

| Class : B.Sc. III <sup>rd</sup> Sem LESSION PLAN: 2022-23 Subject : Chemistry |                 |                       |                                    |                                                                                                                                                         |
|-------------------------------------------------------------------------------|-----------------|-----------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| DATE                                                                          | LEC<br>TUR<br>E | TEACHE<br>R'S<br>NAME | CHAPTER                            | TOPIC                                                                                                                                                   |
| 08/07/2022                                                                    | 1               | SKV                   | Coordination Chemistry             | Coordinate bonding, double complex salts, complexes                                                                                                     |
| 09/07/2022                                                                    | 2               | SKV                   | Coordination Chemistry             | Coordinate bonding, double complex salts, Werner's theory of coordination complexes                                                                     |
| 11/07/2022                                                                    | 1               | RS                    | Kinetic theories of gases          | Postulates of kinetic theory of gases, deviation from ideal behavior, van der Waals equation of state                                                   |
| 12/07/2022                                                                    | 2               | RS.                   | Kinetic theories of gases          | PV isotherms of real gases, continuity of states, the isotherms of Van der Waals equation                                                               |
| 13/07/2022                                                                    | 1               | AT                    | Theories of Coordination Chemistry | Thermodynamic and kinetic aspects of metal complexes: A brief outline of thermodynamic stability of metal complexes and factors affecting the stability |
| 14/07/2022                                                                    |                 | AT                    | C.T                                |                                                                                                                                                         |
| 15/07/2022                                                                    | 3               | SKV                   | Coordination Chemistry             | classification of ligands, ambidentate ligands, chelates, coordination numbers, IUPAC nomenclature of coordination complexes (up to two metal centers)  |
| 16/07/2022                                                                    | 04              | SKV                   | Coordination Chemistry             | classification of ligands, ambidentate ligands, chelates, coordination numbers, IUPAC nomenclature of coordination complexes (up to two metal centers)  |
| 18/07/2022                                                                    | 3               | RS                    | Kinetic theories of gases          | relationship between critical constants and Van der Waals constants                                                                                     |
| 19/07/2022                                                                    | 4               | RS.                   | Kinetic theories of gases          | the law of corresponding states, reduced equation of state                                                                                              |
| 20/07/2022                                                                    | 2               | AT                    | Theories of Coordination Chemistry | stability constants of complexes and their determination, substitution reactions of square planar complexes                                             |
| 21/07/2022                                                                    |                 | A.T.                  | C.T                                |                                                                                                                                                         |

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| 22/07/2022 | 5 | SKV  | Coordination Chemistry               | classification of ligands, ambidentate ligands, chelates, coordination numbers, IUPAC nomenclature of coordination complexes (up to two metal centers) |
| 23/07/2022 | 6 | SKV  | Coordination Chemistry               | classification of ligands, ambidentate ligands, chelates, coordination numbers, IUPAC nomenclature of coordination complexes (up to two metal centers) |
| 25/07/2022 | 5 | RS.  | Liquid State                         | Intermolecular forces, structure of liquids (a qualitative description)                                                                                |
| 26/07/2022 | 6 | RS.  | Liquid State                         | Structural differences between solids, liquids and gases<br>Liquid crystals: Difference between liquid crystal, solid and liquid.                      |
|            |   |      |                                      |                                                                                                                                                        |
|            |   |      |                                      |                                                                                                                                                        |
| 27/07/2022 | 3 | AT.  | Inorganic Spectroscopy and Magnetism | selection rules for d-d transitions, spectroscopic ground states, spectrochemical series                                                               |
| 28/07/2022 |   | A.T. | ME                                   |                                                                                                                                                        |
| 29/07/2022 | 7 | SKV  | Coordination Chemistry               | Isomerism in coordination compounds, constitutional and stereo isomerism                                                                               |
| 30/07/2022 | 8 | SKV  | Coordination Chemistry               | Isomerism in coordination compounds, constitutional and stereo isomerism                                                                               |
| 01/08/2022 | 7 | RS   | Liquid State                         | Classification structure of nematic and cholesterol phases. Thermography and seven segment cell.                                                       |
| 03/08/2022 | 4 | AT.  | Inorganic Spectroscopy               |                                                                                                                                                        |

