

RK VIGYAN PG COLLEGE KALWAR JAIPUR, RAJ.
B.SC 4TH SEMESTER CHEMISTRY THEORY

S.N	PAPER (I, II,) NAME	UNIT	TOPIC	VIDEO LINK
1		UNIT-I Chemistry of Elements of first Transition series:	Characteristics properties of d-block elements.	https://youtu.be/Rr2YHvOtWQE?si=stH7_ueWjolwA1fp
2			Properties of the elements of the first Transition series	https://youtu.be/FuS29_avtXw?si=CSodgo1V_y8B2sDd
3			Their binary compounds and complexes illustrating relative stability of their oxidation - states , coordination number and geometry	https://youtu.be/1JdSuZPUG1M?si=O7ia_kqkravlo8jd
4		Chemistry of Elements of second and third transition series:	General characteristics,,,	https://youtu.be/dDRa8Dj2OVQ?si=s3yNGPttgw6cyC_P
5			Compretii treatment with their 3d- analogues in respect of ionic raddi	https://youtu.be/fHQf5ya3rZU?si=65plYLpZm07-AaBM
6			Oxidation states.	https://youtu.be/Pfo_wbNk7LY?si=7JihkSW-EcL6oMb-
7			Magnetic behavior	https://youtu.be/shztrhghl9k?si=QlcZmCnA2aZY4gyL

8			Spectral properties and stereo Chemistry	https://youtu.be/GGHLb8VrUmk?si=jGr7a-isrFs_1vGy
9		Chemistry of lanthaide and actinide elements:	Electronic structure	https://youtu.be/qWM1Zvv93uM?si=815QwijXa6Jz6jCv
10			Oxidation states of actinide elements	https://youtu.be/oUPjm9PuS6k?si=ioobfKt5fuurdhRq
11			Oxidation states of lanthaide elements	https://youtu.be/uFtvzzB3gU0?si=ljCfRcwl19kPIDwd
12			Iconic radii and lanthaide contraction	https://youtu.be/iB2VVlvk5gY?si=j1AutWW7uoSw1Yk1
13			Complex formation of lanthaide elements	https://youtube.com/shorts/KPAPKbKqcZ4?si=zy9NiJUr8Fj-EWFI
14			Complex formation of actinide elements	https://youtu.be/mOuBZ4QqLXA?si=_XkYVcYDn4Wpvs22
15			Occurance and isolation	https://youtu.be/aEXZ1re0RhU?si=L0kkIShmJAJTSS46
16			Lanthaide compound	https://youtu.be/dHvtTZ0WsJY?si=bF6mfnt6jFpM6m58
17			General features and chemistry of actinide elements	https://youtube.com/playlist?list=PLzx4lccVfC6eafeNV
18			Chemistry of separation of Np,Pua and U	https://youtu.be/tc0YRCHkhsi?si=s0pXSRTVsihObULd
19			Similarities between the later actinides and the later lanthaides	https://youtu.be/PIFt1xqjQl8?si=zFjLCrcQXODMaMCK
20		UNIT-II	Classification and nomenclature	https://youtube.com/playlist?list=PLF_7kfnwLFCEIIUy1

		Alcohol		
21			Monoatric alcohol method of formation by reduction of aldehyde keton carboxylic acid and Easter	https://youtu.be/Xs2f6Pbq90E?si=BZwosf2VDQxEesVd
22			Hydrogen bonding in alcohol	https://youtu.be/TvMufKWOMZY?si=wk0QnboSLH7OOLNe
23			Acidic Nature of alcohol	https://youtu.be/R4TkIJ6CgOo?si=UdL9GKhA5wL8vrJS
24			Reaction of alcohol with mechanism	https://youtu.be/ruKyDMKqsXc?si=G9jcAnlwtVOEDSFU
25		Phenols	Nomenclature Structure and bonding of phenol	https://youtu.be/eh6YmqDUOX8?si=iC8E2TgmItF3sRrF
26			Preparation of phenol physical property and acidic character comparatively acidic strength of alcohol and phenol comparative	https://youtu.be/C_D2qBnTplo?si=MJDW14QBUzf1qdeG
27			Reaction of phenol electrophilic aromatic substitution , acylation and carboxylate	https://youtu.be/74Y42FSL-FI?si=3FjDZPysOGC4s1zx
28			Mechanism of fries rearrangement	https://youtu.be/Q_V_KpkkrXI?si=TapcDrzkT1Y_g6Q9
29			Claisen rearrangement	https://youtu.be/-QCyuV0jhNY?si=EQwJaLHQgEvfUW8m
30			Leader manasse reaction	https://youtu.be/IUIVxOI3Kxc?si=XD86lQO-kxEI0Aup
31			Hauben Hoesch reaction	https://youtu.be/oaeXHeA15iM?si=jO1wvxmJNQdSUKVm
32			Gattermann synthesis	https://youtu.be/VKkKLTQsRYM?si=nLCO5p3dx_MSedpd
33			Reimer tiemann reaction	https://youtu.be/BqzltiGRp6g?si=Of_vyd9M1XeoZXFL

