DEPARTMENT OF CHEMISTRY, EGRA SSB COLLEGE,721429

PROGRAMME OUTCOME(PO), COURSE OUTCOME(CO) AND PROGRAMME SPECIFIC OUTCOME(PSO) FOR THE END SEMESTER UNDERGRADUATE COURSE.
PROGRAMME NAME: B.Sc. HONS. (CHEMISTRY)

PROGRAMME OUTCOMES

PO1	Deep understanding of the specialised discipline. To attain comprehensive knowledge in the domain of the specialised discipline.
PO2	Critical thinking towards problem solving. To develop reasoned judgements with logical and organised ways. Help how to define and conceptualize a problem, examine evidence, analyse assumptions and biases. To enable to avoid emotional reasoning, over simplification, and grow humility.
PO3	Interdisciplinary learning. To help get rid of a tendency to maintain preconceived notions. To develop cognitive abilities and mental processes required to implement tasks. To foster understanding interdisciplinary concepts and contexts in terms of Integrative and holistic approach.
PO4	Capability in analytical and creative thinking skills. To foster developing creative skills in order to see things from a different perspective and become capable of generating unique ideas or alternatives.
PO5	Values and ethics. To help inculcate values for the development ethical principles which guide in case of moral dilemmas and to judge that certain things are 'good' or "bad', important or 'unimportant.
PO6	Acquaintance with the recent developments in the area of subject.To get acquainted With the recent developments that have taken place in the subject area in order to stay up-to-date on the latest trends in the subject.
PO7	Environmental awareness for sustainable development. To understand the fragile nature of the environment and its change caused or influenced by human beings either directly or indirectly. To pave the way with the help of acquired knowledge of the discipline for the protection of the natural world in a sustainable way.
PO8	Laboratory and instrumentation skills. To acquire knowledge about the procedures and regulations for safe handling and use of chemicals and to develop skills in proper handling of equipment and instruments. To stimulate imagination in the applications of experiences gathered to research activities and to the solution of problems of industry.

PROGRAMME SPECIFIC OUTCOMES:

PSO1 Will acquire comprehensive knowledge of different aspects of chemistry through theory and practical experiments and get to know the basic principles and major concepts of different branches of chemistry and their applications.

PSO2 Will achieve ability of methodical thinking and adequate problem-solving skills require in gaining insight into the different branches of chemistry.

PSO3 Will become efficient in respect of designing an carrying out chemical reaction and capable of applying appropriate techniques for qualitative and quantitative analysis of chemicals. Will also be able to analyse data, interpret the results of experiments and draw a logical conclusion, while maintaining ethical scientific conduct.

PSO4 Will get to know how to follow the proper procedures and regulations for safe handling of chemicals and how to use instrument and equipment's.

PSO5 Will motivate for doing higher studies like M.Sc. in chemistry and inculcate an inspiration in participating theory and practical based research activity.

PSO6 Will develop knowledge in some applied fields in chemistry such as pharmaceutical chemistry, chemistry of cosmetics and perfumes, inorganic materials of industrial importance in polymer chemistry etc. Which helps employability in public sector undertakings and government organization.

COURSE OUTCOMES (CO) FOR END SEMESTER STUDENTS

CO 25 (Paper CC 13 Inorganic Chemistry-V)

CO 25:1 To understand bioinorganic chemistry, the study of metal species in biological systems.

CO 25:2 To learn about organometallic chemistry and catalytic role of the organometallic like alkene hydrogenation, Ziegler-Natta catalysis for olefin polymerization, etc.

CO 25:3 To get insight into the kinetics and mechanism of reactions of inorganic complexes.

CO 25:4 To know about the Theoretical Principles in Qualitative Analysis and how to carry out qualitative detection of known and unknown samples of inorganic salts.

CO 26 (Paper CC14 Physical Chemistry-V)

CO 26:1 To study the origin, theory and important applications of Microwave, Pirrama, UV, NMR, spectroscopy.

CO 26:2 To learn about basic principles of photochemistry, its laws, theory of reaction rate and applications.

CO 26:3 To know about surface tension and surface energy, adsorption phenomenon, its types, adsorption isotherms and properties of colloids.

CO 26:4 To know how to determine the surface tension of a liquid, CMC of a surfactant from surface Tension measurement, experiment.