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|            |    |      | py and Magnetism                     | Orgel-energy level diagram for d1 and d9 states, discussion of the electronic spectrum of $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$ complex ion. |
| 04/08/2022 | 5  | A.T. | Inorganic Spectroscopy and Magnetism | Orgel-energy level diagram for d1 and d9 states, discussion of the electronic spectrum of $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$ complex ion. |
| 05/08/2022 |    | SKV  | CT                                   |                                                                                                                                                 |
| 06/08/2022 | 09 | SKV  | Coordination Chemistry               | geometrical and optical isomerism in square planar and octahedral complexes                                                                     |
| 08/08/2022 | 8  | RS.  | Phase Equilibrium                    | Statement and meaning of the terms-phase component and degree of freedom                                                                        |
| 10/08/2022 | 6  | A.T. | Inorganic Spectroscopy and Magnetism | Magnetic properties of transition metal complexes, types of magnetic behaviour                                                                  |
| 11/08/2022 | 7  | A.T. | Inorganic Spectroscopy and Magnetism | methods of determining magnetic susceptibility, spin-only formula                                                                               |
| 13/08/2022 | 10 | SKV  | Coordination Chemistry               | geometrical and optical isomerism in square planar and octahedral complexes                                                                     |
| 16/08/2022 |    | RS.  | CT                                   | derivation of Gibbs phase rule                                                                                                                  |
| 17/08/2022 | 8  | A.T. | Inorganic Spectroscopy and Magnetism | L-S coupling, correlation of $\mu_s$ and $\mu_{\text{eff}}$ values, orbital contribution to magnetic moments                                    |
| 19/08/2022 | 11 | SKV  | Coordination Chemistry               | geometrical and optical isomerism in square planar and octahedral complexes                                                                     |

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|            |    |       |                                      |                                                                                         |
| 20/08/2022 | 12 | SKV   | Theories of Coordination Chemistry   | Metal- ligand bonding in transition metal complexes, limitations of valence bond theory |
| 22/08/2022 | 9  | RS    | Phase Equilibrium                    | phase equilibria of one component system water, S, He and Diamond, graphite             |
| 23/08/2022 | 10 | RS    | Phase Equilibrium                    | phase equilibria of one component system water, S, He and Diamond, graphite             |
| 24/08/2022 |    | A.T.  | ME                                   |                                                                                         |
| 25/08/2022 | 9  | A.T.  | Inorganic Spectroscopy and Magnetism | General description of magnetic properties                                              |
| 26/08/2022 | 13 | SKV   | Theories of Coordination Chemistry   | an elementary idea of crystal field theory                                              |
| 27/08/2022 | 14 | SKV   | Theories of Coordination Chemistry   | an elementary idea of crystal field theory                                              |
| 01/09/2022 | 10 | A.T.  | Inorganic Spectroscopy and Magnetism | General description of magnetic properties                                              |
| 02/09/2022 | 15 | SKV   | Theories of Coordination Chemistry   | an elementary idea of crystal field theory                                              |
| 03/09/2022 |    | SKV   | CT                                   |                                                                                         |
| 05/09/2022 | 11 | RS    | Phase Equilibrium                    | phase equilibria of one component system water, S, He and Diamond, graphite             |
| 06/09/2022 | 12 | RS    | Phase Equilibrium                    | phase equilibria of one component system water, S, He and Diamond, graphite             |
| 7/09/2022  | 11 | .AT   | Inorganic Spectroscopy and Magnetism | General description of magnetic properties                                              |
| 10/09/2022 | 16 | S.K.V | Theories of Coordination Chemistry   | crystal field splitting in octahedral tetrahedral and square planar complexes           |

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|            |    |       |                                      |                                                                                                             |
| 12/09/2022 | 13 | RS    | Phase Equilibrium                    | phase equilibria of one component system<br>water, S, He and Diamond, graphite                              |
| 13/09/2022 |    | R.S   | CT                                   |                                                                                                             |
| 15/09/2022 | 12 | AT    | Inorganic Spectroscopy and Magnetism | General description of magnetic properties                                                                  |
| 16/09/2022 | 17 | S.K.V | Theories of Coordination Chemistry   | crystal field splitting in octahedral tetrahedral and square planar complexes                               |
| 19/09/2022 | 14 | RS    | Phase Equilibrium                    | Phase equilibria of two component systems<br>Solid - liquid equilibria , simple eutectic.<br>Pb-Ag systems. |
| 20/09/2022 | 15 | RS    | Phase Equilibrium                    | Phase equilibria of two component systems<br>Solid - liquid equilibria , simple eutectic.<br>Pb-Ag systems. |
| 21/09/2022 | 13 | AT    | Inorganic Spectroscopy and Magnetism | General description of magnetic properties                                                                  |
| 22/09/2022 |    | AT    | CT                                   |                                                                                                             |
| 23/09/2022 | 18 | SKV   | Theories of Coordination Chemistry   | crystal field splitting in tetrahedral and square planar complexes                                          |
| 24/09/2022 | 19 | S.K.V | Theories of Coordination Chemistry   | crystal field splitting in tetrahedral and square planar complexes                                          |
| 26/09/2022 | 16 | RS    | Phase Equilibrium                    | Phase equilibria of two component systems<br>Solid - liquid equilibria , simple eutectic.<br>Pb-Ag systems. |
| 27/09/2022 | 17 | RS    | Phase Equilibrium                    | Phase equilibria of two component systems<br>Solid - liquid equilibria , simple eutectic.<br>Pb-Ag systems. |
| 28/09/2022 | 14 | AT    | Inorganic Spectroscopy and Magnetism | General description of magnetic properties                                                                  |
| 29/09/2022 |    | AT    | ME                                   |                                                                                                             |
| 30/09/2022 | 20 | SKV   | Theories of Coordination Chemistry   | crystal field splitting in tetrahedral and square planar complexes                                          |

