

Academic Diary



PERSONAL INFORMATION

- 1) Name : SAURABH ASHOK GHOGARE
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ANNUAL PLAN

Session : 2020-2021 Class : B.Sc-I Section: Scm-I
 Subject : Computer science Paper /Unit :

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	B.Sc.-I Sem-I Computer Fundamentals of Information Technology and C Programming UNIT-I: Introduction to Computers: Characteristics, Generation & Classification of computers, Block diagram of computer, Memory and their types: Primary and Secondary, Flash & Serial access Memory, Peripheral Devices: Keyboard, Mouse, Scanner, Printer: Impact, Non-Impact, DMP, inject, Laser		15/9 2020	28/11 2020	19	Completed
	Unit-II: Introduction to OS: Need, Types of OS: Batch, Multiprogramming, Time sharing, online real time system, features of Unix OS, Windows XP & windows 7. File Handling: File naming, Files Structure, File Types, File access, File Attributes: protection, password, creator, owner, hidden flag, read only flag, actual size. Operation on file: create, delete, open, close, read, write, append, seek, rename.		3/12 2020	21/01 2021	19	Completed
	UNIT-III: Networking: Introduction, Need of computer communication network, communication protocol, types of network. Topology: Star, Ring, Bus & Mesh. Introduction to internet: History, types of internet connection: Direct, dialup, broadband, Internet protocol: TCP/IP, FTP, HTTP, Domain, URL, e-mail address, Web browser: Internet Explorer, Netscape navigator, search engines.		23/01 2021	13/3 2021	20	Completed
			19/9 2020	13/03 2021	19	Completed
	PRACTICAL					

ANNUAL PLAN

Session : 2020 - 2021 Class : B.Sc-T Section: Sem-II
 Subject: Computer science Paper /Unit :

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	B. Sc-I, Sem-II Web Technology and Advance Programming in C Unit I: HTML: History of Markup language, introduction to HTML, Structure of HTML Document, Elements, Attributes, Tags:<HTML>, <HEAD>, <TITLE>, <BODY>, heading Tag, <P>, , , <I>, <HR>, table tag, list tag, <A>, <LINK>, , <MARQUEE>, <BLOCKQUOTE>, attributes: align, background color, text color.		16/3 2021	6/5 2021	19	Completed
	UNIT II: Style sheet: Introduction, Advantages and application of style sheet, CSS: introduction, syntax of CSS with example, Type of style sheet (Internal, External and Inline), Units, classes and ID attributes, Properties: Text, font, color, background, border, display, height, line-height, margin, width, CSS width HTML and XML.		8/5 2021	1/07 2021	18	Completed
	UNIT III: XML: Features of XML, Simple XML document, Elements, Attributes, Components of XML document: document prolog and document instance. DTD (Document type Definition): Introduction, Need of DTD, declaring elements, element content model, declaring attributes, attribute types, internal and external DTD.		3/07 2021	7/8 2021	16	Completed
	PRACTICAL		20/3 2021	7/08 21	17	Completed

ANNUAL PLAN

Session : 2020-2021 Class : B.Sc-II Section: Sem-III
 Subject : Computer science Paper /Unit :

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	B. Sc-II, Sem-III Data Structure and C++ Unit I: Data structure: Introduction to data structure, types of data structure: primitive and non-primitive, linear and non-linear data structure, data structure operations. Linear arrays: Definition and concepts, representations, operations on arrays: traversing, inserting, deleting. Stacks: Definition and concepts, representations, operations on stacks: Push, Pop		29/7 2020	5/10 2020	27	Completed
	Unit II: Queues: Definition and concepts, representations, operations: Insert and delete; concept of circular queue, dequeue, priority queue. Linked List: Introduction, implementation of linked list, types of linked list: single, circular and doubly linked list. Operations on linked list: Insert, Delete, Search.		7/10 2020	8/1 2021	26	Completed
	Unit III: Trees: Definition and concept, binary tree, traversing operations: in order, pre-order, post-order Sorting and Searching: Definition and concept, sorting techniques: bubble, selection, insertion, merge and quick sort. Searching techniques: Sequential and binary searching.		11/1 2021	15/3 2021	27	Completed
	PRACTICAL		14/9 2020	8/3 2021	21	Completed

ANNUAL PLAN

Session : 2020 - 2021 Class : B.Sc-II Section: Sem-IV
 Subject : Computer science Paper /Unit : _____

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	B. Sc-II, Sem-IV Computer Science / Computer Application/ Information Technology RDBMS and PL/SQL UNIT-I: Fundamental of DBMS: Traditional file approach and comparison with DBMS Architecture of a database system, Data base approaches, storage structures, data representation, data independence, database models: Relational, Hierarchical, network, Relational Algebra, Object Based model, data dictionary and Database Administration.		17/3 2021	31/5 2021	16	Completed
	UNIT-II: Relational Model: Relations, Domains and Attributes, keys, E-R diagrams, Reducing E-R diagrams to tables, function dependency, Entity, Relationship, Mapping Constraints, Normalization: 1NF, 2NF, 3NF, 4NF, BCNF.		5/5 2021	25/6 2021	16	Completed
	UNIT-VI: Transaction: Rollback, commit and save point, rollback segment. Create Procedure and create function. Securities of Database: Users, creating users, roles, creating roles, types of privileges, GRANT, REVOKE command, Table and Row Locking.		28/6 2021	6/8 2021	17	Completed
	PRACTICAL		22/3 2021	6/8 2021	16	Completed

ANNUAL PLAN

Session : 2020-2021 Class : B.Sc-III Section: Sem-V
 Subject : Computer science Paper /Unit :

