



CBSE Aff. No.: 1030842

Medi-Caps International School

MIS DIGEST (PEDAGOGICAL PLAN)

SESSION : 2020-21

CLASS - XII



Dear Medi-Captains,

Learning is a process that continues throughout our life. It is not a process to meet an end, as there is no end to learning. Systematic learning is a key to success in life as a famous saying goes 'Failing to plan is a planning to fail' and we want you to succeed on every front. Hence this booklet has been designed in order to facilitate your planning.

MIS Digest has been prepared to give you a quick glance of the syllabus and information of the subject in brevity. We expect you to use it to the maximum in order to plan your learning. It will help you in decision making process by giving you insights of academic content so that you can learn in a systematic and planned manner. We stand always by your side to facilitate in any way we can do so.

Happy Learning!

Regards,

Renu Gurnani
Principal

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ENGLISH			
Name of Books: 1. Flamingo 2. Vistas			
PT I 50 MARKS	HALF YEARLY EXAM 80+20 MARKS	PRE-BOARD - I 80+20 MARKS	PRE-BOARD - II 80+20 MARKS
Flamingo Prose: Ch1 The Last Lesson Ch2 Lost Spring Ch3 Deep Water Ch4 The Rattrap Ch5 Indigo	Flamingo Prose: Ch 6 Poets and Pancakes Ch 7 The Interview	Flamingo Prose: Ch 8 Going Places	Flamingo Complete Syllabus
Poetry: P1 My Mother at Sixty Six P2 An Elementary School Classroom in a Slum P3 Keeping Quiet	Poetry: P4 A thing of Beauty P5 A Roadside Stand P6 Aunt Jennifer's Tigers		
Vistas Ch 1 The Third Level Ch 2 The Tiger King Ch 3 Journey to the End of the Earth	Vistas Ch 4 The Enemy Ch 5 Should Wizard Hit Mommy Ch 6 On the Face of It	Vistas Ch 7 Evans tries an O-Level Ch 8 Memories of Childhood	
Writing Skills Advertisement, Notice, Article	Writing Skills Invitation & Replies, Poster,	Writing Skills Job Application	

Writing, Debate, Speech, Debate, Speech and Note Making	Letters (5 types), Report + Complete Syllabus of Periodic Test 1	+ Complete Syllabus	
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MATHEMATICS

Name of Book: Textbook of Maths (NCERT)

PT I 50 MARKS	HALF YEARLY EXAM 80 + 20 MARKS	PRE-BOARD - I 80 + 20 MARKS	PRE-BOARD - II 80 + 20 MARKS
Ch-1: Relations and Functions Ch-2: Inverse trigonometric Functions Ch-3: Matrices Ch-4: Determinants	Ch-5: Continuity and Differentiability Ch-6: Application of Derivatives Ch-7: Integrals Ch-8: Application of Integrals + Complete Syllabus of Periodic Test 1	Ch-9: Differential Integrals Ch-10: Vectors Algebra Ch-11: Three Dimensional Geometry Ch-12: Linear Programming Ch-13: Probability + Complete Syllabus	Complete Syllabus

BIOLOGY

Name of Book: Textbook of Biology (NCERT)

PT I 50 MARKS	HALF YEARLY EXAM 70 + 30 MARKS	PRE-BOARD - I 70 + 30 MARKS	PRE-BOARD - II 70 + 30 MARKS
Ch-1: Reproduction in	Ch-5: Principles of	Ch-8: Human health and	Complete Syllabus

Organism Ch-2: Sexual Reproduction in Flowering Plants Ch-3: Human Reproduction Ch-4: Reproductive Health Ch-13: Organisms and Populations Ch-14: Ecosystem	inheritance and variations Ch-6: Molecular Basis of Inheritance Ch-7: Evolution Ch-15: Biodiversity and Conservation Ch-16: Environmental Issues + Complete Syllabus of Periodic Test 1	Disease Ch-9: Strategies for Enhancement in Food Production Ch-10: Microbes in human Welfare Ch-11: Biotechnology- Principles and Processes Ch-12: Biotechnology and Its Application + Complete Syllabus	
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CHEMISTRY
Name of Book: Textbook of Chemistry (NCERT)

PT I 50 MARKS	HALF YEARLY EXAM 70 +30 MARKS	PRE-BOARD - I 70 + 30 MARKS	PRE-BOARD - II 70+ 30 MARKS
Unit-2 Solutions Unit-10 Haloalkanes and Haloarenes Unit-9 Coordination Chemistry	Unit-11 Alcohols, Phenols and Ethers Unit-5 Surface chemistry Unit-7 p block elements	Unit-13 Amines Unit -8 d and f block elements Unit-6 General Principles and processes of	Complete Syllabus

Unit-3 Electrochemistry Unit-15 Polymers Unit-16 Chemistry in everyday life	+ Complete Syllabus of Periodic Test 1	isolation of elements Unit-12 Aldehydes, Ketones and Carboxylic acids Unit -14 Biomolecules Unit-4 Chemical Kinetics + Complete Syllabus	
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PHYSICS
Name of Book: Textbook of Physics (NCERT)

