

Name of Assistant

CLASS - B.Sc 2nd. N.M+M

Professor → Dr. SUMAN KUMARI

Session-2023-24

Sub: Inorg. Chem.

Date	Topics
24-07-2023	Basic introduction about Chemistry of d-Block elements.
25-07-2023	Details of 1 <sup>st</sup> and 2 <sup>nd</sup> Transition series.
26-07-2023	Details of 3 <sup>rd</sup> and 4 <sup>th</sup> Transition series.
27-07-2023	Position in the Periodic table.
28-07-2023	Definition of transition elements and their Elect. Conf. <sup>n</sup>
29-07-2023	General characteristic of Transition elements.
1-08-2023	General trends in Properties of Transition metals.
2-08-2023	Atomic radii, Ionic radii, density, melting and boiling points
3-08-2023	Details study of oxidation state of T.M.
4-08-2023	Reducing character, metallic character, Reactivity
5-08-2023	formation of coloured ions in T. m. Complexes.
7-08-2023	Magnetic Properties, of Transition metal ions
9-08-2023	Tendency to form Complexes, catalytic Properties.
10-08-2023	formation of interstitial Compounds, Alloy formation.
11-08-2023	General Comp <sup>n</sup> of Properties of 3d- elements with 4d and
12-08-2023	5d- elements.
14-08-2023	Structures and Properties of some compounds.
16-08-2023	TiO <sub>2</sub> : Prep <sup>n</sup> , structure, Physical and chemical Properties.
17-08-2023	VOCl <sub>2</sub> : Prep <sup>n</sup> , structure, Physical and chemical Properties.
18-08-2023	FeCl <sub>3</sub> : Prep <sup>n</sup> , structure, Physical and chem. Properties.
19-08-2023	CuCl <sub>2</sub> : Prep <sup>n</sup> , structure, Physical and chemical Properties and uses.
Remarks .....	Teacher's Signature .....

21-08-23	Ni(CO) <sub>4</sub> : Tetracarbonyl nickel (0)
22-08-23	Study of some important conceptual questions
23-08-23	Introduction about Coordination Compounds.
24-08-23	Some Terms used in Coordination Compounds.
25-08-23	Types of ligands
26-08-23	Werner's Coordination Theory
28-08-23	Chelating ligands and chelates.
29-08-23	Nomenclature of Coordination Compounds.
31-08-23	Bridging groups in bidentate ligands
1-09-23	Naming of Geometrical isomers.
2-09-23	Isomerism in Coordination Compounds.
4-09-23	Geometrical and optical isomerism
5-09-23	Introduction about Effective Atomic No. Concept
5-09-23	Sidgwick Theory of bonding.
7-09-23	Modern Theories of bonding in Coordination Compounds
8-09-23	Valence Bond Theory
9-09-23	Applications and limitations of V.B.T.
11-09-23	Applications of Valence bond Theory
12-09-23	Colours of Coordination Compounds
13-09-23	Magnetic susceptibility
14-09-23	Applications of Coordination Compounds
15-09-23	Discuss about conceptual questions.

Remarks .....

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16-09-23	Test: Chemistry of d-Block elements.
18-09-23	Introduction: Non-Aqueous Solvents.
19-09-23	Physical Properties of Solvents and their role in Chemical reactions.
25-09-23	Detail study of types of solvents.
26-09-23	Types of reactions in Non-Aqueous solvents.
3-10-23	Comparison of Properties of liquid $\text{NH}_3$ and water
4-10-23	Solutions in liquid Ammonia
9-10-23	Discuss about liquid sulphur dioxide
10-10-23	Solubilities of Comp'd in liquid sulphur dioxide
16-10-23	Some organic reactions of liq. $\text{NH}_3$
17-10-23	Precipitation reactions and Complex formation Rx'n
23-10-23	Some special features of liquid $\text{SO}_2$ as a solvent.
25-10-23	Discuss some imp. Conceptual questions.
30-10-23	Test: Coordination Compounds.
2-11-23	Revision of d-Block elements
6-11-23	Test: Non-Aqueous solvents.
7-11-23	Revision of Coordination Compounds.

Remarks .....

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Name of Assistant Professor ODD SEMESTER

DR. SUMAN KUMARI

CLASS-B: S.C. IT and N.M.+M.