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	B. Sc-III, Sem-V . Net Technology and Java Programming Unit I: Introduction to .NET Framework: NET framework, MSIL, CLR, CLS, CTS, Namespaces, Assemblies the Common Language Implementation, Assemblies, Garbage Collection, The End to DLL Hell - Managed Execution		28/7 2020	7/10 2020	27	Completed
	Unit II: Introduction to visual programming: Concept of event driven programming - Introduction to VB.Net environment, the .NET Framework and the Common Language Runtime. Building VB.NET Applications, The Visual Basic Integrated Development- Basic Language-Console application and windows application, Data types, Declaring Variables, scope of variables, operators and statements.		9/10 2020	8/11 2021	27	Completed
	Unit III: Decisions and loop: Making Decisions with If-Else Statements, Using Select Case, Making Selections with Switch and Choose, Loop Statements-Do Loop, for, while-The with Statement-Handling Dates and Times - Converting between Data Types- Arrays - declaration and manipulation - Strings & string functions - Sub Procedures and Functions		12/1 2021	12/3 2021	27	Completed
	PRACTICAL		17/12 2020	4/1 2021	21	Completed

ANNUAL PLAN

Session : 2020-2021 Class : B.Sc-III Section: Sem-VI
 Subject : Computer Science Paper /Unit :

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	B. Sc-III, Sem-VI Advanced Java and VB.net Unit IV: Windows Applications: Forms: Adding Controls to Forms, Handling Events, MsgBox, InputBox, Working with Multiple Forms, Setting the Startup Form, SDI & MDI Forms, Handling Mouse & Keyboard Events, Common controls: Text Boxes, Rich Text Boxes, Labels, Buttons, Checkboxes, Radio Buttons, Group Boxes, List Boxes, Checked List Boxes, Combo Boxes, Picture Boxes, Scroll Bars, Tool Tips, Timers, properties-methods		16/3 2021	30/4 2021	18	Completed
	UNIT V: Object Oriented Programming: Classes and Objects: Class definition, creating objects, Defining Member functions, Methods and Events, Attaching a class with form, Delegates. Exceptions Handling: Exception classes in .net framework, Structured and Unstructured exceptions, tracing errors, breakpoints, watch, Quick watch.		4/5 2021	25/6 2021	17	Completed
	UNIT-VI: Data Access with ADO.Net, accessing data with Server Explorer, Accessing Data with data Adaptors and Datasets, creating a new data connection, creating and populating Data set, displaying data in Data Grid, selecting a data provider, Data accessing using Data adapter Control, Binding Data to Controls.		29/6 2021	6/8 2021	17	Completed
	PRACTICAL		18/3 2021	29/7 2021	17	Completed

Personal Time Table(Theory)

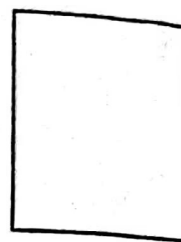
Periods	1	2	3	4	5	6	7	8	9
Time	9:40	10:30	11:20	12:10	1:15	2:05	2:55	3:45	4:35
Day									
Mon								S	
Tue		F	T						
Wed		T		S					
Thu			F						
Fri				S				F	
Sat			T						

Personal Time Table(Practical)

Morning					Evening			
Periods	1	2	3	4	5	6	7	8
Time	10:30	11:20	12:10	1:15	2:05	2:55	3:45	4:35
Day								
Mon			←	S	→			
Tue			←	S	→			
Wed								
Thu			←	T	→			
Fri								
Sat			←	F	→			

Academic Diary

PERSONAL INFORMATION



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ANNUAL PLAN

Session : 2020-21 Class : B.Sc. - II Section: Sem III
 Subject : CHEMISTRY Paper /Unit : Inorganic Chem Unit I

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
Sem III Inorganic Chemistry:						
<u>Unit I</u>						
	A] Covalent Bonding: Molecular Orbital Theory. Postulates of MO theory. LCAO approximation. Formation of bonding and antibonding MOs. Rules for LCAO. MO energy level diagram. Concept of bond order. MO structure of homonuclear diatomic molecules of namely He ₂ , H ₂ , N ₂ and O ₂ . Stability sequence of species of O ₂ i.e. O ₂ , O ₂ ⁺ , O ₂ ²⁺ , O ₂ ⁻ and O ₂ ²⁻ . Paramagnetic nature of O ₂ . MO structure of heteronuclear diatomic molecules viz. NO, HF and CO (Coulson's structure). Explanation of important properties of CO viz. - triple bond, almost nonpolar nature, electron donor and acceptor behaviour. Comparison of VB and MO theories.	08	28 th July 2020	7 th Sept 2020	10	A Part of Unit Completed
	B] Metallic Bonding: Free electron theory and properties of metals such as electrical and thermal conduction, malleability, ductility and metallic lustre. VB theory or Resonance theory of metals. Band theory to explain nature of conductors, insulators and semiconductors (both intrinsic and extrinsic). [3]	04	8 th Sept 2020	19 th Oct 2020	05	B. Part of Unit Complete
	C] VSEPR Theory: Various rules under VSEPR theory to explain molecular geometry (following examples may be taken to explain various rules- BeCl ₂ , CH ₄ , NH ₄ ⁺ , PCl ₅ , SF ₆ , IF ₇ , SnCl ₂ , NH ₃ , H ₂ O , ClF ₃ , BrF ₅ , XeF ₆ , SOF ₄ , COF ₂ , PCl ₃ ,). Limitations of VSEPR theory. [5]	07	20 th Oct 2020	14 th Dec 2020	09	C part. Unit Complete

ANNUAL PLAN

Session : 2020-21 Class : B.Sc. II Section : Sem-III
 Subject : CHEMISTRY Paper / Unit : Inorganic Chem Unit-II

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		

Unit II

A] Volumetric Analysis: (a) Introduction:- Volumetric analysis, titrant, titrate, end point, equivalence point, indicator etc. Requirements of volumetric analysis. Definition of standard solution, primary standard substance. Requirements of primary standard substance. Terms to express concentrations namely- molarity, normality, molality, mole fraction and percentage. (Simple numericals expected). (b) Acid-Base titrations:- Types of acid base titrations. pH variations during acid base titration. Acid base indicators. Modern theory (Quinoniod theory) of acid base indicators. Choice of suitable indicators for different acid base titrations. (c) Redox Titrations:- General principles involved in redox titrations (redox reactions, redox potentials, oxidant, reductant, oxidation number). Brief idea about use of KMnO_4 , $\text{K}_2\text{Cr}_2\text{O}_7$ as oxidants in acidic medium in redox titrations. Use of I_2 in iodometry and iodimetry. Redox indicators-external and internal indicators. Use of starch as an indicator. Iodometric estimation of Cu (II) . [8]