PT I 50 MARKS	HALF YEARLY EXAM 70 + 30 MARKS	PRE-BOARD - I 70 + 30 MARKS	PRE-BOARD - II 70 + 30 MARKS
Ch-1: Electric Charges and Field Ch-2: Electrostatic Potential and Capacitance Ch-3: Current Electricity Ch-4: Moving Charges and Magnetism Ch-5: Magnetism and Matter	Ch-6: Electromagnetic induction Ch-7: Alternating current Ch-9: Ray Optics and optical Instruments Ch-10: Wave optics + Complete Syllabus of Periodic Test 1	Ch-8: Electromagnetic Waves Ch-11: Dual Nature of Matters and Radiation Ch-12: Atoms Ch-13: Nuclei Ch-14: Semiconductor , Electronics : Materials, Devices and Simple circuits + Complete Syllabus	Complete Syllabus

BUSINESS STUDIES**Name of Book: NCERT/Poonam Gandhi**

PT I 50 MARKS	HALF YEARLY EXAM 80+20 MARKS	PRE-BOARD - I 80+20 MARKS	PRE-BOARD - II 80+20 MARKS
Ch-1: Nature and Significance of Management Ch-2: Principles of Management Ch-3: Business Environment Ch-4: Planning	Ch-5: Organising Ch-6: Staffing Ch-7: Directing Ch-8: Controlling Ch-9: Financial Management + Complete Syllabus of PT I	Ch-10: Financial Market Ch-11: Marketing Management Ch-12: Consumer Protection + Project work + Complete Syllabus	Complete Syllabus

ACCOUNTANCY**Name of Book: Double Entry Book keeping (T. S Grewal) Vol. I + II + III**

PT I 50 MARKS	HALF YEARLY EXAM 80+20 MARKS	PRE-BOARD - I 80+20 MARKS	PRE-BOARD - II 80+20 MARKS
Partnership Volume I: Ch-2: Accounting for Partnership Statements Ch-3: Goodwill Nature and	Part – B, Volume III: Ch-1: Financial Statements of company Ch-2: Financial Statements Analysis Ch-3: Comparative and	Volume II: Ch-8: Accounting for Share Capital Ch-9: Issue of Debentures Ch-10: Redemption of Debentures	Complete Syllabus

Ch-4: Valuation Change in Profit Sharing Ratio Ch-5: Admission of partner Ch-6: Retirement and Death of Partner Ch-7: Dissolution of partnership Firm Company	Common size statement Ch-4: Ratio Analysis Ch-5: Cash Flow statement + Complete Syllabus of Periodic Test 1	Volume I: Ch -1 Not for Profit Organisation + Project work + Complete Syllabus	
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ECONOMICS
Name of Books: Sandeep Garg (Macro Economics and Indian Economic Development)

PT I 50 MARKS	HALF YEARLY EXAM 80 MARKS	PRE-BOARD I 80+20 MARKS	PRE-BOARD II 80+20 MARKS
<u>MACRO ECONOMICS</u> Unit:6 Money and Banking Unit:8 The government Budget and the economy Unit:9 Balance of Payment	<u>MACRO ECONOMICS</u> Unit:7 Determination of Income and Employment Unit:5 National Income and related aggregates <u>INDIAN ECONOMIC DEVELOPMENT</u> Ch:1 Indian economy on	<u>INDIAN ECONOMIC DEVELOPMENT</u> Ch:2 Indian Economy (1950- 1990) Ch:3 Liberalisation, Privatisation and Globalisation Ch:4 Poverty Ch:6 Rural Development	<u>INDIAN ECONOMIC DEVELOPMENT</u> Ch:5 Human Capital Formation Ch:7 Employment and Unemployment in India Ch:8 Infrastructure Ch:9 Environment and

	the eve of independence + Entire syllabus of PT I	+ Entire syllabus of Half Yearly	sustainable development Ch:10 Comparative development of China, India and Pakistan + Entire syllabus
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INFORMATICS PRACTICES

Name of Book : Informatics Practices By Sumita Arora

PT I 50 MARKS	HALF YEARLY EXAM 70 + 30 MARKS	PRE-BOARD I 70 + 30 MARKS	PRE-BOARD II 70 + 30 MARKS
Ch - 7. MySQL SQL Revision Tour Ch - 8. More on SQL Ch - 9. Creating a Django Based Basic Web Application Ch - 1. Working with Numpy Ch - 2. Python Pandas	Ch - 3. Plotting With Pyplot-I Ch - 4. Plotting With Pyplot-II + Syllabus of PT I	Ch - 5. Introduction to Software Engineering Ch - 6. Agile Methods and Practical Aspects of Software Engineering Ch - 10. Interface Python With My SQL Ch - 11. Society, Law and Ethics + Entire Syllabus	Complete Syllabus

PHYSICAL EDUCATION			
Name of Book : Candid			
PT - I 50 MARKS	HALF YEARLY 70+30 MARKS	PRE-BOARD I 70+30 MARKS	PRE-BOARD II 70+30 MARKS
Unit – 1 Planning in Sports Unit – 2 Sports & Nutrition Unit – 3 Yoga & Lifestyle	Unit – 4 Physical Education & Sports For CWSN (Children With Special Needs –Divyang) Unit – 5 Children and Women In Sports Unit – 6 Test & Measurement In Sports Unit – 7 Physiology & Injuries in Sports Entire syllabus of PT I	Unit – 8 Biomechanics & Sports Unit – 9 Psychology & Sports Unit – 10 Training in Sports + Entire syllabus	Entire syllabus