34		Ethers and Epoxides	Method of formation physical property chemical reaction cleavage and auto oxidation	https://youtube.com/playlist?list=PLWi-SYh-VwoBGtFiRn-01LH8ENjgWsD5S&si=plhbh35lLbWHkPhJ
35			Ziesels method	https://youtu.be/Dje7jBl4Ec?si=FQUtuQoLw8yAzJqI
36			Synthesis of epoxide acid and base catalyzed ring opening of epoxide	https://youtu.be/bT0aotAdqYc?si=KudyRXjMa0_VdtX9
37			Grignard and original lithium reagent with epoxides	https://youtu.be/q_unXZTmH3M?si=XdkBIFJCxD8symje
38		Aldehyde and ketone	Structure of carbonyl group	https://youtu.be/IR8NwkAZdIQ?si=p0oTINcUGjuvYoBh
39			synthesis of aldehyde from acid chloride synthesis of aldehyde ketone using 1,3 dithianes	https://youtu.be/V0XubnLJy0w?si=-uVSQzn7o9qw3BPn
40			Synthesis of keton from nitrile and form carboxylation acid	https://youtu.be/ZjMtMTu4i_E?si=NaEPaINncKmaW_fO
41			Physical property of carboxylic acid	https://youtu.be/immSHtZdLPU?si=V9V3XE_DTomRMnE-
42			Mechanism nucleophilic addition reaction Benzoin aldol,perkin	https://youtu.be/8H3MuHcfO4Y?si=LP9Sbkr8Qsrpa8Mz
43			Knoevenagel reaction	https://youtu.be/QAPdmLJr-8Y?si=9ImQGBh02j6Qbj1o
44			Writing reaction	https://youtu.be/M8oocLIVqzU?si=XrwSb1E280E2u_0w
45			Operation of aldehyde and ketone	https://youtu.be/0LI2_W3VAyo?si=9VXjtTpPaK-GlZgU
46			Mannich reaction	https://youtu.be/ygNhf4qMboQ?si=9ugvQ_8QsELYbSJF

47			Baeyer villager Oxidation of ketones	https://youtu.be/GnIMvc9d2eQ?si=cTMkGYjPz2IAk2XU
48			Cannizzaro. Reaction	https://youtu.be/zGL23ozbBCK?si=AQjBqax0RyuTaORF
49			MPV REACTIONS (meervein-pondrorf verley)	https://youtu.be/Ojq88pUsYa0?si=HEWSL3n5f4_X0E-u
50			Clemmensen , Wolff-kishner ,LiAlH ₄ ,NaBH ₄ reduction	https://youtu.be/1hs9Sd_rg0M?si=lferFgGL4iyEk5B7
51			Halogenations of enolization ketones	https://youtu.be/-Mi-1_QPBsw?si=dY-bwaxQNc3OvqOR
52			Use of acetals and 1,3 dithianes as protecting group	https://youtu.be/w3gnZGUp3_U?si=YxYobZxkWdRVRX53
53		UNIT-III Carboxylic acid	Structure and bonding physical property acidity of carboxylic acid	https://youtu.be/7YmGCHdRhUg?si=fHZJ7NqlS_pBOqa1
54			Effect of substituent on acidic strength	https://youtu.be/l2f59wqLo30?si=ECwX9dxx4rk3H0cw
55			Preparation of carboxylic acid	https://youtu.be/etpmg2sNr1Q?si=RiryNLjO7GrT_jzU
56			Reaction of carboxylic acid Hell volhard zelinsky reaction	https://youtu.be/TfkV14JVzs4?si=Qk1u9cFjZJbvK7W
57			Reduction of carboxylic acid	https://youtu.be/g3J1q8ieBeg?si=xs9EM64cO7LC7L-w
58			Mechanism of the carboxylation	https://youtu.be/1ZGs5LBt4Bo?si=fu79aTPzs-3MimnF
59			Method of formation of chemical reaction of halo acids hydroxy acids malic ,tartaric acid citric acid	https://youtu.be/YeDkBdAKjFY?si=kRGiyN0UGq3WCTID
60		Daicarboxylic	Method of formation and effect	https://youtu.be/PLg4vkoRc_c?si=y-FH37gTJ8nCNU2Y

