CHEM ACADEMY

ALL INDIA ONLINE TEST SERIES
GATE Chemistry 2021
STARTING – Feb 2020

48 TESTS: 26 Unitwise Practice Test + 9 Minor Test + 5 Major Test+ 3 Part Test + 5 Full Length Tests

Value Addition Material + Supplementary Material:Soft copy& Hard copy
(Expert Support:Telephonic Discussion/ Email Interaction)

Program Objective: This is a comprehensive and intensive 'interactive' program focussing on sincere GATE Aspirants who will appear in GATE CHEMISTRY 2021. Our experts provide steps by step guidance to aspirants for understanding the concepts of chemistry and preparing them for scoring good marks.

Approach & Strategy: Our Simple, practical and focussed approach will help aspirants to understand the demand of GATE Exam effectively. Our strategy is to constantly innovate to keep the preparation process dynamic and give personalized attention to individual aspirants based on factor core competence, availability of time and resource and the requirement of GATE Exam.

Our interactive Learning approach (Email/Telephonic Discussion: Expert with Aspirants) will continuously improve aspirant's performance and move their preparation in the right direction.

Number of Mock Test: 48 TESTS: 26 Unitwise + 9 Minor + 5 Major + 3 Part + 5 Full Length

Fee (Incl. all taxes): Rs 4500/-

Nature:Flexible- Date of Mock Test: Reschedule on the demand of aspirants. (POSTPONE, BUT NOT PREPONE)

What you will get:

- Login ID Password for performance analysis of aspirants. (Innovative Assessment System including POST TEST ANALYSIS)
- 48 Mock Test Papers &detailed conceptual Answer Explanations.
- Analysis of Mock Test papers based on difficulty level & nature of questions.
- Comprehensive analysis of previous year questions papers.

INNOVATIVE ASSESSMENT SYSTEM:

Static & dynamic Potential of Mock test papers (Scoring Potential). Macro & Micro performance Analysis of aspirants, Section wise analysis, Difficulty Analysis, All India Rank, comparison with toppers, Geographical Analysis, Integrated Score Card, Analysis of Mock Test paper based on difficulty level & nature of question etc.

HOW IT WORKS: The tests are planned at Five different levels of preparation required for a student to succeed in GATE EXAMINATION.

1. Unit level- Test 1 to 26: Each test will be based entirely on the most unit sources of that particular section. Here we will test whether you have thoroughly prepared these unit sources or not and if you have understood all the basic concepts or not. These tests will be available on Chem Academy Portal right from your date of enrolment, you can give these test anytime as per your convenience. These papers are developed in order to boost your foundation and effective preparation of every particular unit mentioned in GATE Chemistry Syllabus. These are three hour tests each containing 55 questions based on GATE Chemistry Syllabus and Pattern.

2. Applied level (Minor, Major) – Test 27 to 35 & 36 to 40: In this level, we will test your subject knowledge at an applied level. Test would be more analytical in nature, application oriented with relevance to recent concepts. These tests would not be restricted to few particular sources and it would cover the entire primary, Secondary and other sources. These tests are of 3 hours, each containing as expected 55 questions pertaining to Chemistry subject.

3. Comprehensive level (Part and Full test) -Test 41 to 43 & 44 TO 48: These are Full Length Test (FLT) covering all the levels of difficulty and all the types of questions similar to the GATE paper. These tests will validate that your preparation is complete and you have achieved that extra edge to succeed in GATE. Part test will again comprise of 55 questions each. In Part Tests number of topics (from each Physical, Inorganic and Organic Chemistry) are more compared to Major tests and eventually in Full tests you will have 55 questions, 10 questions from General Aptitude.