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
FLAMINGO		
<u>Prose</u> 1.The Last Lesson : To develop listening, reading and writing skills. To create awareness about value of time. To analyze and interpret the reaction of various characters when faced with the news of Political enslavement.	Students will understand the importance of love for native language and disadvantages of slavery. They will understand that patriotism is the fuel that equips people with strength to fight enslavement.	Group Discussion on Political enslavement is a curse for any Nation as it deprives it of its identity.
2.The Lost Spring : To make the students aware about the national shame of children being forced to live a life of poverty and exploitation.	Students will be sensitized towards vicious circle of poverty and Child labour.	A speech on 'Child Labour'.
3. Deep water : Developing first person narration of experience. Understanding the key points. Usage and enrichment of vocabulary.	Students will learn that to overcome challenges, one needs to conquer the fear within.	Write a speech on 'Overcoming challenges'
4. The Rattrap : To make the students understand that the light of kindness can remove the darkness	Students will learn that love and compassion can redeem anyone. They will learn that world is full of distractions i.e. rattrap and one	Assessment of listening skills by a listening test will be conducted from the extract.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
of cruelty and negativity. To develop the comprehension skill.	who gets distracted, gets caught in the rattrap.	
5. Indigo : To develop comprehension abilities. To understand the significance of Champaran episode in freedom struggle.	Students will get to know about Mahatma Gandhi's courage and tenacity. They would learn that it is not impossible to conquer and win over the powerful.	A speech on Mahatma Gandhi's initiatives for relieving the farmers from the atrocities of the Britishers.
<u>Poetry</u> 1. My mother at Sixty- six : To enable students to interpret the lyrical qualities and the poem.	Students will learn about human relationships and impact of advancing age on body.	A comparative study of the poems 'A Photograph' and 'My Mother At Sixty- six'.
2. An Elementary School Classroom in a Slum : Understand the poem for comprehension. To identify the poetic devices.	Students would become aware of the plight of slum dwellers and the need for their amelioration.	A speech on 'A Plight of slum dwellers'.
3.Keeping Quiet: Infer the meaning of new expression from the context. Identify poetic devices. Understand Importance of self analysis.	Students would learn that the language of silence leads to harmony and peace.	Write a speech on Peace and Unity.
VISTAS		
1. The Third Level :	Students will be able to understand the	A group discussion on

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
To make the students identify the genre to which the story belongs.	concept of creative fiction writing like time travelling.	Time Travel—Fact or Fiction?
2. The Tiger King : To familiarize students with textual content and extensive reading. To raise an awareness to conserve Wild Life.	They would understand the importance of becoming Sincere and trustworthy in thought and action.	An article on Wildlife Conservation.
3. Journey to the End of the Earth : To sensitize the students towards changes in environment due to human activities	Students will be able to understand the impact of human activities on the environment	A speech on "Do we humans deserve the Earth?"
Advertisement Notice Article Debate Speech Note making To enhance creative writing skills. Presenting ideas with correct Expressions. To develop students' abilities to organize information and construct it factually into a text.	Students will learn to write various types of writing skills. They would learn to present their thoughts with correct expressions. They will also learn to make notes and summarize the text	Students will solve different practice questions on various writing skills.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
HALF YEARLY EXAM		
FLAMINGO		
<u>Prose</u> 6. Poets and Pancakes : To facilitate making connections between similar situations in different storylines/life experiences.	Students will be able to perceive the overall meaning and organization of the text; develop the skills of reasoning.	ASL
7. The Interview : To make the students aware about importance of the new system of interrogation named as “Interview” specifically in the arena of Journalism.	Students will be able to understand the importance of the interview. They would also learn how Interviews help us to know about our contemporaries and their opinions.	ASL
<u>Poetry</u> 4. A Thing of Beauty : To heighten students’ sensitivity to literary writing and to appreciate rhythm and sound patterns in language.	Students will be able to understand that nature is divine and elixir to mankind.	Write a poem on nature.
5. A Road Side Stand : To make the students identify the problems of marginalized community, The	Students will be sensitized towards the problems of marginalized community. They will be able to understand the plight of the	Write an article about the plight of roadside vendors.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
discrimination they face and their struggle against it.	stall owners.	
6. Aunt Jennifer's Tigers : To appreciate the lyrical quality of the poem and use of figurative devices to enhance the poetic beauty.	The learners will be sensitized towards the miseries and apathy faced by women in patriarchal domain.	Write an article about the problems of women in rural areas.
VISTAS		
4. The Enemy : To enable students to develop LSRW. To infer the meaning through silent reading.	To make the students rise above the prejudices of narrow nationalism and believe in humanity.	ASL
5. Should Wizard Hit Money : To make the students enrich their vocabulary and strengthen their understanding skills.	They will be able to appreciate the timeless significance of universal fears of loss and gain, of happy ending and parenting issues.	Write the other possible ending of the story.
6. On the Face of It : To make the students analyze & interpret the important characters of the play. To encourage them to build inner strength and look at the brighter sides of life.	Positive attitude and approach in dealing with disability. They would accept the physically challenged people positively in their life	Write an article on 'Positive Attitude'.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
PRE-BOARD -I		
FLAMINGO		
8. Going Places: To make the students understand the text for inferential comprehension. To facilitate making connections between similar situations in real life.	Students will learn not to indulge in absurd fantasies and accept the realities of life.	A debate on "Fantasy in movies is making us expect the impossible..."
VISTAS		
7. Evans Tries an O-Level : To help learners distinguish different perspectives; analyzing them; drawing conclusions.	Dereliction of duty by the law keepers and their complacent laxity often leads to criminals escape.	End the story with a different ending.
8. Memories of Childhood : To guide the students to have a broader outlook. To make the students understand the problems related to casteism and racial discrimination	The learners would be sensitized towards the issues of estranged cultural ties. They would be able to recognize the universal/global theme of social inequality.	Write an article on 'Memories of Childhood'.
Job Application : To enhance students' creative writing skill.	Students would understand the nature and purpose of job application.	Apply for a job. (Solve the given questions).