		acid	of heat and dehydrating agent	
61		Carboxylic acid derivative	Structure Noman culture and synthesis of acid chloride ester amide and acid anhydride	https://youtu.be/F3GtZwCRrwU?si=JapAfwyRcrddtKhN
62			Relatively stability of acyl derivative	https://youtu.be/-UeeqGWZT7k?si=kR-NFm1p-b_YYNYg
63			Physical property of carboxylic acid	https://youtu.be/VI8l9jzo73U?si=hegS_kbnXAyu-Bgx
64			Interconversion of acid derivative by nucleophilic acyl substitution	https://youtu.be/lnrZvEYZRcE?si=AvmJMRp4hkS-DdZN
65			Preparation of carboxylic acid derivative chemical reaction, mechanism of esterification and hydrolysis	https://youtu.be/tAqPutVkhQ4?si=clBOd-Acx5Hwcxme
66		Organic compounds Nitrogen	Preparation of nitro alkanes and nitroarenes	https://youtu.be/zUhtniFdvLQ?si=97XQmEAIJOYrGrJ9
67			Chemical reaction of nitro alkanes mechanism of nucleophilic substitution in nitroarenes	https://youtu.be/Yp4W58RO_1Q?si=dJAx9TwwU2DgLmCW
68			Neutral and alkaline Media picnic acid	https://youtu.be/LS0v9bxMQTE?si=f9AvLqGmAPF9E34A
69			Amin structure and nomenclature	https://youtu.be/avbAouC3Ubc?si=JPLQunVFPz6QmCML
70			Preparation of alkyl and aryl	https://youtu.be/P38XBvOqw4o?si=qucgBLcdGxjc5eNy

			amine reduction of nitro compound nitriles	
71			Reductive amination of aldehyde and ketone compound	https://youtu.be/waFXzFtM9To?si= ooO 2-aW4zS6W 9
72			Separation of mixture of primary secondary tertiary amines	https://youtu.be/yilEiM4cm_o?si=wasmgcvSGuoyqUgW
73			Structure feature effecting the basicity of Amines	https://youtu.be/592B08QP7ps?si=cW7mBn2Rly-XIMaX
74			Stereochemistry of Amines	https://youtu.be/nT5VNo8TTfU?si=58MWP5gIF6LFr7U
75			Amine salt as phase transfer transfer catalyst	https://youtu.be/WeH28FGn_tw?si=5yL48L7Rm17vhIU3
76			Gabriel pthalimide reaction	https://youtu.be/M1c8sCwSmjQ?si=Emp4UxEwb-vASBJp
77			Hellofrom bromide reaction with mechanism	https://youtu.be/oCRSxUdEsyE?si=hKJ1Dx1qIPUZepCN
78			Reaction of Amine electrophilic aromatic substitution in arylamine	https://youtu.be/jkFZ7W9ka1I?si=-KHZNda9FEYzrMIw
79			Reaction of Amine with nitric acid diazotisation and mechanism	https://youtu.be/Sz8rtfYI29U?si=rf-hJqmzfsmXin6z
80			Synthesis transformation of aryl diazonium salt	https://youtu.be/PrCRYUrl0Fc?si=bSzfbL9TmjXBWM0E
81			Age of coupling and its application	https://youtu.be/ZBcE8Oe7oho?si=e94D0RuHrbmT_9BO
82		UNIT-IV	Second law of thermodynamics need for this law different	https://youtu.be/IZfVD76v1xg?si=Pe_HPurSL6ruclo2