DISCLAIMER

- **Chem academy material is for the individual only. In case a student is found involved in any violation of copyrights of Chem academy material, the admission to the test series will be cancelled.**
- **We have facility of fee payment in cash too.**
- **Fee once paid is non-refundable and non- transferable in all circumstances**
- **Chem academy reserves all rights related to admission.**
- **Chem academy reserves all rights to make any changes in test series schedule/ test writing days and timing etc., if need so arises.**

UNIT No.	Topics	Syllabus covered (The list is indicative to help students; however, it is not exhaustive. A topic may have more subtopics)	Primary (Essential) Reference	Secondary (Additional) Reference
1	Organic Photochemistry	Photochemistry of alkenes, arenes and carbonyl compounds. Photooxidation and photoreduction. Di-π-methane rearrangement, Barton reaction.	Classnotes, Chem Academy GATE (DLP Kit)	V. Ramamurthy, Jochen Mattay, J.D Coyle, J.M Coxen
2	Basic principles of quantum mechanics	Postulates of quantum mechanics. Time dependent and time independent Schrödinger equations. Born interpretation. Particle in a box. Harmonic oscillator. Rigid rotor. Hydrogen atom: atomic orbitals. Multi-electron atoms: orbital approximation.	Classnotes, Chem Academy GATE (DLP Kit)	Donald A Macquarrie, David J Griffith, Eugen Merzbacher, Peter Atkins, Tamas Veszpremi
3	Stereochemistry	General organic chemisty, Chirality of organic molecules with or without chiral centres and determination of their absolute configurations. Relative stereochemistry in compounds having more than one stereogenic centre. Homotopic, enantiotopic and diastereotopic atoms, groups and faces. Stereoselective and stereospecific synthesis. Conformational analysis of acyclic and cyclic compounds. Geometrical isomerism. Configurational and conformational effects, and neighbouring group participation on reactivity and selectivity/specificity	Class notes, Chem Academy GATE (DLP Kit)	Subratosen Gupta, P S Kalsi, Jonathan clayden, Ernest Eliel
4	Approximate methods of quantum mechanics	Variation and first order perturbation techniques	Class notes Chem Academy GATE (DLP Kit), K L Kapoor	Castellen, Charles Mortimer, Puri Sharma - Pathania, Donald Macquarrie

5	Solid state	Crystal systems and lattices, Miller planes, crystal packing, crystal defects, Bragg's law, ionic crystals, structures of AX, AX_2, ABX_3 type compounds, spinels, band theory, metals and semiconductors.	Class notes, Chem Academy GATE (DLP Kit), K L Kapoor	Hueey, Castellen, Charles Mortimer, A.R West
6	Reaction mechanism	Basic mechanistic concepts – kinetic versus thermodynamic control, Hammond's postulate and Curtin-Hammett principle. Methods of determining reaction mechanisms through identification of products, intermediates and isotopic labeling. Nucleophilic and electrophilic substitution reactions (both aromatic and aliphatic). Addition reactions to carbon-carbon and carbon-heteroatom (N,O) multiple bonds. Elimination reactions	12^{th} NCERT Class notes, Chem Academy GATE (DLP Kit)	Peter Skyes, Jonathan clayden, Jerry March Carey Sandberg, George Zweifel
7	Chemical thermodynamics	Laws of thermodynamics. Standard states. Thermochemistry. Thermodynamic functions and their relationships: Gibbs-Helmholtz and Maxwell relations, van't Hoff equation. Criteria of spontaneity and equilibrium. Absolute entropy. Partial molar quantities. Thermodynamics of mixing. Chemical potential. Fugacity, activity and activity coefficients.	Class notes, Chem Academy GATE (DLP Kit) K L kapoor,	R.E Sonntag, Peter Atkin, Castellen, Charles Mortimer, Ira Lavine, J Bevan ott, R.M Rosenberg
8	Chemical bonding	Valence bond theory and LCAO-MO theory. Hybrid orbitals. Applications of LCAO-MOT to H2+, H2 and other homonuclear diatomic molecules, heteronuclear diatomic molecules like HF, CO, NO, and to simple delocalized π– electron systems. Hückel approximation and its application to annular π – electron systems	Class notes, Chem Academy GATE (DLP Kit)	K L Kapoor, Puri Sharma-Pathania, ***McQuarrie Donald A***
9	Chemical applications of group theory	Symmetry elements and operations. Point groups and character tables	Class notes, Chem Academy GATE (DLP Kit)	Swarnlakshmi, Asok K Mukherjee, Robert L. Carter