12 ^{5th} ^{11th}
~~July~~ ~~Sept~~
 Dec Jan
 2020 2021
 13 unit Complete

B] Gravimetric Analysis: Definition. Theoretical principles underlying various steps involved in gravimetric analysis with reference to estimation of barium as barium sulphate. Coprecipitation and post precipitation. (Definition, types and factors affecting

08 ²⁴ ^{16th}
 Jan Feb
 2021 2021
 08 unit Complete

ANNUAL PLAN

Session : 2020-21 Class : B.Sc-III Section: Sem-V
 Subject : CHEMISTRY Paper /Unit : Organic Chem - Unit III & IV

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
Unit III						
	A] Heterocyclic compounds: Nomenclature, Pyrrole: Synthesis from acetylene, succinimide and furan, Basicity, Electrophilic substitution reactions (orientation) – nitration, sulphonation, acetylation and halogenation . Molecular orbital structure. Pyridine: Synthesis from acetylene and pentamethylene diamine hydrochloride, Basicity, Electrophilic substitution reactions (orientation) – nitration, sulphonation, Nucleophilic substitution reactions (orientation)- with NaNH_2 , $\text{C}_6\text{H}_5\text{Li}$ and KOH . [3]	12	31 st July 2020	19 th Sept 2020	13	A part of unit completed
	B] Organometallic compounds: Grignard reagents: Methyl magnesium bromide- Synthesis from methyl bromide (only reaction) Synthetic applications: Electrophilic substitution reactions-formation of alkanes, alkenes, higher alkynes and other organometallic compounds, Nucleophilic substitution reactions- Reaction with aldehydes and ketones, ethylene oxide, acetyl chloride, methyl cyanide and CO_2 . [4] Methyl lithium- Synthesis and reaction with water, formaldehyde, acetaldehyde, acetone, ethylene oxide and CO_2	12	25 th Sept 2020	27 th Nov 2020	12	B part of unit complete
Unit IV						
	A] Dyes: Classification on the basis of structure and mode of application, Preparation and uses of Methyl orange, Crystal violet, Phenolphthalein , Alizarin and Indigo. [5]	06	28 th Nov 2020	12 th Dec 2020	06	Unit completed
	B] Drugs: Analgesic and antipyretics: Synthesis and uses of phenylbutazone. Sulpha drugs: Synthesis and uses of sulphanilamide and sulphadiazine. Antimalarials: Synthesis of chloroquine from 4,7-dichloroquinoline and its uses. [5]	06	18 th Dec 2020	8 th Jan 2021	06	
	C] Pesticides: Insecticides: Synthesis and uses of malathion. Herbicides: Synthesis and uses of 2,4-dichloro phenoxy acetic acid (2,4-D). Fungicides: Synthesis and uses of thiram (tetramethyl thiuram disulphide). [4]	06	22 nd Jan 2021	13 th Feb 2021	06	

Personal Time Table(Theory)

Periods	1	2	3	4	5	6	7	8	9
Time	11:20	12:10	1:15	2:05	2:55	3:45	4:35		
Day									
Mon	S								
Tue	S								
Wed									
Thu	T								
Fri	T								
Sat									

Theory - 04 Periods

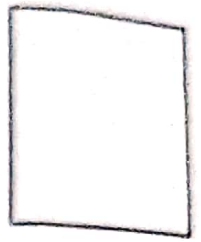
Personal Time Table(Practical)

Morning					Evening				
Periods	1	2	3	4	5	6	7	8	
Time	10:30	11:20	12:10	1:15	2:05	2:55	3:45	4:35	5:25
Day									
Mon			← B.sc. II sem III (S ₆) →						
Tue			← B.sc. II, sem III (S ₆) →						
Wed			← B.sc. III, sem I, T ₅ +T ₆ →			← B.sc. III, sem III (S ₁ +S ₅) →			
Thu			← B.sc. III, sem I, T ₅ +T ₆ →			← B.sc. III, sem III, (S ₁ +S ₅) →			
Fri									
Sat									

Practical - 18 Periods

Academic Diary

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ANNUAL PLAN

Session : 2020 - 21 Class : B.Sc.I Section: S-I
 Subject : CHEMISTRY Paper /Unit : Unit III, IV and V

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
1	Unit-III A- Electronic Displacement B- Reactive Intermediates C- Aliphatic Hydrocarbons	14	22/09/20	24/10/21	30	20 periods for introduction organic chemistry
2	Unit-IV Aromatic Hydrocarbons- Nomenclature and isomerism Aromaticity Mechanism of AESR Orientation	14	24/10/21	31/3/21	15	
3	Unit-V Thermodynamics	14	01/4/21	08/5/21	18	

ANNUAL PLAN

Session : 2020-21 Class : B.Sc III Section: S-V
 Subject : CHEMISTRY Paper /Unit : V and VI

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
1	Unit V Photochemistry	14	13/10/20	03/11/20	26	
2	Unit-VI Molecular spectroscopy	14	23/11/20	16/12/21	26	

Personal Time Table(Theory)

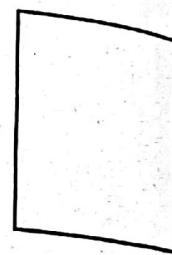
Periods	1	2	3	4	5	6	7	8	9
Time	10.30	11.20	12.10	1.15	2.05	2.55	3.45	4.35	5.25
Day									
Mon					B.Sc.III				
Tue					B.Sc.III				
Wed		B.Sc.I							
Thu		B.Sc.I							
Fri						B.Sc.I			
Sat									

Personal Time Table(Practical)

Morning					Evening			
Periods	1	2	3	4	5	6	7	8
Time	10.30	11.20	12.10	1.15	2.05	2.55	3.45	4.35
Day								
Mon								
Tue								
Wed			← $T_5 + T_6$ →					
Thu			← $T_5 + T_6$ →					
Fri			← F_5 →					
Sat			← F_5 →			← S_1 →		

Academic Diary

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ANNUAL PLAN

Session : 2020 - 2021 Class : B.Sc II Section: Sem. III
 Subject : Chemistry Paper /Unit : V & VI (Therm. & Electro.)