CO 26 :5 To study the kinetics of K2Cr207 + KI reaction and the verification of Beer and Lambert's law.

CO 26:6 To determine the pH of an unknown buffer solution, spectrophotometrically.

CO 27 (Paper DSE 3 Inorganic Materials of Industrial Importance)

CO 27:1 To know about glasses, their types, manufacture and processing of glasses, composition and properties of some selected glasses.

CO 27:2 To learn about ceramics, their types, manufacturing, applications, superconducting and semiconducting oxides, fullerenes carbon nanotubes and carbon fibre.

CO 27:3 To know about cement, its ingredients and their role, manufacturing of cement and the setting process. to know about different types of fertilizers and manufacturing process of some selective fertilizers such as urea, ammonium nitrate, polyphosphate, superphosphate, etc.

CO 27:4 To get acquitted with the objectives of surface coatings, classification of surface coatings, paints and pigments-formulation, composition and related properties. To learn about water and oil paints, vehicle, modified oils, toners and lakes pigments, fillers, special paints (Heat retardant, Fire retardant, ecofriendly paint, Plastic paint), dyes, wax polishing, metallic coatings metal spraying and anodizing

CO 27:5 To know about primary and secondary batteries, battery components, their role and working of Batteries Pb acid, Li-Battery, Solid state electrolyte battery. Fuel cells, Solar cell and polymer cell.

CO 27:6 To know about different alloys, specific properties of elements in alloys, manufacturing of steel, its Surface treatment, composition and properties of different types of steels.

CO 27:7 To learn about chemistry of Nano Materials (including Graphene), their syntheses, characterization and applications, general principles and properties of catalysts, homogenous and heterogeneous catalysis, industrial applications, deactivation or regeneration of catalysts, phase transfer catalysts and application of zeolites as catalysts.

CO 27:8 To know about origin of explosive properties in organic compounds, preparation and explosive Properties of lead azide, PET N, cyclonite (RDX) and introductory idea of rocket propellants.

CO 27:9 To know how to experimentally determine free acidity in ammonium sulphate fertilizer, Calcium In Calcium ammonium nitrate fertilizer, phosphoric acid in superphosphate fertilizer.

CO 27:10 To know how to determine composition of dolomite by complexometric titration, analyse (Cu, Ni), (Cu, Zn) in alloy, analyse cement and prepare pigment (zinc oxide).

CO 28 (Paper DSE 4 Polymer Chemistry):

CO 28:1 To learn about classification of polymers, their nomenclature, molecular forces and chemical bonding in Polymers functionality and texture of polymers.

CO 28:2 To know about mechanism and kinetics of step growth, radical chain growth, ionic chain and coordination polymerizations, copolymerization and different polymerization techniques.

CO 28:3 To learn about crystallization, crystallinity and morphology of crystalline polymers, determination of crystalline material and the factors effecting crystalline melting point.

CO 28:4 To know about Nature and structure of polymer and their relationship, glass transition temperature and its determination, factors affecting glass transition temperature, Free volume theory and WLF equation.

CO 28:5 To learn about polymer solubility, solubility parameter, thermodynamics of polymer solutions, Flory Huggins theory lower and upper critical solution temperatures.

CO 28:6 To know preparation(briefly), structure, properties and application of some polymers such as PE, PS, styrene copolymers, PVC and related polymers, PVAc and related polymers, acrylic polymers, fluoro polymers, and polyamide and related polymers. Phenol formaldehyde resins (Bakelite, Novalac), polyurethanes, silicone polymer, polydienes, polycarbonates, conducting polymers, [polyacetelene, polyaniline, poly (p-phenylene sulphide, polypyrrole, polythiophene,)].

CO 28:7 To know how to prepare polymers by using different polymerization techniques such as free radical, dox, interfacial, precipitation, addition and condensation polymerization process

CO 28:8 To know how to experimentally characterize and analyse polymers.