10	Organic reactive intermediates	Carbocations, carbanions, carbenes, nitrenes, arynes and free radicals.	Class notes, Chem Academy GATE (DLP Kit) I L Finar Soloman fryle	Peter sykes Paula bruice, Jonathan clayden, Jerry March, George Zwiefel, Ernest Eliel, M.A Singh
11	Main group elements and their Compounds	Hydrides, halides, oxides, oxoacids, nitrides, sulfides – shapes and reactivity. Structure and bonding of boranes, carboranes, silicones, silicates, boron nitride, borazines and phosphazenes. Allotropes of carbon. Chemistry of noble gases, pseudohalogens, and interhalogen compounds. Acid-base concepts.	Classnotes, Chem academy GATE (DLP Kit)	Hueey Kieter, Shriver Atkins, GreenWood, Cotton & Wilkinson, Miessler Tarr, Ajay Kumar
12	Statistical thermodynamics	microcanonical and canonical ensembles, Boltzmann distribution, partition functions and thermodynamic properties.	Classnotes, Chem academy GATE (DLP Kit)	Terrell L hill, Ashley H carter, Herbert Callen, Andrew Maczek
13	Lanthanides and Actinides	Recovery. Periodic properties, spectra and magnetic properties	Chem academy GATE (DLP Kit)	Ajay kumar, E. Housecraft, Greenwood, Cotton & Wilkinson, Shriver Atkin, Simon Cotton
14	Surfaces and Interfaces	Physisorption and chemisorption. Langmuir, Freundlich and BET isotherms. Surface catalysis: Langmuir-Hinshelwood mechanism. Surface tension, viscosity. Self-assembly. Physical chemistry of colloids, micelles and macromolecules.	Classnotes, Chem academy GATE (DLP Kit)	Paul C Hiemenz, Duncan J shaw, Pashley Richard, K S birdi
15	Radioactivity	Decay processes, half-life of radioactive elements, fission and fusion processes.	Class notes, Chem academy GATE (DLP Kit)	Asim K Das vol 1, Puri Sharma pathania
16	Instrumental Methods of Analysis	UV-visible spectrophotometry, NMR and ESR spectroscopy, mass spectrometry. Chromatography including GC and HPLC. Electroanalytical methods- polarography, cyclic voltammetry, ion-selective electrodes. Thermoanalytical	Class notes, Chem academy GATE (DLP Kit)	D.M Rao, G.R Chatwal, D.A Skoog, H.H Willard