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	Unit V – Part A (Thermodynamics): (i) Gibb's and Helmholtz's free energy function. Physical significance of Gibb's free energy, Variation of free energy G with P & T. Gibb's-Helmholtz's equation in terms of G and its application. (ii) Partial molal function, chemical potential, derivations of Gibb's-Duhem equation. Chemical potential of an ideal gas in gaseous mixture. Derivation of vant Hoff's isotherm and its application to equilibrium state. Derivation of vant Hoff's equation and its applications. (iii) Numericals. Part B (Phase Equilibrium): (i) Immiscible liquids, Nerst distribution law and its application. Process of extraction, derivation of formula for the amount of solute left unextracted after n^{th} extraction. (ii) Phase transition Clausius-Clyperon equation (only qualitative statement). (iii) Partially miscible liquids - Phase diagram of phenol-water, triethyl amine - water and nicotine-water systems. (iv) Numericals.	14 L	29 th July 2020	25 th Nov. 2020	25L	Unit completed
	Unit VI – Part A (Liquid State): (i) Surface tension, determination and its S.I. Unit. Effect of temperature on surface tension, derivation of expression for relative surface tension by Drop number method. Application of surface tension. (ii) Viscosity, determination and its S.I. Unit. Effect of temperature on viscosity, derivation of expression for relative viscosity by Ostwald's viscometer method. Applications of viscosity. Part B (Electrochemistry): (i) Conductance of electrolyte solution. Specific, equivalent and molar conductance. Determination of conductance of electrolyte solution, variation of specific and equivalent conductance with dilution for strong electrolyte. Conductometric titrations. Applications of conductometric titration. (ii) Migration of ions under the influence of electric field. Transport number of ions. Determination of transport number by Hottorf's method and Moving boundary method (iii) Kohlrausch's law of independent migration of ions. Determination of λ and degree of dissociation α of a weak electrolyte. Determination of dissociation constant of weak electrolyte. (iv) Numericals.	14 L	26 th Nov. 2020	03 rd March 2021	25L	Unit completed

ANNUAL PLAN

Session : 2020 - 2021 Class : B.Sc. III Section: Sem. V
 Subject : Chemistry Paper / Unit : I & II coordination comp.

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	Unit I – Part A (Coordination compounds): addition compounds, double salts, complex salts, complex ion, ligand, coordination number, central metal ion, etc. Werner's theory, Sidgwick's electronic interpretation, EAN Rule. IUPAC rules for nomenclature of coordination compounds. Structural isomerism-ionization, linkage and coordination in complexes. Geometrical isomerism in oct. comp., Squ. planar comp., Optical isomerism in octa. Compl. Tetra. Compl. square planar compl.. VBT, Inner and outer orbital compl.. Magnetic properties of compl. of 3d series elements. Limitations of VB theory. Part B (Chelates): Definition, classification and applications of chelates in analytical chemistry. Stability of chelate with special reference to chelate effect.	14 L	29 th July 2020	23 rd Oct. 2020	23 L	Unit completed
	Unit II – Part A (CFT): Postulates of CFT, Crystal field splitting in octahedral, distorted octahedral, square planar, tetrahedral complexes. Concept of CFSE, high spin and low spin compl. on the basis of pairing energy and distribution of electrons in t_{2g} and e_g orbitals in high spin and low spin octa. Comp. Factor affecting magnitude of crystal field splitting in octa. complexes. Part B (Electronic spectra of Transition metal complexes): Introduction to spectra, selection rules for d-d transitions, spectroscopic terms-determination of ground term symbols for d^1 spectra of octahedral complexes, Orgel diagram for d^1 and d^9 states, electronic spectrum of $[Ti(H_2O)_6]^{3+}$ complex ion. Spectrochemical series.	14 L	28 th Oct. 2020	14 th March 2021	29 L	Unit completed

ANNUAL PLAN

Session : 2020-2021 Class : B.Sc. II Section: Sem. IV
 Subject : Chemistry Paper /Unit : I & II

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	Unit I – Part A (Chemistry of transition elements): Definition of transition elements. General characteristics of transition elements. Comparative study of first transition series elements (3d) with reference to following properties: (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. Part B (Extraction of Elements): Principles involved in extraction of elements. Major methods of extraction of elements. Factors affecting choice of extraction method. Thermodynamics of reduction processes- Ellingham diagrams for oxides and importance of this diagram (only preliminary ideas).	14 L	17 th March 2021	13 th May 2021	17 L	Unit complete
	Unit II – Part A (Inner Transition Elements): Definition, Lanthanides and Actinides. Comparative study of Lanthanides with respect to following properties: (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. Occurrence of lanthanides. Isolation of lanthanides by ion exchange method. Actinides - Electronic configuration and oxidation states. Comparison of lanthanides and actinides. Part B (General Principles of Metallurgy): Definition of metallurgy, steps in metallurgy. Ore dressing by gravity separation, froth floatation and electromagnetic separation. Calcination, roasting, smelting and refining of metals. Meaning of terms hydrometallurgy and pyrometallurgy.	14 L	19 th May 2021	12 th Aug. 2021	18 L	Unit complete

ANNUAL PLAN

Session : 2020-2021 Class : B.Sc. III Section: Sem. VI
 Subject : Chemistry Paper/Unit : III & IV