DETAILED SYLLABUS OF END SEMESTER UG (HONOURS) COURSE

DEPARTMENT OF CHEMISTRY

CC-13: Inorganic Chemistry-V

COURSE CONTENTS OF CC13T

(i) Bioinorganic Chemistry

Elements of life: essential and beneficial elements, major, trace and ultratrace elements, gar,ic chemical reactions in the Siotosical systems and the role of metal ions (specially tla', K', Mg) € , Caiv, Cui 7s, and Zn)i). Metal ion ᵗransport across biological membrane Na'/KC -ion pump, Diorygen molecule in life. Dioxygen rnanagernent proteins: HaemostoSin, Myoglobin, Hemocyanine and Hemerythrin. Electron transfer proteins: Cytochrornes and Ferrcdoxine,, c enzymes: carbonate bicarbonate buffering system and carbonic anhydrase and carboxyanhydrase A .Siotosical nitrogen fixation, Photosynthesis: Photosystem-l and Photosystern-ll. Toxic metal ions and their effects, chelation therapy (examples only), Pt and Au complexes as drugs (exarnpler, only), metal dependent diseases (examples only)

(ii) Organometallic Chemistry

Definition and classification of organometallic compounds on the basis of bond type. Concept of hapticity of organic tisands. IS-electron and 16-electron rules (pictorial MO approach). Applications of la-electron rule to metal cartonyls, nrtrcsyls, cyanides. General methods of preparation of mono and binuclear carbonyls of 3d series. Structures of mononuclear and binuclear carbonyls. pi-acceptor behaviour of CO, synergic effect and use of IR data to explain extent of back bonding. Zeise's salt: Preparation, structure, evidences of synergic effect. Ferrocene: Preparation and reactions (acetylation, alkylation, metallation, Mannich Condensation). Reactions of organometallic complexes: substitution, oxidative addition, reductive elimination and insertion reactions.

(iii) Catalysis by Organometallic Compounds

Study cf the following industrial processes

1- Alkene hydrogenation (Wilkinson's Catalyst) 2. Hydroformylation 3. Wacker Process 4. Synthetic gasoline (Fischer Tropsch reaction) 5. Ziegler-Natta catalysis for olefin polymerization.

(iv) Reaction Kinetics and Mechanism

Introduction to inorganic reaction mechanisms. Substitution reactions in square planar complexes, Trans- effect and its application in complex synthesis, theories of trans effect, Mechanism of nucleophilic substitution in square planar complexes, Thermodynamic and Kinetic stability, Kinetics of octahedral substitution, Ligand field effects and reaction rates, Mechanism of substitution in octahedral complexes.

COURSE CONTENTS OF CC13P (LAB)

Qualitative semimicro analysis of mixtures containing four radicals. Emphasis should begiven to the understanding of the chemistry of different reactions and to assign the mostprobable composition.

Cation radicals:Na^+, K^+, Ca^{2+},Sr^{2+},Ba^{2+}, Al^{3+},Cr^{3+}, Mn^{2+}/Mn^{4+}, Fe^{3+},Co^{2+},Co^{3+},Ni^{2+},Cu^{2+},Zn^{2+},Pb^{2+},Bi^{3+},Sn^{2+}
Sn^{4+}, As^{3+}/As^{5+},Sb^{3+}/Sb^{5+},NH^{4+},Mg^{2+}, Anion radicals: F^-,Cl^-,Br^-,BrO_3^-,IO_3^-,SCN^-, S^{2-} ,SO_4^{2-},SO_3^{2-}
NO_3^-,NO_2^-,PO_4^-,AsO_4^{3-},BO_3^{3-}, CrO_4^{2-}/$Cr_2O_7^{2-}$,$Fe(CN)_6^{3-}$,$Fe(CN)_6^{4-}$, Insoluble material: Al_2O_3, Fe_2O_3,Cr_2O_3,SnO_2,$SrSO_4$, $BaSO_4$, CaF_2, $PbSO_4$.

CC-14: Physical Chemistry-V

COURSE CONTENTS OF CC14T

(i) Molewlar Spectroscopy

Interaction of electromagnetic radiation with molecules and various types of spectra; Born-Oppenheimer approximation

Rotation spectroscopy: Selection rules, intensities of spectral lines, determination of bond lengths of diatomic and linear triatomic molecules, isotopic substitution

Vibrational spectroscopy: Classical equation of vibration, computation of force constant, amplitude of diatomic molecular vibrations, anharmonici W, Morse potential, dissociation energies, fundamental frequencies, overtones, hot bands, degrees of freedom for polyatomic molecules, modes of vibration, concept of group frequencies; Diatomic vibrating rotator, P, Q, R branches