		methods		
17	Common named reactions and rearrangements	Applications in organic synthesis Molecular rearrangements involving electron deficient atoms	Class notes, Chem academy GATE (DLP Kit), I.L Finar	George Zweifel, Ernest Eliel, Carey Sandberg, Paula bruice, Jonathan clayden,
18	Organic synthesis	Synthesis, reactions, mechanisms and selectivity involving the following classes of compounds – alkenes, alkynes, arenes, alcohols, phenols, aldehydes, ketones, carboxylic acids, esters, nitriles, halides, nitro compounds, amines and amides. Uses of Mg, Li, Cu, B, Zn and Si based reagents in organic synthesis. Carbon-carbon bond formation through coupling reactions - Heck, Suzuki, Stille and Sonogoshira. Concepts of multistep synthesis - retrosynthetic analysis, strategic disconnections, synthons and synthetic equivalents. Umpolung reactivity – formyl and acyl anion equivalents. Selectivity in organic synthesis – chemo-, regio- and stereoselectivity. Protection and deprotection of functional groups.	Class notes, Chem academy GATE (DLP Kit)	George Zweifel, Carey Sandberg, stuart Warren, Michael B Smith, Barbara Czako, G.A Molander
19	Electrochemistry and Conductance	Ionic mobility and conductivity. Debye-Hückel limiting law. Debye-Hückel-Onsager equation. Standard electrode potentials and electrochemical cells. Potentiometric and conductometric titrations	Classnotes, Chem Academy GATE (DLP Kit), K L Kapoor	Engel & Reid, Castellen, Charles Mortimer, Ira Levine, Bard and Faulkner
20	Pericyclic reactions	Electrocyclic, cycloaddition and sigmatropic reactions. Orbital correlations - FMO and PMO treatments	Class notes, Chem Academy GATE (DLP Kit), Paula bruice, D K Mandal	Jonathan Clayden, C. Sandberg, Jerry March, G. Zweifel, Ian Fleming
21	Transistion elements	Basic of Chemical Bonding, Coordination chemistry – structure and isomerism, theories of bonding (VBT, CFT, and MOT). Energy level diagrams in various crystal fields, CFSE,	Class notes, Chem academy GATE (DLP Kit)	Hueey Kieter, shriver atkins, Miessler Tarr, Catherine E.Housecraft, G. Lawrence.

		applications of CFT, Jahn-Teller distortion. Electronic spectra of transition metal complexes: spectroscopic term symbols, selection rules, Orgel diagrams, charge-transfer spectra. Magnetic properties of transition metal complexes. Reaction mechanisms: kinetic and thermodynamic stability, substitution and redox reactions.		Greenwood, Cotton wilkinson
22	Asymmetric synthesis	Resolution (including enzymatic), desymmetrization and use of chiral auxilliaries. Carbon-carbon bond forming reactions through enolates (including boron enolates), enamines and silyl enol ethers. Michael addition reaction. Stereoselective addition to C=O groups (Cram and Felkin-Anh models).	Class notes, Chem academy GATE (DLP Kit)	Jonathan Clayden, C. Sandberg, Jerry March, George Zweifel, Carrutherus, R.E Gawley
23	Hetrocyclic compound	Structure, preparation, properties and reactions of furan, pyrrole, thiophene, pyridine, indole, quinoline and isoquinoline	Class notes, Chem academy GATE (DLP Kit), S P Bhutani	Jonathan clayden, John Joule and Keith Mills, Beena Negi and R.K Parashar, A.R Katritzky
24	Bio inorganic Chemistry	Ion (Na+ and K+) transport, oxygen binding, transport and utilization, electron transfer reactions, nitrogen fixation, metalloenzymes containing magnesium, molybdenum, iron, cobalt, copper and zinc..	Class notes, Chem academy GATE (DLP Kit)	Hueey Kieter, Asim K Das, Stephen J. Lippard, J D Lee, M.R Malone
25	Kinetics and Photochemistry	Transition state theory: Eyring equation, thermodynamic aspects. Potential energy surfaces and classical trajectories. Elementary, parallel, opposing and consecutive reactions. Steady state approximation. Mechanisms of complex reactions. Unimolecular reactions. Kinetics of polymerization and enzyme catalysis. Fast reaction kinetics: relaxation and flow methods. Kinetics of photochemical and	Class notes, Chem academy GATE (DLP Kit), K L Kapoor	Castellen, Charles Mortimer, Peter Atkins, Ira Levine, Laidler, Engel & Reid, Paul housten