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	Unit III – Part A (Electronic Spectroscopy): Introduction, theory, instrumentation, types of electronic transitions, presentation of electronic spectrum, terms used-chromophore, auxochrome, bathochromic shift, hypsochromic shift, hyperchromic effect and hypochromic effect, Applications in the structure determination of dienes, α, β unsaturated aldehydes and ketones, aromatic compounds. Part B (Infrared Spectroscopy): Introduction, Types of molecular vibrations-stretching and bending, Calculation of vibrational modes, force constant, instrumentation, interpretation of IR, H-stretching, triple bond, double bond and Finger print regions, IR spectra of H_2O, CO_2, C_2H_5OH, CH_3CHO, CH_3COOH and CH_3CONH. Unit IV Part A (NMR Spectroscopy): Introduction, spin quantum number, instrumentation, Aspects of NMR- number of signals(equivalent and non-equivalent protons), positions of signals (chemical shift), intensities of signals, splitting of signals(spin-spin coupling), coupling constant, applications. Part B (Mass Spectrometry): Introduction, theory, instrumentation-(ion sources), Mass spectra of neopentane and methanol, molecular ion peak, base peak, metastable peak, Rules of fragmentation, applications.	14L	17th march 2021	12th may 2021	16L	Unit completed
		14L	13th may 2021	12th Aug. 2021	17L	Unit completed

Personal Time Table(Theory)

Periods	1	2	3	4	5	6	7	8	9
Time	10:30	12:10	1:15	2:05	2:55	3:45	4:35		
Day									
Mon									
Tue									
Wed	T		S						
Thu	T		S						
Fri									
Sat									

Theory - 04 periods

Personal Time Table(Practical)

Morning					Evening			
Periods	1	2	3	4	5	6	7	8
Time	11:20	12:10	1:15	2:05	2:55	3:45	4:35	5:25
Mon		← B.Sc. II (S ₆) →			← B.Sc. I (F ₁ & F ₅) →			
Tue		← B.Sc. II (S ₆) →			← B.Sc. I (F ₁ & F ₅) →			
Wed					← B.Sc. II (S ₁ & S ₅) →			
Thu					← B.Sc. II (S ₁ & S ₅) →			
Fri								
Sat								

Practical - 18 periods

Academic Diary



PERSONAL INFORMATION

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ANNUAL PLAN

Session : 2020-21 Class : B.Sc.I Section: Sem I
 Subject : Electronics Paper /Unit : 1S-Electronics

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	B.Sc. I Semester I (Electronics) 1S-Electronics Basics of Electronics UNIT I: Passive Components and Network theorems : Introduction to Resistors, Capacitors, Inductors and Transformers, Concept of ideal dc voltage and current source. KVL, KCL, Thevenin's, Norton's, maximum power transfer, Millman's theorem (statement, proof, simple numerical application for dc only). UNIT II: Measuring Instruments: Principles of voltmeter, ammeter, ohmmeter, Multirange DC voltmeter, ohm per volt rating, loading effect, Multirange DC Ammeter, Series & shunt type ohmmeter, Multimeter (uses & drawback). CRO Block diagram & explanation, CRT construction & working, uses of CRO (measurement of frequency, amplitude & phase.) UNIT VI: Integrated Circuits: Introduction to IC technology, advantages and disadvantages. Classification of ICs, Basic steps in fabrication of monolithic ICs. Fabrication of diode, resistor & transistor. Scale of integration up to V2LSI, Basic concept of Embedded systems.	13	10/09/2020	19/09/2020	16	Completed
		15	20/09/2020	30/12/2020	19	Completed
		09	04/01/2021	02/02/2021	13	Completed

ANNUAL PLAN

Session : 2020-21 Class : B.Sc. II Section: Sem III
Subject : Electronics Paper /Unit : 33-Electronics.

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	B.Sc. II Semester III (Electronics) 3S-ELECTRONICS Electronic Devices and Circuits UNIT I: Hybrid-parameters & Cascaded amplifiers: Hybrid-parameters, transistor equivalent circuit of CE, CB, Analysis of small signal CE amplifiers. Concept of cascaded amplifier, Types of coupling, RC Coupled Amplifier, Single Tuned amplifiers.	15	28/07/2020	08/09/2020	16	Completed
	UNIT II: Power Amplifier: Classification of power amplifier, Class A, Class B, Class C and Class AB amplifiers, Class A - transformer coupled amplifier, Class-B push-pull amplifier (Construction, working and efficiency of each). Distortion, complementary symmetry Class-B push-pull amplifier.	14	09/07/2020	20/08/2020	16	Completed
	UNIT III: Feedback amplifiers and Oscillators: Concept of feedback, feedback theory, positive and negative feedback, advantage of negative feedback, physical idea of feedback, (Block diagram only), concept of oscillator, basic elements of oscillator, Barkhausen Criteria of oscillation, concept of tank circuit. RC oscillator- Phase shift and Wein bridge oscillator, LC oscillator- Colpitts and Hartley oscillator, Crystal oscillator.	15	21/10/2020	28/12/2020	17	Completed

ANNUAL PLAN

Session : 2020-21 Class : B.Sc.III Section: Sem IV
 Subject : Electronics Paper /Unit : 55- Electronics.