Raman spectroscopy: Qualitative treatment of Rotational Raman effect; Effect of nuclear spin, Vibrational Raman spectra, Stokes and anti-Stokes lines; their intensity difference, rule of mutual exclusion

Nuclear Magnetic Resonance (NMR) spectroscopy: Principles of NMR spectroscopy, Larmor precession, chemical shift and low-resolution spectra, different scales, spin-spin coupling and high-resolution spectra, interpretation of PMR spectra of organic molecules

Electron Spin Resonance (ESR) spectroscopy: Its principle, hyperfine structure,
ESR of simple radicals (ii) Photochemistry

Lambert-Beer's law: Characteristics of electromagnetic radiation, Lambert-Beer's law and its limitations, physical significance of absorption coefficients; Laws of photochemistry, StarkEinstein law of photochemical equivalence quantum yield, actinometry, examples of low and high quantum yields

Photochemical Processes: Potential energy curves (diatomic molecules), Frank-Condon principle and vibrational structure of electronic spectra; Bond dissociation and principle of determination of dissociation energy (ground state); Decay of excited states by radiative and non-radiative paths; Pre-dissociation; Fluorescence and phosphorescence, Jablonskii diagram

Rate of Photochemical processes: Photochemical equilibrium and the differential rate of photochemical reactions, Photostationary state; HI decomposition, H2-Br2 reaction, dimerisation of anthracene; photosensitised reactions,

quenching; Role of photochemical reactions in biochemical processes, photostationary states, chemiluminescence (iii) Surface phenomenon

Surface tension and energy: Surface tension, surface energy, excess pressure, capillary rise and surface tension;

Work of cohesion and adhesion, spreading of liquid over other surface; Vapour pressure over curved surface; Temperature dependence of surface tension

Adsorption: Physical and chemical adsorption; Freundlich and Langmuir adsorption isotherms; multilayer adsorption and BET isotherm (no derivation required); Gibbs adsorption isotherm and surface excess; Heterogenous catalysis (single reactant); Zero order and fractional order reactions

Colloids: Lyophobic and lyophilic sols, Origin of charge and stability of lyophobic colloids, Coagulation and SchultzHardy rule, Zeta potential and Stern double layer (qualitative idea), Tyndall effect; Electrokinetic phenomena (qualitative idea only); Determination of Avogadro number by Perrin's method; Stability of colloids and zeta potential; Micelle formation.

COURSE CONTENTS OF CC13P (LAB)

Experiment 1: Determination of surface tension of a liquid using Stalagmometer.
Experiment 2: Determination of CMC from surface tension measurements.
Experiment 3: Verification of Beer and Lambert's Law for $KMnO_4$ and $K_2Cr_2O_7$ solution.
Experiment 4: Study of kinetics of K2S208 + Kl reaction, spectrophotometrically.
Experiment 5: Determination of pH of unknown buffer, spectrophotometrically.
Experiment 6: Spectrophotometric determination of CMC

DSE3 Inorganic Materials of Industrials Importance

COURSE CONTENTS OF DSE3T

(i) Silicate industries:

Glass: Glassy state and its properties, classification (silicate and non-silicate glasses). Manufacture and processing of glass. Composition and properties of the following types of glasses: Soda lime glass, lead glass, armoured glass, safety glass, borosilicate glass, fluorosilicate, coloured glass, photosensitive glass. Ceramics:lmportant clays and feldspar, ceramic, their types and manufacture. High technology ceramics and their applications, superconducting and semiconducting oxides, fullerenes carbon nanotubes and carbon fibre.

Cements: Classification of cement, ingredients and their role, Manufacture of cement and the setting process, quick setting cements.

(ii) Fertilizers: Different types of fertilizers. Manufacture of the following fertilizers: Urea, ammonium nitrate, calcium ammonium nitrate, ammonium phosphates; polyphosphate, superphosphate, compound and mixed fertilizers, potassium chloride, potassium sulphate.

(iii) Surface Coatings: Objectives of coatings surfaces, preliminary treatment of surface, classification of surface coatings. Paints and pigments-formulation, composition and related properties. Oil paint, Vehicle, modified oils, Pigments, toners and lakes pigments, Fillers, Thinners, Enamels, emulsifying agents. Special paints (Heat retardant, Fire retardant, Eco-friendly paint, Plastic paint), Dyes, Wax polishing, Water and Oil paints, additives, Metallic coatings (electrolytic and electroless), metal spraying and anodizing.