		photophysical processes		
26	Organic Spectroscopy	Applications of UV-visible, IR, NMR and Mass spectrometry in the structural determination of organic molecules	Class notes, Chem academy GATE (DLP Kit) Y R Sharma, JDS Yadev	William Kemp, J. Clayden, Pavia- Lampman-kriz, Silversteen.
27	Phase and Chemical Equilibria	Phase rule. Clausius Clapeyron equation. Phase diagram of one component systems: CO2, H2O, S; two component systems: liquid-vapour, liquid-liquid and solid-liquid systems. Fractional distillation. Azeotropes and eutectics Chemical equilibria. Dependence of equilibrium constant on temperature and pressure. Non-ideal solutions	Class notes, Chem academy GATE (DLP Kit) K.L Kapoor, Puri-Sharma-Pathania	Mats Hillert, Arnold Reisman, Michel Soustelle
28	Biomolecules	Structure, properties and reactions of mono- and di-saccharides, physicochemical properties of amino acids, chemical synthesis of peptides, structural features of proteins, nucleic acids, steroids, terpenoids, carotenoids, and alkaloids.	Class notes, Chem academy GATE (DLP Kit), Paula bruice, S P Bhutani	Jonathan Clayden, Sujata V bhat, Yang Ye, N.R Krishnaswamy
29	Molecular Spectroscopy	Origin of selection rules for rotational, vibrational, electronic and Raman spectroscopy of diatomic and polyatomic molecules. Einstein coefficients. Relationship of transition moment integral with molar extinction coefficient and oscillator strength. Basic principles of nuclear magnetic resonance: nuclear g factor, chemical shift, nuclear coupling	Class notes & Chem academy (DLP Kit), Puri-Sharma-Pathania, K L Kapoor	Banwell, Levine, Peter Atkin, Charles Mortimer, J.L Mchall
30	Organometallic	18-Electron rule; metal-alkyl, metal-carbonyl, metal-olefin and metalcarbene complexes and metallocenes. Fluxionality in organometallic complexes. Types of organometallic reactions. Homogeneous catalysis - Hydrogenation, hydroformylation, acetic acid synthesis, metathesis and olefin oxidation. Heterogeneous	Class notes & Chem academy GATE (DLP Kit)	Hueey keiter, Shriver Atkins, Greenwood, Housecraft, J. Hartwig, Crabtree, Elias and Gupta, Asim K Das

		catalysis - FischerTropsch reaction, Ziegler-Natta polymerization.		

UNITWISE TEST TOPIC SCHEDULE

Test No.	Unit	Topic Covered	Uploading Date
1 (Part - 1)	Chemical applications of group theory	Symmetry elements, point groups, character tables, selection rules.	15 Feb. 2020
1 (Part - 2)	Polymer chemistry	Molar masses, kinetics of polymerization	15 Feb. 2020
2 (Part - 1)	Inner transition elements	Spectral and magnetic properties, redox chemistry, analytical applications	22 Feb. 2020
2 (Part - 2)	Bio inorganic Chemistry	Photosystems, porphyrins, metalloenzymes, oxygen transport, electron- transfer reactions; nitrogen fixation, metal complexes in medicine	22 Feb. 2020
3	Principle of Stereochemistry	Configurational and conformational isomerism in acyclic and cyclic compounds; stereogenicity, stereoselectivity, enantioselectivity, diastereoselectivity and asymmetric induction.	29 Feb. 2020
4 (Part - 1)	Solid state	Crystal structures; Bragg's law and applications; band structure of solids.	7 March 2020
4 (Part - 2)	Nuclear chemistry	Nuclear reactions, fission and fusion, radio-analytical techniques and activation analysis.	7 March 2020
5	Introduction to Organic Chemistry and Aromaticity	IUPAC nomenclature of organic molecules including regio- and stereoisomers. Benzenoid and non-benzenoid compounds – generation and reactions.	14 March 2020
6	Common named reactions and rearrangements	applications in organic synthesis	21 March 2020
7 (Part - 1)	Electrochemistry	Nernst equation, redox systems, electrochemical cells; potentiometric titrations.	28 March 2020
7 (Part - 2)	Conductance	Debye-Huckel theory; electrolytic conductance – Kohlrausch's law and its applications; ionic equilibria; conductometric titrations.	04 April 2020
8 (Part - 1)	Chemical bonding	Structure and bonding in homo- and heteronuclear molecules, including shapes of molecules (VSEPR Theory).	11 April 2020
8 (Part - 2)	Periodic properties of elements	Periodic classification of elements and periodicity in properties; general methods of isolation and purification of elements	11 April 2020
9	Basic principles of quantum mechanics	Postulates; operator algebra; exactly-solvable systems: particle-in-a-box, harmonic oscillator and the hydrogen atom, including shapes of atomic orbitals; orbital and spin angular momenta; tunnelling	18 April 2020
10	Reaction mechanism	Organic reaction mechanisms involving addition, elimination and substitution	25 April 2020