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
To make the students acquainted with the correct expressions required to write a job application.		
PRE-BOARD –II (Complete Syllabus)		

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
Ch.1 : Relations and Functions: To study: 1. Types of relations: reflexive, symmetric, transitive and equivalence relations. 2. One to one and onto functions, composite functions, inverse of a function.	a) Students will be able to understand types of relation: i) reflexive ii) symmetric iii) transitive iv) equivalence b) Students will be able to verify : i) one-one and ii) onto functions c) Students will be able to find the inverse of a given function	Worksheets and MCQ s based on the topic Students will develop critical thinking and analytical skills. Activity : To verify the relation R in the set R of all lines in a plane, defined by $R=\{(l,m):l \parallel m\}$ is an equivalence relation.
Ch.2 : Inverse Trigonometric Functions: To study: 1. Definition, range, domain, principal value branch. Graphs of inverse trigonometric functions. 2. Elementary properties of inverse trigonometric functions.	Students will be able to understand the concept of i) Domain ii) Range iii) Principal value branches iv) Graphs v) Properties of inverse trigonometric function Students will be able to understand the concept of : i) Graphs	Worksheets and MCQ s based on the topic They will also acquire analytical and problem solving skills. Activity : To explore the principal value of the function using a unit

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
Ch.3 : Matrices: To study: 1. Concept, notation, order, equality, types of matrices, zero and identity matrix, transpose of a matrix, symmetric and skew symmetric matrices. 2. Operation on matrices: Addition and multiplication and multiplication with a scalar. 3. Simple properties of addition, multiplication and scalar multiplication. 4. Non-commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order. 5. Concept of elementary row and column operations. 6. Invertible matrices and proof of the uniqueness of inverse, if it exists; (Here all	ii) Properties of inverse trigonometric function Students will be able to i) Understand the concept, notation, order , types of matrices ii) Find transpose , add and multiply matrices iii) Use simple properties of addition, multiplication and scalar multiplication of matrices iv) Find inverse of matrix by elementary row and column v) Understand invertible matrices and proof of the uniqueness of inverse transformation vi) Use the concept of matrices and determinant in solving different types of equation.	circle Worksheets and MCQ s based on the topic They will also acquire analytical and problem solving skills.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
matrices will have real entries).		
Ch.4 : Determinants: To study: 1. Determinant of a square matrix (up to 3×3 matrices), properties of determinants, minors, co-factors and applications of determinants in finding the area of a triangle. 2. Adjoint and inverse of a square matrix. 3. Consistency, inconsistency and number of solutions of system of linear equations by examples, solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix.	Students will be able to : i) Evaluate determinants of second and third order ii) Use properties of determinants in solving problems iii) Find the area of triangle iv) Solve system of linear equations in 2 and 3 variables	Worksheets and MCQ s based on the topic Students will appreciate the patterns in mathematics They develop calculation skills while using various results in solving problems.
HALF YEARLY EXAM		
Ch.5 : Continuity and Differentiability: To study: 1. Continuity and differentiability, derivative of composite functions, chain rule,	Students will be able to i) Define order and degree of differential Equation ii) Find general and particular solution of D.F	Worksheets and MCQ s based on the topic Students will develop critical

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
derivatives of inverse trigonometric functions, derivative of implicit functions. 2. Concept of exponential and logarithmic functions. 3. Derivatives of logarithmic and exponential functions. 4. Logarithmic differentiation, derivative of functions expressed in parametric forms. 5. Second order derivatives. Rolle's and Lagrange's Mean Value Theorems (without proof) and their geometric interpretation.	Students will be able to i) Form differential Equations ii) Solve diff equation by method of separation of variables iii) Solve homogeneous differential equations of first order and first degree iv) Solve linear differential equations	thinking and analytical skills. Activity : To find analytically the limit of a function $f(x)$ at x and also to check the continuity of the function at that point.
Ch.6 : Applications of Derivatives: To study: 1. Applications of derivatives: rate of change of bodies. 2. Increasing/decreasing functions, tangents and normal. 3. Use of derivatives in approximation, maxima and minima (first derivative test	Students will be able to solve problems related to: i) Rate of change of quantities, ii) Increasing and Decreasing functions. iii) Tangents and Normals, iv) Approximations v) Maxima and Minima Using differentiation	Worksheets and MCQ s based on the topic Students will develop creative thinking and clear understanding Activity : To understand the concept of