(iv) Batteries: Primary and secondary batteries, battery components and their role, Characteristics of Battery.

Working of following batteries: Pb acid, Li-Battery, Solid state electrolyte battery. Fuel cells, Solar cell and polymer cell.

(v) Alloys: Classification of alloys, ferrous and non-ferrous alloys, Specific properties of elements in alloys. Manufacture of Steel (removal of silicon decarbonization, dcmanganization, desulphurization dephosphorisation) and surface treatment (Ar and heat treatment, nitriding, carburizing). Composition and properties of different types of steels.

(vi) Chemistry of Nano Materials including Graphene: Syntheses, characterization and applications. Plasmonic materials, Semiconductor, Band gap, Types of Semiconductors, Colour Centres.

(vii) Catalysis: General principles and properties of catalysts, homogenous catalysis (catalytic steps and examples) and heterogenous catalysis (catalytic steps and examples) and their industrial applications, Deactivation or regeneration of catalysts. Phase transfer catalysts, application of zeolites as catalysts.

(vii) Chemical explosives: Origin of explosive properties in organic compounds, preparation and explosive properties of lead azide, PETN, cyclonite (RDX). Introduction to rocket propellants.

COURSE CONTENTS OF DSE3P (LAB)

1. Determination of free acidity in ammonium sulphate fertilizer.
2. Estimation of Calcium in Calcium ammonium nitrate fertilizer.
3. Estimation of phosphoric acid in superphosphate fertilizer.
4. Electroless metallic coatings on ceramic and plastic material.
5. Determination of composition of dolomite (by complexometric titration).
6. Analysis of (Cu, Ni); (Cu, Zn) in alloy or synthetic samples.
7. Analysis of Cement.
8. Preparation of pigment (zinc oxide).

DSE 4: Polymer ChemistryCredits 06

COURSE CONTENTS OF DSE4TCredits 04

(i) Introduction and history of polymeric materials: Different schemes of classification of polymers, Polymer nomenclature, Molecular forces and chemical bonding in polymers, Texture of Polymers.

(ii) Functionality and its importance: Criteria for synthetic polymer formation, classification of polymerization processes, Relationships between functionality, extent of reaction and degree of polymerization. Bifunctional systems, Poly-functional systems.

(iii) Kinetics of Polymerization: Mechanism and kinetics of step growth, radical chain growth, ionic chain (both cationic and anionic) and coordination polymerizations, Mechanism and kinetics of copolymerization, polymerization techniques.

(iv) Crystallization and crystallinity: Determination of crystalline melting point and degree of crystallinity, Morphology of crystalline polymers, Factors affecting crystalline melting point.

(v) Nature and structure of polymers: Structure Property relationships.

(vi) Determination of molecular weight of polymers: (Mn, Mw, etc) by end group analysis, viscometry, light scattering and osmotic pressure methods. Molecular weight distribution and its significance. Polydispersity index.

(vii) Glass transition temperature (Tg) and determination of Tg: Free volume theory, WLF equation, Factors affecting glass transition temperature (Tg).

(viii) Polymer Solution: Criteria for polymer solubility, Solubility parameter, Thermodynamics of polymer solutions, entropy, enthalpy, and free energy change of mixing of polymers solutions, Flory- Huggins theory, Lower and Upper critical solution temperatures.

(ix) Properties of Polymer: (Physical, thermal, Flow & Mechanical Properties). Brief introduction to preparation, structure, properties and application of the following polymers: polyolefins, polystyrene and styrene copolymers, poly(vinyl chloride) and related polymers, poly(vinyl acetate) and related polymers, acrylic polymers, fluoro polymers, polyamides and related polymers. Phenol formaldehyde resins (Bakelite, Novalac), polyurethanes, silicone polymers, polydienes, Polycarbonates, Conducting Polymers, [polyacetylene, polyaniline, poly(p-phenylene sulphide polypyrrole, polythiophene)].