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	B.Sc. III Semester V (Electronics) 5S-ELECTRONICS Measuring Instruments UNIT III: Timer and PLL: IC 555 timer: Block diagram and function of each block, application of 555 timer as astable, bistable and monostablemultivibrator (construction, working and expression for time period). PLL Block diagram and function of each block, concept of capture range, pull in time, lock in range, electrical characteristics, applications of PLL as FM demodulator, AM detector and frequency synthesizer. UNIT V: Sensors and Actuators: Sensors: Definition, Methods of fabrication of Sensors, Types of sensors (Mechanical, Thermal, Optical, magnetic, chemical). Actuators: Definition, Working principles of Electromechanical, Electro thermal, Electro-optical and Electrochemical Actuators. UNIT VI: Biomedical Electronics: Introduction, Type of electrode, EEG, EMG, ECG-block diagram and function of each block, X ray machine, instantaneous heart rate meter-systolic and diastolic blood pressure meter, EAR oximeter, pulse Oximeter, range gated pulse Doppler blood flow meter, Laser Doppler blood flow meter.	18	30/07/2020	12/09/2020	18	Completed
		13	22/09/2020	26/11/2020	16	Completed
		16	27/11/2020	23/01/2021	19	Completed

ANNUAL PLAN

Session : 2020-21 Class : B.Sc. III Section: Sem III
 Subject : Electronics Paper /Unit : 45-Electronics

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	UNIT IV: Architecture and timings of 8085: Evolution of microprocessor, microcomputer (Block diagram with function of each block), architecture of Intel 8085 microprocessor, function of each block of 8085, Functional pin diagram and function of all pins of 8085, instruction format. Instruction cycle, fetch and execute operation, machine cycle and state, timing diagram of MOV and MVI instructions.	16	12/03/2021	07/05/2021	18	Completed
	UNIT V: Instruction and programming of 8085: Addressing mode, classification of instruction set of 8085 with examples, concept of stack and stack pointer, PUSH and POP instruction, Concept of subroutine: CALL and RET instruction, Delay subroutine (using one register and register pair). Programming: Algorithm, Flowchart, Assembly and machine language, assembly language program such as programme for addition, subtraction, multiplication, division, finding maximum and minimum numbers etc.	13	08/05/2021	07/06/2021	15	Completed
	UNIT VI: Interfacing: Basic interfacing concept, memory mapped I/O and I/O mapped I/O Schemes, data transfer schemes. 8255 PPI: block diagram, function of each block, Functional pin diagram, function of each pin, operating modes of 8255 PPI, control word format in I/O and BSR mode, illustrative example. 10	12	28/06/2021	04/08/2021	13	Completed

ANNUAL PLAN

Session : 2020-21 Class : B.Sc.III Section: Sem VI
 Subject : Electronics Paper /Unit : 6S-Electronics

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	B.Sc. III Semester VI (Electronics) 6S-ELECTRONICS Advance Microprocessor and Microcontroller UNIT I : 8086 Architecture: Block diagram of 8086 microprocessor. BIU and EU, operating modes of 8086. register of 8086-G.P.R, pointer and index register, segment register, concept of segmented memory, instruction pointer, status flag, pin diagram of 8086 microprocessor, physical and effective address. UNIT II: Instructions and programming of 8086 Instructions: MOV, PUSH, POP, LEA, LDS, LFS. Arithmetic & Logic Instructions. Addressing mode, 8086 instruction, Bus cycle, Programming: programs of data transfer, addition, subtraction, division, multiplication using various addressing mode. UNIT III: 8051 Microcontroller Architecture: Microcontroller Introduction, Difference between Microprocessor and Microcontroller, block diagram of microcontroller, CPU, registers, flags, PSW, PC, Data Pointer, SFR, SP. Internal RAM/ROM, External memory, I/O ports, counter & timers, interrupts.	13	04/03/2021	22/03/2021	13	Completed
		12	23/03/2021	07/04/2021	12	Completed
		11	08/04/2021	29/04/2021	11	Completed

ANNUAL PLAN

Session : 2020-21 Class : B.Sc. III Section: Sem VI
 Subject : Electronics Paper /Unit : 6S-Electronics

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
	B.Sc. III Semester VI (Electronics) 6S-ELECTRONICS Advance Microprocessor and Microcontroller UNIT IV: Instruction set of 8051 and Programming: Addressing mode, Instruction set: Data transfer, arithmetic, logical operation, JUMP, Loop and CALL instructions. Assembly language programming examples: simple data transfer, arithmetic, logical and single bit. UNIT V: 8051 Interfacing & Application: Basics of serial communication, interfacing with RS-232C, SCON and PCON registers, interfacing a DAC / ADC and waveform generation, interfacing to the 8255, interfacing LED, power reduction mode. UNIT VI: Advance microcontroller: Introduction to AVR, Arithmetic and logic Unit, program and data memories, downloadable flash program memory, SRAM data memory, general purpose register file, I/O register, EEPROM data memory, peripherals, Timers/ Counters.	13	30/04/2021	15/05/2021	12	Completed
		13	17/05/2021	04/06/2021	13	Completed
		12	05/06/2021	09/08/2021	12	Completed

Personal Time Table(Theory)

w.e.f. 17/06/2020

Periods	1	2	3	4	5	6	7	8	9
Time	9:40	10:30	11:20	12:10	1:15	2:05	2:55	3:45	4:35
Day									
Mon			S		F				
Tue			S		F				
Wed					S	F			
Thu									
Fri								T	
Sat					T				

Personal Time Table(Practical)

Morning					Evening			
Periods	1	2	3	4	5	6	7	8
Time	10:30	11:20	12:10	1:15	2:05	2:55	3:45	4:35
Day								
Mon								
Tue						← T →		
Wed						← T →		
Thu						← F →		
Fri								
Sat						← S →		

Academic Diary



PERSONAL INFORMATION

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ANNUAL PLAN

Session : 2020-21 Class : B.Sc. I Section: Sem I & II
 Subject : Microbiology Paper /Unit : 15 - Microbiology

S.No.	Unit & Topic <u>Sem-I</u>	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
1.	Unit - IV Structural organization of Bacteria	14	14/09 2020	14/10 2020	15	Completed
2.	Unit V - A Microbial Nutrition	13	19/10 2020	7/12 20	14	Completed
3.	Unit V - B Pure culture concept	04	8/12 2020	16/12 2020	05	Completed
4.	Unit VI Reproduction and Growth of Bacteria	14	21/12 2020	22/01 2021	17	Completed
<u>Semester - II</u>						
1.	Unit - II Microbial Control	14	16/03 2021	28/04 21	16	Completed
2.	Unit - IV Biostatistics	13	03/05 21	29/06 21	16	Completed
3.	Unit - VI Introduction to computer.	12	30/06 21	04/08 21	15	Completed