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|            |    |       |                                      |                                                                                                                                                                |
| 01/10/2022 | 21 | SKV   | Theories of Coordination Chemistry   | factors affecting the crystal-field parameters                                                                                                                 |
| 07/10/2022 | 22 | SKV   | Theories of Coordination Chemistry   | factors affecting the crystal-field parameters                                                                                                                 |
| 08/10/2022 | 23 | S.K.V | Theories of Coordination Chemistry   | factors affecting the crystal-field parameters                                                                                                                 |
| 10/10/2022 | 18 | RS    | Phase Equilibrium                    | Phase equilibria of two component systems<br>Solid - liquid equilibria , simple eutectic.<br>Pb-Ag systems.                                                    |
| 11/10/2022 |    | RS    | CT                                   |                                                                                                                                                                |
| 12/10/2022 | 15 | AT    | Inorganic Spectroscopy and Magnetism | Paramagnetism, diamagnetism,                                                                                                                                   |
| 13/10/2022 | 16 | AT    | Inorganic Spectroscopy and Magnetism | Paramagnetism, diamagnetism,                                                                                                                                   |
| 14/10/2022 | 24 | SKV   | Theories of Coordination Chemistry   | factors affecting the crystal-field parameters                                                                                                                 |
| 15/10/2022 | 25 | S.K.V | Theories of Coordination Chemistry   | factors affecting the crystal-field parameters                                                                                                                 |
| 17/10/2022 | 1  | PM    | <b>Chemical Kinetics</b>             | Rate of a reaction, molecularity and order of reaction, concentration dependence of rates, mathematical characteristic of simple chemical reactions zero order |
| 18/10/2022 |    | PM    | ME                                   |                                                                                                                                                                |
| 19/10/2022 | 17 | AT    | Inorganic Spectroscopy and Magnetism | ferromagnetism and magnetic susceptibility                                                                                                                     |
| 20/10/2022 | 18 | AT    | Inorganic Spectroscopy and Magnetism | ferromagnetism and magnetic susceptibility                                                                                                                     |
| 28/10/2022 | 26 | SKV   | Theories of                          | factors affecting the crystal-field                                                                                                                            |

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|            |    |           | Coordination Chemistry               | parameters                                                                                                                                                                                  |
| 29/10/2022 | 27 | S.K.V     | Theories of Coordination Chemistry   | factors affecting the crystal-field parameters                                                                                                                                              |
| 01/11/2022 | 2  | PM        | Chemical kinetics                    | first order, second order, pseudo order, half-life and mean life. Determination of the order of reaction differential method, method of integration, half-life method and isolation method. |
| 02/11/2022 |    | AT        | CT                                   |                                                                                                                                                                                             |
| 03/11/2022 | 19 | AT        | Inorganic Spectroscopy and Magnetism | ferromagnetism and magnetic susceptibility                                                                                                                                                  |
| 05/11/2022 | 28 | S.K.V     | Theories of Coordination Chemistry   | factors affecting the crystal-field parameters                                                                                                                                              |
| 07/11/2022 | 3  | <b>PM</b> | Chemical kinetics                    | first order, second order, pseudo order, half-life and mean life. Determination of the order of reaction differential method, method of integration, half-life method and isolation method. |
| 09/11/2022 | 20 | AT        | Inorganic Spectroscopy and Magnetism | ferromagnetism and magnetic susceptibility                                                                                                                                                  |
| 10/11/2022 | 21 | AT        | Inorganic Spectroscopy and Magnetism | ferromagnetism and magnetic susceptibility                                                                                                                                                  |
| 11/11/2022 |    | SKV       | ME                                   |                                                                                                                                                                                             |
| 12/11/2022 | 29 | S.K.V     | Theories of Coordination Chemistry   | factors affecting the crystal-field parameters                                                                                                                                              |
| 14/11/2022 | 4  | PM        | Theories of Coordination             |                                                                                                                                                                                             |

|            |   |    |                                    |                                                                                                                                                             |
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|            |   |    | Chemistry                          | Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy. Simple collision theory based on hard sphere model             |
| 15/11/2022 | 5 | PM | Theories of Coordination Chemistry | transition state theory (equilibrium hypothesis). Expression for the rate constant based on equilibrium constant and thermodynamic aspects (no derivation). |