Session-2023-24

Sub. Organic Chem.

26-07-23	General Introduction about Alcohols.
27-07-23	Method of form <sup>n</sup> of alcohols. Acidic Nature
3-08-23	Dihydric alcohols - Nomenclature, method of form <sup>n</sup>
4-08-23	Oxidative cleavage and Pinacol-Pinacolone Reaction.
9-08-23	Synthesis of epoxides. Acid and base-catalyzed
10-08-23	ring opening of exo epoxides.
16-08-23	orientation of epoxide ring opening.
17-08-23	Rx <sup>n</sup> of Grignard and organolithium reagent.
23-08-23	Phenols: Nomenclature, structure and bonding.
24-08-23	Preparation of phenols, Physical Properties.
1-09-23	Comparative acidic strength of alcohols and phenols.
2-09-23	Resonance stabilization of phenoxide ion.
8-09-23	Reaction and mechanism.
9-09-23	Introduction about UV absorption spectroscopy
13-09-23	Types of electronic transitions. effect of conjugation.
14-09-23	Concept of chromophore, and auxochrome.
20-09-23	UV spectra of conjugated enes and enones.

Remarks .....

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21-09-23	Woodward-Fieser Rules, Calculation of $\lambda_{max}$ .
27-09-23	Application of UV Spectroscopy in structure elucidation of simple organic compounds
28-09-23	
5-10-23	Test: Alcohols and Phenols.
6-10-23	Introduction about Carboxylic Acids and derivatives.
12-10-23	Structure and bonding, Physical Properties, acidity
13-10-23	Effect of substituents on acid strength.
18-10-23	Preparation of Carboxylic acid and Reactions.
19-10-23	Reduction of C.A and mech. of decarboxylation.
25-10-23	Structure, nomenclature and Prep <sup>n</sup> of acid chlorides
26-10-23	esters, amides and acid anhydrides.
30-10-23	Relative stability of acyl-derivatives.
2-11-23	Interconversion of acid derivatives.
8-11-23	mech. of esterification and hydrolysis.
9-11-23	Test: epoxides and UV AB <sup>n</sup> spectroscopy.
17-11-23	Revision of Carboxylic Acids and their derivatives.
18-11-23	Test: Carboxylic Acid and their derivatives.

Remarks .....

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Name → DR. SUMAN KUMARI CLASS → B.Sc. III<sup>rd</sup> N.M+M. SUB → Physical Chem

28-07-23	General introduction about Thermodynamics.
29-07-23	Types of systems, intensive and extensive Properties.
4-08-23	Thermodynamic Process, Concept of heat and work.
5-08-23	zeroth law of thermodynamics and First law.
11-08-23	Heat capacities at const volume and Pressure Joule's Law
12-08-23	Joule-Thomson coefficient for ideal gas and real gas.
18-08-23	Calculation of $w, q, du$ and $dH$ for the expansion of
19-08-23	ideal gases under isothermal and adiabatic Process.
25-08-23	Temperature dependence of enthalpy, Kirchoff's eq <sup>n</sup> .
26-08-23	Bond energies and applications of bond energies.
1-09-23	Equilibrium Constant and free energy, chem. Potential.
2-09-23	Thermodynamic derivation of law of chem. equilibrium
8-09-23	Temp. dependence of equilibrium constant.
9-09-23	Van't Hoff reaction isochore, Van't Hoff rx <sup>n</sup> isotherm.
15-09-23	Le-Chatelier's Principle and its application.
16-09-23	Clapeyron eq <sup>n</sup> and Clausius-Clapeyron eq <sup>n</sup> , its ap <sup>p</sup> <sup>n</sup>
22-09-23	Nernst distribution law - its thermodynamic derivation

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23-09-23	Modification of distribution law when solute undergoes dissociation.
29-09-23	Association and chemical combination.
30-09-23	Applications of distribution law.
6-10-23	Determination of degree of hydrolysis.
7-10-23	hydrolysis constant of aniline hydrochloride.
13-10-23	determination of degree of hydrolysis.
14-10-23	Det <sup>n</sup> of equilibrium const.
20-10-23	Determination of equilibrium constant of potassium
21-10-23	tri-iodide complex and Process of extraction.
27-10-23	Test: Thermodynamics - I
28-10-23	Revision
30-10-23	Test: Thermodynamics - II
3-11-23	Revision
8-11-23	Test: Chemical Equilibrium
9-11-23	Revision.
23-11-23	Distribution law
24-11-23	Revision

Remarks .....