		Thermodynamics	statement of the law	
83			Carnot cycle and its efficiency	https://youtu.be/On2vaaWWwHM?si=xMSntk0qSoP5JQ1A
84			Efficiency of carnot cycle	https://youtu.be/hXfg5qzRoIE?si=v7mJN77tkDZvkmU-
85			Carnot theorem	https://youtu.be/KOzp4OhT86M?si=jQIZw-bXack2xkmg
86			Thermodynamic scale of temperature	https://youtu.be/lspc5CXzI2g?si=Jw2cUiUpU2fXwM_G
87		Concept of Entropy	Entropy as a State function	https://youtu.be/f4u48zrwALo?si=HHWMOK6KVNmoPom
88			Entropy as a function of V and T	https://youtu.be/FmIPMLwCcYY?si=UQQJrEP1rIU0rTB
89			Entropy as a function of P and T	https://youtu.be/yXa954T4u-M?si=hAPQGzYHRYwD2Qzw
90			Entropy change in physical change	https://youtu.be/al05HkWX8-0?si=nqJYgnpgOb2MsWWV
91			Clausius inequality	https://youtu.be/agq5B1210Bg?si=9wjceJ3QaeVEwKKN
92			Criteria of spontaneity and equilibrium	https://youtu.be/pwJdcmXMldU?si=TtBsigt_3MYJWLT
93			Entropy change in ideal gases and mixing of gases	https://youtu.be/ulXeyM8Mb9A?si=k0NNSgFM7nNAsegJ
94		Third law of thermodynamics	Statement and concept of residual entropy	https://youtu.be/P-SzHBt46Gw?si=XIWjf6nalusq7js
95			Nernst heat theorem	https://youtu.be/4lyY2eaGR9Q?si=V27kcor2t9OO_lbo
96			Evaluation of absolute entropy from heat capacity data	https://youtu.be/h7QHHu3tJwA?si=i2rJxYhr-YxWJTbz
97			Gibbs and Helmholtz function and Gibbs function(G) and	https://youtu.be/Wq2uit5EBbQ?si=QreTNMz6a8lv-OCq

			Helmholtz function (A)	
98			Their advantage over entropy change variation of G and A with P, V and T change	https://youtu.be/l76ysDWkrf4?si=-G7LEM6kh12aS6uH
99			Thermodynamic quantity A and G criteria of thermodynamics equilibrium and its spontaneity	https://youtu.be/lrToUgLr1TI?si=Nk6z8B2HvYxtHJVb
100		Chemistry Equilibrium	Equilibrium constant and free energy thermodynamic derivation of law of mass action	https://youtu.be/yV0sS9x1znM?si=bYilsWWAeUdiPDRN
101			Le chatelier principal	https://youtu.be/s1s1RCDXcOY?si=4YCyPp5voG2njtqy
102			Reaction and reaction isochore	https://youtu.be/dnR3DtUawVM?si=bvN0ROJkBFnNmfxh
103			Clausius Clapeyron equation and its application	https://youtu.be/ijVWCUiucSI?si=Js4W0HCwSsogpyh3
104			Clapeyron equation	https://youtu.be/GSz6asUrKt4?si=q27oCf97-FGoBzss
105		Ionic equilibrium	Strong moderate and weak electrolyte	https://youtu.be/PPd-8RZbje4?si=ND07lqDnQ-r6DCqs
106			Degree of ionization	https://youtu.be/VyaXxbXQ-tU?si=KZvGM-l_kypPwRR
107			Degree of ionization factor affecting degree of ionization	https://youtu.be/eylGoPaqkW0?si=Yh3DXZJf5Rmn816L
108			Ionization constant and ionic product of water	https://youtu.be/oegXfXljbBQ?si=hQ9ebGAF9cZu1KW4
109			Ionization of weak acid and base	https://youtu.be/gluHeE4fokg?si=5xnMoCiMAoAaUZLe
110			Common ionic effect	https://youtu.be/xqq78GsLXSA?si=i04h3x170Hbhu4dJ
111			Salt hydrolysis	https://youtu.be/l33BwmAz1sY?si=fdROHZuhDnvo64JE

112			Calcination of hydrolysis constant	https://youtu.be/B5zOqDb5T7c?si=FK-WihOQSAPUIFIh
113			Degree of hydrolysis and PH for different salts	https://youtu.be/7eY8aWKyoQk?si=aZ18e86PFo-BU9Ns
114			Buffer solution	https://youtu.be/KH0w5TZnJaA?si=SPQmPgl-FN39oJ7n
115			Solubility and solubility product	https://youtu.be/1tRdbmroncE?si=wu18mYCj6AMjrXck