversible and Irreversible cells, conventional representation of electrochemical cell.
14	EMF of cell and its measurement, Weston standard cell, activity and activity coefficiens.
15	Calculation of thermodynamic quantities of cell reaction.
16	Metal-Metal ion gas electrode,metal-insoluble salt anion and redox electrodes.
17	Electrode reaction,Nernst equations, derivation of cell EMF and single electrode potential.
18	Standard hydrogen electrode, reference electrode standard electrode potential,sign conventions.
19	Electrochemical series and its applications.

20	**Revision Test**
21	**Unit-4 Concentration cells with and without transference.**
22	**Liquid junction potential, application of EMF measurement i.e,valency of ions.**
23	**Solubility product activity coefficient, potentiometric titration (acid-base and Redox)**
24	**Determination of PH using Hydrogen electrode.**
25	**Determination of PH using Quin hydrone electrode and glass electrode by potentiometric method.**

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