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
motivated geometrically and second derivative test given as a provable tool).		local maxima, local minima and point of inflection.
Ch.7 : Integrals: To study: 1. Integration as inverse process of differentiation. 2. Integration of a variety of functions by substitution, by partial fractions and by parts, Evaluation of simple integrals and problems based on them. 3. Definite integrals as a limit of a sum, Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals.	a) Students will be able to integrate different types of functions using methods of i) Substitutions ii) Partial fractions iii) By parts b) Students will be able to integrate special integrals. c) Students will be able to understand the concept of: i) Definite integral as a limit of a sum. ii) Fundamental theorem of integral calculus (without proof). d) Students will be able to use properties of definite integrals in evaluating integrals	Worksheets and MCQ s based on the topic They will also acquire analytical and problem solving skills. Activity : To evaluate the definite integral as the limit of sum and verify it by actual integration.
Ch.8 : Applications of the Integrals: To study: 1. Applications in finding the area under simple curves, especially lines,	Students will be able to use integration in finding area i) Under simple curves, especially lines, circles, parabolas and ellipses.	Worksheets and MCQ s based on the topic students will develop creative

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
circles/parabolas/ellipses (in standard form only), 2. Area between any of the two above said curves (the region should be clearly identifiable). + Complete syllabus of PT-I	ii) Between the two curves (lines/circles/parabolas/ellipses) iii) Under the curves $y = \sin x$, $y = \cos x$	thinking and clear understanding
PRE BOARD- I		
Ch.9 : Differential Equations: To study: 1. Definition, order and degree, general and particular solutions of a differential equation. 2. Formation of differential equation whose general solution is given. 3. Solution of differential equations by method of separation of variables solutions of homogeneous differential equations of first order and first degree. 4. Solutions of linear differential equation of the type: $dy/dx + py = q$, where p and q are functions of x or constants.	Students will be able to : i) Define order and degree of Differential Equation ii) Find general and particular solution of D.E. iii) Form differential equations iv) Solve diff. equation by method of separation of variables. v) Solve homogeneous differential equation of first order and first degree vi) Solve differential equations.	Worksheets and MCQ s based on the topic They will also acquire analytical and problem solving skills.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
Ch.10 : Vector Algebra: To study: 1. Vectors and scalars, magnitude and direction of a vector. 2. Direction cosines and direction ratios of a vector. 3. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. 4. Definition, Geometrical Interpretation, properties and application of scalar (dot) product of vectors, vector (cross) product of vectors, scalar triple product of vectors.	a) Students will be able to understand: i) The difference between the vector and scalar quantities ii) Types of vectors iii) Addition and subtraction of vectors (Triangle law & parallelogram law) iv) Multiplication of vectors by scalars. v) Position vectors, vi) Section formula vii) Resolution of vectors viii) Scalar (dot) product of vectors ix) Vector(cross) product of vectors x) Scalar triple product of vectors xi) Projection of a vector on a line b) Students will be able to use vectors in proving different geometrical concepts, theorems, properties and area of triangle and parallelogram. c) Students will be able to solve problems involving forces, velocities and accelerations	Worksheets and MCQ s based on the topic Students will develop creative thinking and clear understanding Activity : To verify geometrically distributive property of cross product of vectors.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
Ch.11 : Three - dimensional Geometry: To study: 1. Direction cosines and direction ratios of a line joining two points. 2. Cartesian equation and vector equation of a line, coplanar and skew lines, shortest distance between two lines. 3. Cartesian and vector equation of a plane. 4. Angle between (i) two lines, (ii) two planes, (iii) a line and a plane. 5. Distance of a point from a plane.	a) Students will be able understand direction cosines and direction ratio of line. b) Students will be able to solve problems related to lines and planes in 3-Dimension	Worksheets and MCQ s based on the topic Students will develop creative thinking and clear understanding Activity : To verify the angle between two planes is the same as the angle between their normals
Ch.12 : Linear Programming: To study: 1. Introduction, related terminology such as constraints, objective function, optimization, 2. Different types of linear programming (L.P.) problems, mathematical formulation of L.P. problems, 3. Graphical method of solution for problems	a) Students will be able to formulate the linear programming problems that arise in trade, industry, commerce and military operations. b) Students will be able to solve linear programming problems in two variables using elementary techniques.	Worksheets based on the topic Students will develop creative thinking and clear understanding

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING / INTEGRATED ART EDUCATION
in two variables, 4. Feasible and infeasible regions (bounded and unbounded), feasible and infeasible solutions, 5. Optimal feasible solutions (up to three non-trivial constraints).		
Ch.13 : Probability: To study: 1. Conditional probability, multiplication theorem on probability. 2. Independent events, total probability, Baye's theorem, Random variable and its probability distribution, mean and variance of random variable.	a) Students will be able to : i) Understand the concept of conditional probability and derive the formula for the same . ii) Obtain multiplication rule of probability. b) The students will be able to solve the problems by making use of total probability theorem and Baye's theorem	Worksheets based on the topic Students will develop creative thinking and clear understanding Activity : To explain the concept of computation of conditional probability of a given event A, when event B has already occurred, through an example of throwing a pair of dice.
PRE BOARD –II (Complete Syllabus)		