COURSE CONTENTS OF DSE4P (LAB) Credits 02

1. Free radical solution polymerization of styrene (St) / Methyl Methacrylate (MMA) / Methyl Acrylate (MA) / Acrylic acid (AA). a) Purification of monomer b) Polymerization using benzoyl peroxide (BPO) / 2,2'-azo-bisisobutylonitrile (AIBN)
2. Preparation of nylon 66/6
3. Interfacial polymerization, preparation of polyester from isophthaloyl chloride (IPC) and phenolphthalein
4. Redox polymerization of acrylamide
5. Precipitation polymerization of acrylonitrile
6. Preparation of urea-formaldehyde resin
7. Preparations of novalac resin/ resold resin.
8. Microscale Emulsion Polymerization of Poly(methylacrylate).

Polymer characterization

1. Determination of molecular weight by viscometry: (a) Polyacrylamide-aq.NaN02 solution (b) (Poly vinyl proplylidine (PVP) in water
2. Determination of the viscosity-average molecular weight of poly(vinyl alcohol) (PVOH) and the fraction of "headto-head" monomer linkages in the polymer.
3. Determination of molecular weight by end group analysis: Polyethylene glycol (PEG) (OH group).
4. Testing of mechanical properties of polymers.
5. Determination of hydroxyl number of a polymer using colorimetric method.

Polymer analysis

1. Estimation of the amount of HCHO in the given solution by sodium sulphite method
2. Instrumental Techniques
3. IR studies of polymers
4. DSC analysis of polymers
5. Preparation of polyacrylamide and its electrophoresis

Mapping of PO,CO and PSO														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO25:1	√												√	
CO25:2				√										
CO25:3						√					√			
CO25:4					√			√	√		√	√		√
CO26:1	√	√				√				√				
CO26:2	√	√								√			√	
CO26:3	√	√												
CO26:4					√			√			√	√		
CO26:5					√			√			√	√		
CO26:6					√			√			√	√		
CO27:1	√		√											√
CO27:2	√		√	√										√
CO27:3	√		√											√
CO27:4	√						√							√
CO27:5	√		√	√			√							√
CO27:6	√		√					√						√
CO27:7	√		√	√										√
CO27:8	√		√			√							√	√
CO27:9	√													√
CO27:10					√			√			√	√		√
CO27:11	√						√							
CO28:1	√						√							
CO28:2	√		√										√	√
CO28:3			√										√	
CO28:4			√										√	
CO28:5			√											
CO28:6			√											√
CO28:7	√		√	√		√								√
CO28:8					√			√						√
CO28:9					√			√			√			√

ARTICULATION MATRIX OF CO WITH PO & PSO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO	PSO5	PSO6
CO25:1	3												3	
CO25:2				3										
CO25:3						2					2			
CO25:4					3			3	3		2	3		2
CO26:1	3	2				2				2				
CO26:2	3	2								2			3	
CO26:3	3	2												
CO26:4					3			3			3	3		
CO26:5					3			3			3	3		
CO26:6					3			3			3	3		
CO27:1	3		1											2
CO27:2	3		1	2										2
CO27:3	3		1											2
CO27:4	3						2							2
CO27:5	3		1	2			2							3
CO27:6	3		1					2						2
CO27:7	3		2	2										2
CO27:8	3		2			2							2	2
CO27:9	2													2
CO27:10					3			2			2	2		2
CO27:11							3				2	2		
CO28:1	3						3							
CO28:2	3		2										3	3
CO28:3			1										2	
CO28:4			1										2	
CO28:5			1											
CO28:6			2										2	
CO28:7	3		2	2		2								3
CO28:8					3			3						3
CO28:9					3			3			2			3
TARGET	**2.9**	**2.0**	**1.3**	**2.0**	**3.0**	**2.0**	**2.0**	**2.8**	**3.0**	**2.0**	**2.4**	**2.7**	**2.4**	**2.3**

DIPAK KUMAR TAMILI

Digitally signed by DIPAK KUMAR TAMILI
DN: c=IN, postalCode=721429, st=WEST BENGAL, street=EGRA, EAST MIDNAPORE, l=EGRA, o=EGRA SARADA SHASHI BHUSAN COLLEGE, ou=PRINCIPAL & DDO, serialNumber=146520c32d9559312b0022ca159eb9ed30aee4042abcf6913d6b4eed49e8b77, pseudonym=e3a91c86e5b7424fa9bc82279346d7b3, 2.5.4.20=2b61510213613f91f9c5b8d5eba03f602445220196d064b1cbd117e880413c1, email=TAMILIDK@GMAIL.COM, cn=DIPAK KUMAR TAMILI
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