ANNUAL PLAN

Session : 2020-21 Class : B.Sc. II Section : Sem III
 Subject : Microbiology Paper / Unit : 35- Microbiology

S.No.	Unit & Topic Sem. III	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
1.	Unit-I Gene Multiplication and expression	14	31/07/2021	03/10/21	18	Completed
2.	Unit-II Gene: Regulation & Mutation.	15	05/10/21	04/12/21	18	Completed
3.	Unit-III Genetic Recombination	14	05/12/21	26/02/21	20	Completed
Semester IV						
1.	Unit - III serology	13	19/03/2021	30/04/2021	17	Completed
2.	Unit - IV Other pathogenic bacteria	14	03/05/2021	02/07/2021	18	Completed
3.	Unit - V Antimicrobial Chemotherapy	13	03/07/2021	07/08/2021	16	Completed

ANNUAL PLAN

Session : 2020-21 Class : B. Sc. III Section : Sem II 2
 Subject : Microbiology Paper /Unit : SS - Microbiology II

S.No.	Unit & Topic <u>Sem - I</u>	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
1.	Unit I A. Microbial association B. Air Microbiology	06 10	30/06/2020	20/08/2020	08 13	Completed Completed
2.	Unit - II Soil Microbiology	15	10/10/2021	17/12/2020	19	Completed
3.	Unit - III Water Microbiology	13	18/12/2020	27/02/2020	15	Completed
<u>Semester II</u>						
1.	Unit I Fermentation in General	14	18/03/2021	29/04/2021	20	Completed
2.	Unit - II Microbiology of Food	12	30/06/2021	25/06/2021	16	Completed
3.	Unit II - A Microbial metabolism	08	26/06/2021	17/07/2021	11	Completed
4.	Unit II - B Enzymology	03	22/07/2021	07/08/2021	09	Completed

Personal Time Table(Theory)

Periods	1	2	3	4	5	6	7	8
Time	10:30	11:20	12:10	1:15	2:05	2:55	3:45	4:35
Day								
Mon	S				F			
Tue					F			
Wed				F				
Thu		T						
Fri			S	T				
Sat			S	T				

Personal Time Table(Practical)

Morning					Evening			
Periods	1	2	3	4	5	6	7	8
Time	10:30	11:20	12:10	1:15	2:05	2:55	3:45	4:35
Day								
Mon								
Tue								
Wed								
Thu						F6		
Fri						F6		
Sat							S5+S6	

Department of Mathematics

Academic Diary

(Academic Year 20-21)

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Academic Diary

PERSONAL INFORMATION



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ANNUAL PLAN

Session : 2020-21 Class : Bsc I Section: _____
 Subject : Mathematics Paper / Unit : I Algebra & Trigonometry

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
1)	Unit I :- De Moivre's thm :- Roots of complex function circular function, hyperbolic function, inverse hyperbolic function, Reln bet ⁿ . circular function & hyperbolic funct ⁿ . Seperation of real & imaginary Parts of circular & hyperbolic funct ⁿ of complex variable.	12	<u>17/9/</u> <u>2020</u>	<u>17/10/</u> <u>2020</u>	12	
2)	Unit II :- Trigonometric Series, Gregory series, Euler's series, Machin's Series. Rutherford series, Summation of Series, series based upon $\sin x$, $\cos x$, $\sinh x$, $\cosh x$, exponential series.	13	<u>19/10/</u> <u>2020</u>	<u>21/12/</u> <u>2020</u>	13	
3)	Unit III :- Elements of Quaternion Def ⁿ of equality & add ⁿ mult ⁿ Complex Conjugate of quaternion norm, inverse quaternion al rotation operator, geometric Interpretation, operator algorith ^m .	12	<u>31/12/</u> <u>20</u>	<u>23/12/</u> <u>20</u>	12	
4)	Unit IV :- Theory of eq ⁿ . Reln bet ⁿ roots & co-efficients transformation of eq ⁿ , cubic eq ⁿ (Cardan method), Descartes rule of signs, biquadratic eq ⁿ .	12	<u>24/12/</u> <u>20</u>	<u>17/01/</u> <u>21</u>	12	
5)	Unit V :- Matrices: Rank of matrix, row rank, Column rank, eigenvalues, eigenvectors & the characteristics eq ⁿ of matrix, Cayley-Hamilton thm. & its application.	13	<u>18/01/</u> <u>2021</u>	<u>6/2/</u> <u>21</u>	13	

ANNUAL PLAN

Session : 2020-21 Class : BSc II Section : _____
 Subject : mathematics Paper / Unit : I - Number Theory

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
1)	Unit I :- Divisibility, division algorithm, the greatest common divisor, greater common divisor of more than two integers, Euclidean algorithm, least common multiple.	13	$\frac{11}{20}$ $\frac{17}{20}$	$\frac{18}{20}$ $\frac{18}{20}$	13	
2)	Unit II :- Prime nos, the fundamental thm of arithmetic, unique factorization thm, fermat nos, linear Diophantine eqn	12	$\frac{4}{20}$ $\frac{8}{20}$	$\frac{23}{20}$ $\frac{9}{20}$	12	
3)	Unit III :- Congruence, properties of Congruence, special divisibility test, linear congruence, Chinese remainder thm.	12	$\frac{24}{20}$ $\frac{9}{20}$	$\frac{22}{20}$ $\frac{10}{20}$	12	
4)	Unit IV :- Arithmetic functn, Euler's thm, the τ & σ function, mobius μ function	13	$\frac{23}{20}$ $\frac{10}{20}$	$\frac{10}{20}$ $\frac{12}{20}$	13	
5)	Unit V :- Primitive roots, primitive roots for prime, Polynomial congruences, The Congruence $x^2 \equiv a \pmod{p}$, general quadratic congruence, quadratic residue.	12	$\frac{11}{20}$ $\frac{12}{20}$	$\frac{21}{21}$ $\frac{11}{21}$	12	