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Ch. 1 : Electric Charges and Fields : To make the students learn about: i. Electric Charges, Conservation of Charges, Coulomb's law-force between two point charges, force between multiple charges; superposition principle and continuous charge distribution. ii. Electric field, Electric field due to a point charge, Electric field lines, Electric dipole, Electric field due to a dipole, torque on a dipole in uniform electric field. iii. Electric flux, statement of Gauss's theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside).	Students would learn about electric charges, electric field, dipole and torque experienced by a dipole. They would learn about electric flux, Gauss's theorem and its applications.	Students will know in detail about electric charge and electric field.
Ch. 2 : Electrostatic Potential and Capacitance : To make the students learn about: i. Electric potential, potential difference, electric potential due to a point charge a dipole and system of charges, equipotential surfaces , electrical	They would learn about electric potential, potential energy, capacitors and their combinations. They would also come to know about energy stored in a capacitor.	Students will study about electric potential and capacitance and use of capacitance in daily life.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
potential energy of a system of two point charges and of electric dipole in an electrostatic field. ii. Conductors and insulators , free charges and bound charges inside a conductor , Dielectrics and electric polarization, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor.		
Ch. 3. Current Electricity : To make the students learn about: i. Electric current , flow of electric charges in a metallic conductor , drift velocity , mobility and their relation with electric current : Ohm's law, electrical resistance, V-I characteristics (linear and non linear), electrical energy and power, electrical resistivity and conductivity . Carbon resistors, colour code for carbon resistors: series and parallel combination of resistors, temperature dependence of resistance. ii. Internal resistance of a cell, potential difference and	They would learn about drift velocity and its relation with resistance and resistivity. They would learn about combinations of resistances. They would learn how to use a meter bridge and a potentiometer. They would learn the use of Kirchhoff's laws to solve an electrical circuit.	To determine resistance per cm of a given wire by a graph for potential difference versus current. To find resistance of a given wire using meter bridge and hence determine the resistivity of its material. To verify the laws of combination of series and parallel of resistances using a meter bridge. Use of potentiometer.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
emf of a cell, combination of cells in series and in parallel, Kirchhoff's laws and simple applications : Wheatstone bridge, metre bridge iii. Potentiometer: principal and its applications to measure potential difference and for comparing emf of two cells, measurement of internal resistance of a cell.		
Ch. 4 : Moving Charges and Magnetism : To make the students learn about: i. Concept of magnetic field, Oersted's experiment. ii. Biot-Savart law and its application to current carrying circular loop. iii. Ampere's law and its applications to infinitely long straight wire. Straight and toroidal solenoids (only qualitative treatment), Force on a moving a charge in uniform magnetic and electric fields: Cyclotron. iv. Force on a current-carrying conductor in a uniform magnetic field, force between two parallel current-carrying conductors- definition of ampere, torque experienced by a current loop in uniform magnetic field: moving coil galvanometer- its current	They would learn about magnetic effects of current and its applications in daily life and technology. They would understand the working of a moving coil galvanometer and its conversion into a voltmeter and an ammeter.	To determine resistance of a galvanometer by half deflection method and to find its figure of merit and to convert it into voltmeter and ammeter.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
sensitivity and conversion to ammeter and voltmeter.		
Ch. 5 Magnetism and Matter : Students will learn about: - Current loop as a magnetic dipole and its magnetic dipole moment, magnetic dipole moment of a revolving electron: magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis: torque on a magnetic dipole in a uniform magnetic field, bar magnet as an equivalent solenoid, magnetic field lines, earth's magnetic field and magnetic elements. - Para-dia-and ferro – magnetic substances, with examples. Electromagnets and factors affecting their strengths, permanent magnets	They would learn about Earth's magnetism, magnetic field lines. They would learn about types of magnetic substances and their characteristics.	Students will study in detail about earth's magnetism.
HALF YEARLY EXAM		
Ch. 6 Electromagnetic Induction : To make the students learn about: Electromagnetic induction, Faraday's laws, induced emf and current, Lenz's Law, Eddy currents. Self	They would learn about concept of electromagnetic induction, i. e. how to generate electricity.	To understand the concept of generation of electricity.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
and mutual induction.		
Ch. 7 Alternating Current : To make the students learn about: i. Alternating currents, peak and RMS value of alternating current/voltage, reactance and impedance. LC oscillations (qualitative treatment only), LCR series circuit, resonance, power in AC circuits, power factor, wattles current. ii. AC generator and transformer.	They would learn about alternating currents.	Students will study about alternating current, its uses and other details.
Ch. 9 Ray Optics and Optical Instruments : To make the students learn about: i. Ray Optics: Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and its applications, optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lensmaker's formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism. Scattering of light: blue colour of sky and reddish appearance of the sun at sunrise and sunset.	They would learn about reflection, refraction and other phenomenon of light. They would learn about working of various optical instruments.	To determine focal length of a concave mirror and convex lens. To determine angle of minimum deviation of the material of a prism. To determine refractive index of a liquid by using convex lens and plane mirror.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Optical instruments: Microscopes and astronomical telescopes (reflecting and refractive) and their magnifying powers.		
Ch. 10 Wave Optics : To make the students learn about: i. Wave front and Huygens's principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygens's Principle. Interference, Young's double slit experiment and expression for fringe width, coherent sources and sustained interference of light; diffraction due to a single slit, width of central maximum , resolving power of microscope and astronomical telescope, polarisation, plane polarized light, Brewster's law, uses of plane polarized light, and Polaroid. + Syllabus of PT I	They would learn about Huygens's concept of secondary wavelets. They would be able to understand the difference of interference and diffraction. They would be able to understand polarization and Brewster's law.	Students will come to know about wave nature of light. They will study the phenomena based on wave nature.
PRE – BOARD I		
Ch. 8 Electromagnetic Waves : Students will learn about:	They would learn about types of waves and their characteristics.	