		reactions with electrophilic, nucleophilic or radical species. Determination of reaction pathways	
11	Approximate methods of quantum mechanics; Chemical bonding in diatomics	Variational principle; perturbation theory up to second order in energy; applications.; Elementary concepts of MO and VB theories; Huckel theory for conjugated π-electron systems	02 May 2020
12 (Part - 1)	Organic Spectroscopy	Structure determination of organic compounds by IR, UV-Vis, 1H & 13C NMR and Mass spectroscopic techniques	09 May 2020
12 (Part - 2)	Inorganic Spectroscopy	Characterisation of inorganic compounds by IR, Raman, NMR, EPR, Mössbauer, UV-vis, NQR, MS, electron spectroscopy and microscopic techniques.	09 May 2020
13	Organometallic and Cage and Cluster	Synthesis, bonding and structure, and reactivity. Organometallics in homogeneous catalysis.Carboranes, metalloboranes	16 May 2020
14	Chemistry of natural products; Hetrocyclic	Carbohydrates, proteins and peptides, fatty acids, nucleic acids, terpenes, steroids and alkaloids. Biogenesis of terpenoids and alkaloids	23 May 2020
15	Organic transformations and reagents	Functional group interconversion including oxidations and reductions; common catalysts and reagents (organic, inorganic, organometallic and enzymatic). Chemo, regio and stereoselective transformations.	30 May 2020
16	Atomic and Molecular Spectroscopy	Term symbols; many-electron systems and antisymmetry principle. Rotational and vibrational spectra of diatomic molecules; electronic spectra; IR and Raman activities – selection rules; basic principles of magnetic resonance.	06 June 2020
17	Chemical kinetics & Photochemistry	Empirical rate laws and temperature dependence; complex reactions; steady state approximation; determination of reaction mechanisms; collision and transition state theories of rate constants; unimolecular reactions; enzyme kinetics; salt effects; homogeneous catalysis; photochemical reactions.	13 June 2020
18	Main group elements and their Compounds; Solvent theory	Allotropy, synthesis, structure and bonding, industrial importance of the compounds. Concepts of acids and bases, Hard-Soft acid base concept, Non-aqueous solvents	20 June 2020
19	Pericyclic reactions & Photochemistry	Electrocyclisation, cycloaddition, sigmatropic rearrangements and other related concerted reactions. Principles and	27 June 2020

