

4 th sem chemistry		
sr no	topic	link
Unit 1		
1	Definition of transition elements. General characteristics of transition elements. Comparative study of first transition series elements (3d) with reference to following properties:	https://youtu.be/FuS29_avtXw
2	(i) Electronic configuration (ii) Atomic and ionic size (iii) Ionization energy (iv) Metallic nature (v) Oxidation states (vi) Magnetic properties (vii) Color of salts (viii) Catalytic properties (ix) Complex formation behaviour. Study of 4d and 5d series elements-Electronic configuration. Comparison of 3d series elements with 4d and 5d series elements with respect to size, oxidation states, magnetic properties and color	https://youtu.be/ICHMWOFIV8
3	Principles involved in extraction of elements	https://youtu.be/fHQf5ya3rZU
4	Major methods of extraction of elements.	https://youtu.be/uSIM3TLE60E
5	Factors affecting choice of extraction method	https://youtu.be/yEhrNelOACU
6	Thermodynamics of reduction processes-Ellingham diagrams for oxides and importance of this diagram (only preliminary ideas).	https://youtu.be/MLYbon-FUpY
7		https://youtu.be/jq7mWzKj1QE
Unit 2		
1	Definition, Lanthanides and Actinides	https://youtu.be/EnPybHZY53Q
2	(i) Electronic configuration (ii) Atomic and ionic radii lanthanide contraction-definition, cause and effect of lanthanide contraction (iii) Oxidation states (iv) Magnetic properties (v) Color of salts (vi) Complex formation behavior.	https://youtu.be/POVUaCgJqD8
3	Occurrence of lanthanides. Isolation of lanthanides by ion exchange method.	https://youtu.be/aEXZ1re0RhU
4	Actinides- Electronic configuration and oxidation states.	

	Comparison of lanthanides and actinides. Applications of Lanthanides and Actinides in high technology in brief.	https://youtu.be/KlvOKekxwu0
5	Definition of metallurgy, steps in metallurgy	https://youtu.be/yEhrNelOACU
6	Ore dressing by gravity separation, froath floatation and electromagnetic separation.	https://youtu.be/HPtsg_VqZ0Y
7	Calcination, roasting, smelting and refining of metals. Meaning of termshydrometallurgy and pyrometallurgy.	https://youtu.be/xSlskoql_28
Unit 3		
1	Introduction, orbital picture of naphthalene	https://youtu.be/omEpq9AtvKU
2	Preparation and reactions of -naphthol and - naphthol,	https://youtu.be/WwpFaaLWRqI
3	- naphthylamine and - naphthylamine.	https://youtu.be/pwqSrHQObGQ
4	Defination of reactive methylene group, synthesis and applications of malonic ester and acetoacetic ester, keto-enol tautomerism.	https://youtu.be/1ApGSzDdQnM
5	Malonic Ester: Synthetic applications- Synthesis of Acetic acid , Succinic acid, Glutaric acid, Adipic acid, Crotonic acid, Acetone, Malonyl urea.	https://youtu.be/7O_kWGVdbe4
6	Acetoacetic ester: Synthetic applications- Synthesis of Acetic acid, Propionic acid, isobutyric acid, Succinic acid, Glutaric acid, Crotonic acid, Acetone, Acetyl acetone, 4-methyl uracil.	https://youtu.be/wB34rSKjF-M
7	Carbohydrates: Introduction	https://youtu.be/xx3zKh97X0k
8	Constitution of glucose,	https://youtu.be/9f34MaHVy-E
9	cyclic structure, Pyranose and Furanose structure,	https://youtu.be/24VKP31Ylrg
10	Epimerization	https://youtu.be/FCEXnpQdiP8
11	Chain	

	lengthening and chain shortening in aldose.	https://youtu.be/7yKgSFGu6vE
12	Interconversion of glucose and fructose	https://youtu.be/399ataEHZLI
13	Introduction to	
	fructose, ribose, 2- deoxyribose, maltose, sucrose.	https://youtu.be/p0soyMv8-Xo
Unit 4		
1	Aromatic nitro compounds:	https://youtu.be/Lqu7_40gVzU
	Nitration and different nitrating agents	
2	Reduction of	
	Nitrobenzene under different conditions. [2]	https://youtu.be/DTg-NNgMLg0
3	Amino Compounds:	
	Introduction, Basicity and effect of substituents	https://youtu.be/xnffJyDP7qE
4	Methods of preparation of aniline, Reactions of aniline:	https://youtu.be/nOxJ8PA1ADM
5	Carbylamine reaction, alkylation, reaction with	
	aldehyde, benzylation, Hoffmanns Exhaustive	
	Methylation and its mechanism	https://youtu.be/81HRTfg3Drk
6	Diazonium Salts:	
	Diazotization, Preparation and synthetic applications of	
	benzene diazonium chloride	https://youtu.be/wdyiR39fjpc
7	Classification of amino acids	https://youtu.be/NlvhyULL3s0
8	methods of synthesis and	
	reactions of amino acids.	https://youtu.be/mUVgHhSrps0
9	Zwitterion structure, Isoelectric point, peptide synthesis,	
	Structure determination of Polypeptides by end group	https://youtu.be/IOp0HAfL2s0
	analysis.	
Unit 5		
1	Definition and examples of colligative	
	properties. Importance of colligative properties.	https://youtu.be/JU7GXu2yIH8
2	Elevation of boiling point. Thermodynamic	
	derivation of the relationship between elevation	
	of boiling point and the molar mass of nonvolatile	
	solute.	https://youtu.be/psPI2zuXXpU
3	Cottrells method for the	
	determination of elevation of boiling point and	

	hence the molar mass of solute.	https://youtu.be/rpZDTRR7YXk
4	Depression of freezing point. Thermodynamic derivation of the relationship between depression of freezing point and the molar mass of non-volatile solute.	https://youtu.be/xQuI_6N4Tac
5	Rasts method for the determination of molar mass of solute.	https://youtu.be/RelTB_FxsGk
6	Abnormal behaviour of solution. Vant Hoffs factor i. Determination of degrees of association and degree of dissociation from Vant Hoffs factor.	https://youtu.be/uoKxKM_w6pE
Unit 6		
1	Polar and non-polar molecules. Dipole moment	https://youtu.be/OPNkCgpTt3A
2	Induced polarization and orientation polarization. Clausius-Mossotti equation	https://youtu.be/8bRPaNsrj8s
3	Measurement of dipole moment by temperature and refractivity methods.	https://youtu.be/ohuU5Lu8dy0
4	Applications of dipole moment for the determination of molecular structure.	https://youtu.be/i4J5dXer7KI
5	Paramagnetic and diamagnetic substances. Origin of paramagnetism and diamagnetism	https://youtu.be/u36QpPvEh2c
6	Volume, specific and molar magnetic susceptibility. Relationship between molar magnetic susceptibility and magnetic moment.	https://youtu.be/zljSLA4gcG4
7	Relationship between magnetic moment (spin only) and the number of unpaired electrons.	https://youtu.be/mkZO9dWVoZY
8	Applications of magnetic moment in the determination of molecular structure	https://youtu.be/YhcqBEXdoKw