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
i. Basic idea of displacement current, Electromagnetic waves, their characteristics, their transverse nature (qualitative ideas only). ii. Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.		
Ch. 11 Dual Nature of Radiation and Matter : To make the students learn about: i. Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations, Einstein's photoelectric equation – particle nature of light. ii. Matter waves-wave nature of particles, de Broglie relation, Davisson-Germer experiment.	They would learn dual nature of radiation, i. e. wave nature and particle nature.	Students will study about both types of nature of radiation.
Ch. 12 Atoms : To make the students learn about: i. Alpha particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum.	They would learn structure of atoms and details about nucleus.	
Ch. 13 Nuclei : To make the students learn about:	They would learn about binding energy of a nucleus and its use in	

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
i. Composition and size of nucleus, Radioactivity, alpha, beta and gamma particles/rays and their properties radioactive decay law. ii. Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number ; nuclear fission, nuclear fission	constructive purposes.	
Ch. 14 Semiconductors and Electronic : Materials, Devices and simple circuits : To make the students learn about: Energy bands of conductors, semiconductors and insulators (qualitative ideas only) Semiconductor diode: V-I characteristics in forward and reverse bias; diode as a rectifier. Special purpose p-n junction diodes: LED, photodiode, solar cell and Zener diode and their characteristics; Zener diode as a voltage regulator.	They would learn about electronics and its use in modern industry. They would learn different devices working on semiconductor theory.	To draw the I-V characteristic curves of a p-n junction diode in forward and reverse bias and also for a Zener diode in reverse bias conditions.
PRE-BOARD II (COMPLETE SYLLABUS)		

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Unit 2 : Solutions : Students will be able to 1. Describe the formation of different types of solutions. 2. Express concentration of solutions in different unit. 3. State and explain Henry's law and Raoult's law. 4. Distinguish between ideal and non-ideal solutions. 5. Will understand reason for deviation of real solutions from Raoult's law. 6. Describe colligative properties of solutions and correlate these with molar masses of the solutes. 7. Explain abnormal colligative properties exhibited by some solutes in Solutions.	Students would understand 1. The practical application of Henry's law in soft drinks, aquatic life in water 2. The process of reverse osmosis 3. Difference between positive and negative deviation with reasons	1. Graphical presentation of deviation from Raoult's law. 2. Determination of concentration/ molarity of KMnO_4 solution by titrating it against standard solution of: a) Oxalic acid b) Ferrous Ammonium Sulphate (Students will be required to prepare standard solutions by weighing themselves).
Unit-10: Haloalkanes and Haloarenes: Students will be able to 1. Name haloalkanes and haloarenes according	Students would understand 1. The IUPAC names of alkyl halides and aryl halides	

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
to the IUPAC system of nomenclature from their given structures. - Describe the reactions involved in the preparation of haloalkanes and haloarenes and understand various reactions that they undergo. - Correlate the structures of haloalkanes and haloarenes with various types of reactions. - Use stereochemistry as a tool for understanding the reaction mechanism. - Appreciate the applications of organo-metallic compounds. - Highlight the environmental effect of polyhalogen compounds.	- The methods of preparation of alkyl halides and aryl halides - The physical & chemical properties - Reactions and their mechanism - The various conversion reactions	
Unit-9: Coordination Chemistry: Students will be able to - Appreciate the postulates of Werner's theory of coordination compounds. - Know the meaning of the terms: coordination entity, central atom/ ion,	Students would understand - Definitions of important terms of co-ordination chemistry - Nomenclature & isomerism - Bonding and stability - Application in day to day life	Lab activities: - Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum. - Preparation of Potassium Ferric Oxalate.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
ligand, coordination number, coordination sphere, coordination polyhedron, oxidation number, homoleptic and heteroleptic. 3. Learn the rules of nomenclature of coordination compounds; Write the formulas and names of mononuclear coordination compounds. 4. Define different types of isomerism in coordination compounds. 5. Understand the nature of bonding in coordination compounds in terms of the Valence Bond and Crystal Field theories. 6. Learn the stability of coordination compounds. 7. Appreciate the importance and applications of coordination compounds in our day to day life.		3. Preparation of Organic Compounds: Acetanilide
Unit- 3 : Electro chemistry : Students will be able to 1. Describe an electrochemical cell and	Students would understand 1. Difference in electrolytic and galvanic cell	Graphical presentation of effect of concentration on molar conductivity and conductivity.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
differentiate between galvanic and electrolytic cells. 2. Apply Nernst equation for calculating the emf of galvanic cell and define standard potential of the cell. 3. Derive relation between standard potential of the cell, Gibb's energy of cell reaction and its equilibrium constant. 4. Define resistivity (ρ), conductivity (κ) and molar(λ_m)conductivity of ionic solutions. 5. Differentiate between ionic (electrolytic) and electronic conductivity; 6. Describe the method for measurement of conductivity of electrolytic solutions and calculation of their molar conductivity. 7. Justify the variation of conductivity and molar conductivity of solutions with change in their concentration and define $^\circ \lambda_m$ (molar conductivity at zero concentration or infinite dilution).	2. Application of Nernst equation 3. Conductivity, resistivity and molar conductivity of ionic solution 4. Kohlrausch law & its applications 5. Construction of primary & secondary batteries and fuel cells 6. Electrochemical process of corrosion	