		applications of photochemical reactions in organic chemistry.	
20	Transition elements and Coordination complexes	Structure, bonding theories, spectral and magnetic properties, reaction mechanisms.	04 July 2020
21	Chemical thermodynamics and Statistical thermodynamics	Laws, state and path functions and their applications; thermodynamic description of various types of processes; Maxwell's relations; spontaneity and equilibria; temperature and pressure dependence of thermodynamic quantities; Le Chatelier principle; elementary description of phase transitions; phase equilibria and phase rule; thermodynamics of ideal and non-ideal gases, and solutions. Boltzmann distribution; kinetic theory of gases; partition functions and their relation to thermodynamic quantities – calculations for model systems	11 July 2020
22	Organic reactive intermediates	Generation, stability and reactivity of carbocations, carbanions, free radicals, carbenes, benzynes and nitrenes.	18 July 2020
23	Concepts in organic synthesis; Asymmetric synthesis	Retrosynthesis, disconnection, synthons, linear and convergent synthesis, umpolung of reactivity and protecting groups.	25 July 2020
24	Data analysis; Analytical chemistry; Surface & Colloids	Mean and standard deviation; absolute and relative errors; linear regression; covariance and correlation coefficient. Separation, spectroscopic, electro- and thermoanalytical methods. Physisorption and chemisorption. Langmuir, Freundlich and BET isotherms. Surface catalysis: Langmuir-Hinshelwood mechanism. Surface tension, viscosity. Self-assembly. Physical chemistry of colloids, micelles and macromolecules.	01 August 2020
25	Chemical Equilibrium, Ionic Equilibrium	Criteria of thermodynamic equilibrium, degree of advancement of reaction, chemical equilibria in ideal gases, concept of fugacity. Equilibrium constants and their quantitative dependence on temperature, pressure and concentration. Freeenergy of mixing and spontaneity; thermodynamic derivation of relations between the various equilibriumconstants *Kp, Kc* and *Kx.* Le Chatelier principle (quantitative treatment); equilibrium between ideal gases &a pure condensed phase.	08 August 2020

		Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization,ionization constant and ionic product of water. Ionization of weak acids and bases, pH scale, common ion effect; dissociation constants of mono-, di- and tri- protic acids (exact treatment).Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions; derivation of Henderson equation and its applications; buffer capacity, buffer range, buffer actionand applications of buffers in analytical chemistry, biochemical processes in the human body. Solubility and solubility product of sparingly soluble salts – applications of solubility product principle. Theory of acid – base indicators; selection of indicators & their limitations.	
26	Phase Equilibrium; Gaseous State	Concept of phases, components and degrees of freedom, derivation of Gibbs Phase Rule for non-reactive & reactive systems; Clausius-Clapeyron equation and its applications to solid-liquid, liquid-vapour and solid vapour equilibria, phase diagram for one component systems, with applications.Phase diagrams for systems of solid-liquid equilibria involving eutectic, congruent and incongruent melting points, solid solutions. Binary solutions*:* Gibbs-Duhem-Margules equation, azeotropes, lever rule, partial miscibility of liquids, CST,miscible pairs, steam distillation. Nernst distribution law: its derivation and applications. Equation of state for ideal and non-ideal (vander Waals) gases; Kinetic theory of gases; Maxwell-Boltzmann distribution law; equipartition of energy	15 August 2020

MINOR TESTS SCHEDULE

Test No.	Topic	Uploading Date
1	Chemical applications of group theory; Polymer chemistry; Inner transition elements; Bio inorganic Chemistry; Principle of Stereochemistry	24 August 2020
2	Solid state; Nuclear chemistry; Introduction to Organic Chemistry; Aromaticity; Common named reactions and rearrangements	03 September 2020
3	Electrochemistry and Conductance; Suface & Colloids; Chemical bonding; Periodic properties of elements; Basic principles of quantum mechanics	13 September 2020
4	Reaction mechanism; Approximate methods of quantum mechanics; Chemical bonding in diatomics; Qualitative Organic Analysis; Inorganic Spectroscopy	23 September 2020
5	Organometallic and Cage and Cluster; Chemistry of natural products; Hetrocyclic chemistry; Organic transformations and reagents	03 October 2020
6	Atomic and Molecular Spectroscopy; Main group elements and their Compounds; Solvent theory; Chemical kinetics & Photochemistry	13 October 2020
7	Pericyclic reactions & Photochemistry; Transistion elements and Coordination complexes; Chemical thermodynamics; Statistical thermodynamics	23 October 2020
8	Organic reactive intermediates; Concepts in organic synthesis; Asymmetric synthesis; Data analysis; Analytical chemistry	02 November 2020
9	Chemical Equilibrium; Ionic Equilibrium; Phase Equilibrium; Theory of Gases	12 November 2020