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Name of Assistant

Professor → DR. SUMAN

CLASS → M.Sc. (Previous)

Sub →

Biology for Chemists

16-08-23	General Introduction about Cell Biology.
17-08-23	Discovery of cell.
18-08-23	Structure of Prokaryotic and Eukaryotic cells.
19-08-23	Classification of cell types.
21-08-23	Comp <sup>n</sup> of Plant and animal cycle: mitosis and meiosis.
22-08-23	Cellular organization. Biomembranes.
23-08-23	fluid mosaic model of membrane structure.
24-08-23	cytoplasmic organelles functions.
25-08-23	Catabolism and anabolism
26-08-23	ATP- the biological energy currency.
28-08-23	Cellular macromolecules: Essential Amino acids.
29-08-23	Isoelectric PH, chemical and enzymatic hydrolysis.
31-08-23	Secondary st. of Proteins, $\alpha$ -helix, $\beta$ -sheets.
1-09-23	Triple helix st. of collagen, Quaternary structure
2-09-23	Denaturation of Proteins. Carbohydrates.
4-09-23	Structure and biological functions of monosaccharides.
5-09-23	St and biological func <sup>n</sup> of Glucose and fructose
7-09-23	Galactose: structure and function.
8-09-23	Disaccharides: Sucrose.
9-09-23	Lactose: st. and Biological functions.
11-09-23	Maltose: Structure and Biological functions.

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12-09-23	Structural Polysaccharides: Cellulose
13-09-23	Structural Polysaccharides: Chitin.
14-09-23	Storage Polysaccharides: Starch
15-09-23	Storage Polysaccharides: Glycogen.
16-09-23	Lipids and fatty acids.
18-09-23	Essential fatty acids.
19-09-23	$\beta$ -oxidation of fatty acids.
20-09-23	Test: Cell Biology
21-09-23	Structure of nucleotides.
22-09-23	Structure of nucleosides.
23-09-23	DNA (Watson-Crick model)
25-09-23	RNA structure and conformation. AND DNA st.
26-09-23	Replication of DNA
27-09-23	Meselson-Stahl experiment
28-09-23	Transcription.
29-09-23	Translation of genetic material.
30-09-23	Genetic code.
3-10-23	universality of the code, codon
4-10-23	Anticodon Pairing. RNA.
5-10-23	Protein Biosynthesis: initiation, elongation.
6-10-23	Protein Biosynthesis: Termination.
7-10-23	Processing of the Peptide chain.

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9-10-23	Test: Cellular macromolecules.
10-10-23	Introduction about oxygen carriers
11-10-23	Porphyrins.
12-10-23	Metalloporphyrins.
13-10-23	Hemoproteins.
14-10-23	St. and functions of hemoglobin.
16-10-23	St. and functions of myoglobin.
17-10-23	Photosynthesis Process.
18-10-23	Chlorophyll.
19-10-23	General introduction about Atmosphere.
20-10-23	chemical Composition of atmosphere.
21-10-23	Atmospheric structure.
23-10-23	Earth's radiation balance.
25-10-23	oxides of N, C, S and their effects.
26-10-23	Green house effect.
27-10-23	Acid rain and Photochemical smog.
28-10-23	Photochemical smog.
30-10-23	Depletion of ozone and their effect.
31-10-23	Test: Unit - III.
2-11-23	Revision - Unit - I.
3-11-23	Test: Cell Biology.
4-11-23	Revision - Unit - II <sup>nd</sup>

Remarks .....

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6-11-23 Test: Cellular macromolecules.

7-11-23 Revision of unit - III

8-11-23 Test: Structure of nucleotides.

9-11-23 Revision of unit - IV.

17-11-23 Test of oxygen carriers.

18-11-23 Revision of unit - I.

20-11-23 Revision of unit - II

21-11-23 Test: unit I and II.

22-11-23 Revision: unit - III.

23-11-23 Revision: unit - IV.

24-11-23 Test: unit - III

25-11-23 Test: unit - III.

28-11-23 Revision

29-11-23 Revision

30-11-23 Revision

Remarks .....

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