ANNUAL PLAN

Session : 2020-21 Class : Bsc III Section: _____
 Subject : mathematics Paper /Unit : I mathematical method

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
1)	Unit I :- Legendre's eqn, Legendre polynomial, generating function of $P_n(x)$, recurrence formulae for $P_n(x)$, orthogonality of Legendre's poly. Rodrigue formula.	13	$\frac{13}{20}$	$\frac{18}{20}$	13	
2)	Unit II :- Bessel's eqn, Soln of Bessel's eqn, generating function for $J_n(x)$, Recurrence formulae for $J_n(x)$, Sturm Liouville boundary value problem.	13	$\frac{4}{20}$	$\frac{9}{20}$	13	
3)	Unit III :- Fourier series, Fourier series for odd & even function, half-range Fourier sine series & half range Fourier Cosine Series.	12	$\frac{10}{20}$	$\frac{10}{20}$	12	
4)	Unit IV :- Laplace transform, Laplace transformation of some elementary function, existence of Laplace transform, properties of Laplace transform, Laplace transform of derivative & integral multiplication of t^n & division by t .	11	$\frac{20}{20}$	$\frac{11}{20}$	11	
5)	Unit V :- Fourier transform:- finite sine transform, inverse finite Fourier sine transform & cosine transform, Infinite Fourier transform, properties of Fourier transform, appls of PDE.	11	$\frac{12}{20}$	$\frac{11}{21}$	11	

ANNUAL PLAN

Session : 2020-21 Class : BSc I Section: _____
 Subject : Mathematics Paper/Unit : I - vector Analysis & G

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
1)	Unit I :- scalar & vector Product of three vector Product of four vector Vector differentiation & Integration.	10	$\frac{11}{3}$ <u>21</u>	$\frac{17}{3}$ <u>21</u>	10	
2)	Unit II :- Space curve t, n, b vectors, fundamental Planes, Curvature, torsion, Frenet-Serret formulae.	10	$\frac{18}{3}$ <u>21</u>	$\frac{19}{4}$ <u>21</u>	10	
3)	Unit III :- Gradient, divergence, curl, directional derivative, line integral, work done, Green's thm.	11	$\frac{20}{4}$ <u>21</u>	$\frac{19}{5}$ <u>21</u>	11	
4)	Unit IV :- Sphere :- Different form of sphere, Section of sphere by a plane, Sphere through a given circle, intersect. of sphere & circle, orthogonal sphere	10	$\frac{20}{5}$ <u>21</u>	$\frac{11}{6}$ <u>21</u>	10	
5)	Unit V :- Cone :- eqn of cone with guiding curve Cone with vertex & origin right circular cone, Cylinder :- eqn of Right circular cylinder	11	$\frac{21}{6}$ <u>21</u>	$\frac{27}{6}$ <u>21</u>	11	

ANNUAL PLAN

Session : 2020-21 Class : BSc II Section: _____
 Subject : mathematics Paper / Unit : II - classical mechanics

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
1)	Unit I :- Constraints, generalized Co-ordinate, D'Alembert's principle, & Lagrange's eq ⁿ of motion	10	$\frac{8}{21}$	$\frac{5}{21}$	10	
2)	Unit II :- Central force motion, Areal velocity, equivalent one body problem, Central orbit, Virial th ^m , Kepler's law of motion	09	$\frac{6}{21}$	$\frac{27}{21}$	09	
3)	Unit III :- Calculus of variation, functional, extrema, Euler differential eq ⁿ , Brachistochron problem, invariance of Euler eq ⁿ , Euler Ostrogradsky eq ⁿ	10	$\frac{28}{21}$	$\frac{15}{21}$	10	
4)	Unit IV :- Hamilton principle, Lagrange's eq ⁿ for non holonomic system, Routh's procedure, least action principle	09	$\frac{16}{21}$	$\frac{21}{21}$	09	
5)	Unit V :- Rigid body generalized Co-ordinate of rigid body, Eulerian angle, Euler th ^m .	11	$\frac{31}{21}$	$\frac{30}{21}$	11	

Finite rotations,
 infinitesimal Rotation

ANNUAL PLAN

Session : 2020-21 Class : BSc III Section: _____
 Subject : mathematics Paper/Unit : II - Special Relativity

S.No.	Unit & Topic	Required Lectures	Duration		Periods Taken	Remarks
			From	To		
1)	Unit I :- Inertial frame, speed of light & Galilean relativity, Relative character of space & time, postulate of special theory of relativity Lorentz transformation.	12	$\frac{21}{3}$	$\frac{1013}{21}$	12	
2)	Unit II :- Composition of parallel velocities, length contraction, time dilation transformation eqn of component of velocity & accel ⁿ Lorentz Contraction factor.	10	$\frac{1113}{21}$	$\frac{2213}{21}$	10	
3)	Unit III :- Four dimensional Minkowski, Space-time of relativity, time like & space like interval, proper time & world line, Past, Present, future null cone, outer product, quotient do.	12	$\frac{2813}{21}$	$\frac{814}{21}$	12	
4)	Unit IV :- Variation of mass, velocity, eqn. of mass & energy, transformation eqn. of mass, momentum & energy, Transformation of its components	10	$\frac{914}{21}$	$\frac{2614}{21}$	10	
5)	Unit V :- Maxwell's eqn of electromagnetic theory in vacuum, propagation of electric & magnetic field, scalar & vector potential transformation of electromagnetic four potential.	09	$\frac{2715}{21}$	$\frac{1216}{21}$	09	

Personal Time Table(Theory)

Periods	1	2	3	4	5	6	7	8	9
Time	10.30	11.20	12.10	1.15	2.05	2.55	3.45	4.35	
Day									
Mon		II	I		I	II			
Tue		II				III		III	
Wed			III	I		II			
Thu			III	I					
Fri			II				I	I	
Sat		III					I	I	

Personal Time Table(Practical)

Morning					Evening			
Periods	1	2	3	4	5	6	7	8
Time								
Day								
Mon								
Tue								
Wed								
Thu								
Fri								
Sat								