MAJOR TESTS SERIES SCHEDULE

Major Test 1 **Date: 02 December** 2020

Physical Chemistry	Basic principles of quantum mechanics, Molecular spectroscopy, Statistical thermodynamics
Inorganic Chemistry	Main group elements and their compounds
Organic Chemistry	Stereochemistry, Organic reactive intermediates

Major Test 2 **Date: 07** December 2020

Physical Chemistry	Approximate methods of quantum mechanics, Chemical bonding, Chemical thermodynamics
Inorganic Chemistry	Transition elements
Organic Chemistry	Reaction mechanism, Common named reactions and rearrangements

Major Test 3 **Date: 12** December 2020

Physical Chemistry	Chemical applications of group theory, Phase and Chemical Equilibria
Inorganic Chemistry	Organometallic compounds, Bio inorganic Chemistry
Organic Chemistry	organic synthesis, Organic Photochemistry

Major Test 4 **Date: 17** December **2020**

Physical Chemistry	Electrochemistry and conductance, Solid state, Polymer Chemistry
Inorganic Chemistry	Lanthanides and Actinides, Radioactivity
Organic Chemistry	Asymmetric synthesis, Hetrocyclic compound

Major Test 5 **Date: 22 December 2020**

Physical Chemistry	Chemical kinetics and Photochemisty, surfaces and Interfaces
Inorganic Chemistry	Instrumental Methods of Analysis
Organic Chemistry	Biomolecules, , Pericyclic reactions

PART TESTS SERIES SCHEDULE

PART Test 1 **Date: 28 December 2020**

Physical Chemistry	Basic principles of quantum mechanics, Approximate methods of quantum mechanics, Chemical bonding, Chemical applications of group theory
Inorganic Chemistry	D Block; Coordination Complexes, Lanthanides and Actinides
Organic Chemistry	Principles of stereochemistry, Organic reactive intermediates, Organic Photochemistry, Reaction mechanism

PART Test 2 **Date: 02 January 2021**

Physical Chemistry	Molecular spectroscopy, Chemical thermodynamics, Electrochemistry and Conductance, Chemical kinetics
Inorganic Chemistry	Main group elements and their compounds, Bio inorganic Chemistry
Organic Chemistry	Common named reactions and rearrangements, Concepts in organic synthesis, Pericyclic reactions, Biomolecules

PART Test 3 **Date: 07 January 2021**

Physical Chemistry	Statistical thermodynamics, surfaces and Interfaces , Solid state, Molecular Spectroscopy, Polymer Chemistry
Inorganic Chemistry	Organometallic compounds, Nuclear chemistry, Instrumental Methods of Analysis
Organic Chemistry	Asymmetric synthesis, heterocyclic compounds, Organic Spectroscopy

FULL TESTS SERIES SCHEDULE

Full Test 1 **Date: 12 January 2021**

Physical Chemistry	Complete Syllabus for GATE
Inorganic Chemistry	Complete Syllabus for GATE
Organic Chemistry	Complete Syllabus for GATE

Full Test 2 **Date: 17 January 2021**

Physical Chemistry	Complete Syllabus for GATE
Inorganic Chemistry	Complete Syllabus for GATE
Organic Chemistry	Complete Syllabus for GATE

Full Test 3 **Date: 22 January 2021**

Physical Chemistry	Complete Syllabus for GATE
Inorganic Chemistry	Complete Syllabus for GATE
Organic Chemistry	Complete Syllabus for GATE

Full Test 4 **Date: 27 January 2021**

Physical Chemistry	Complete Syllabus for GATE
Inorganic Chemistry	Complete Syllabus for GATE
Organic Chemistry	Complete Syllabus for GATE

Full Test 5 **Date: 01 February 2021**

Physical Chemistry	Complete Syllabus for GATE
Inorganic Chemistry	Complete Syllabus for GATE
Organic Chemistry	Complete Syllabus for GATE