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
8. Enunciate Kohlrausch law and learn its applications. 9. Understand quantitative aspects of electrolysis. 10. Describe the construction of some primary and secondary batteries and fuel cells. 11. Explain corrosion as an electrochemical process.		
Unit- 15 :Polymers: Students will be able to 1. Explain the terms - monomer, polymer and polymerisation and appreciate their importance. 2. Distinguish between various classes of polymers and different types of polymerisation processes. 3. Appreciate the formation of polymers from mono- and bifunctional monomer molecules. 4. Describe the preparation of some important	Students would understand 1. Monomers, polymers, polymerisation & Classification of polymers 2. Preparation of some important polymers and their importance in daily life	Tabular presentation of different polymers with their monomer units and uses

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
synthetic polymers and their properties. 5. Appreciate the importance of polymers in daily life.		
Unit-16: Chemistry in everyday life : Students will be able to 1. Visualise the importance of Chemistry in daily life. 2. Explain the term 'chemotherapy'. 3. Describe the basis of classification of drugs. 4. Explain drug-target interaction of enzymes and receptors. 5. Explain how various types of drugs function in the body. 6. Know about artificial sweetening agents and food preservatives. 7. Discuss the chemistry of cleansing agents.	Students would understand 1. Classification of drugs & its reaction mechanism. 2. Understand about artificial sweetener, food preservatives & cleansing agents	
HALF YEARLY EXAM		
Unit- 11: Alcohols, Phenols and Ethers : Students will be able to 1. Name alcohols, phenols and ethers	Students would understand 1. Naming of alcohols, phenols & ethers according to IUPAC system	Students to perform the following activities in lab : 1. Functional group detection

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
according to the IUPAC system of nomenclature. - Discuss the reactions involved in the preparation of alcohols from (i) alkenes (ii) aldehydes, ketones and carboxylic acids. - Discuss the reactions involved in the preparation of phenols from (i) haloarenes (ii) benzene sulphonic acids (iii) diazonium salts and (iv) cumene. - Discuss the reactions for preparation of ethers from (i) alcohols and (ii) alkyl halides and sodium alkoxides/aryloxides. - Correlate physical properties of alcohols, phenols and ethers with their structures. - Discuss chemical reactions of the three classes of compounds on the basis of their functional groups.	- Discuss the preparation reactions of alcohols, phenols & ethers - Correlate physical properties of alcohols, phenols & ethers - Discuss the chemical properties of the three classes of compounds	test for alcohol & phenol.
Unit- 5: Surface chemistry : Students will be able to Describe interfacial phenomenon and its	Students would understand - Adsorption and its mechanism - Freundlich adsorption isotherm	Lab activities; Preparation of one lyophilic and one lyophobic sol:

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
significance. - Define adsorption and classify it into physical and chemical adsorption; - Explain mechanism of adsorption. - Explain the factors controlling adsorption from gases and solutions on solids. - Explain adsorption results on the basis of freundlich adsorption isotherms. - Appreciate the role of catalysts in industry. - Enumerate the nature of colloidal state. - Describe preparation, properties and purification of colloids. - Classify emulsions and describe their preparation and properties. - Describe the phenomenon of gel formation. - List the uses of colloids.	- Role of catalysis in industry - Preparation , properties and purification of colloids	Lyophilic sol : Starch, egg albumin and gum Lyophobic sol : Aluminium hydroxide, ferric hydroxide.
Unit- 7 : p block elements : Students will be able to Appreciate general trends in the chemistry of elements of groups 16,17 and 18.	Students would understand - Characteristics and general trends in 16,17 and 18 groups - Explanation of different shapes of	Lab activities : Determination of one cation and one anion in a given salt. Cation - Pb^{2+}, Cu^{2+}, Al^{3+},

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
2. Learn the preparation, properties and uses of dinitrogen and phosphorus and some of their important compounds. 3. Describe the preparation, properties and uses of dioxygen and ozone and chemistry of some simple oxides. 4. Know allotropic forms of sulphur, chemistry of its important compounds and the structures of its oxoacids. 5. Describe the preparation, properties and uses of chlorine and hydrochloric acid. 6. Know the chemistry of interhalogens and structures of oxoacids of halogens. 7. Enumerate the uses of noble gases. 8. Appreciate the importance of these elements and their compounds in our day to day life. + PT I Syllabus	different xenon compounds 3. Group 16 elements and its compounds, Oxidizing properties of ozone 4. Group 17 elements and its compounds, Uses of chlorine and its reducing behavior 5. Group 18 elements, Hydrolysis of xenon fluorides	Fe^{3+}, Mn^{2+}, Zn^{2+}, Cu^{2+}, Co^{2+}, Ni^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+}, Mg^{2+}, $[\text{NH}_4]^+$ Anions – CO_3^{2-}, $[\text{SO}_3]_2^-$, $[\text{SO}_4]_2^-$, NO_2^-, Cl^-, Br^-, I^-, PO_4^{3-}, $\text{C}_2\text{O}_4^{2-}$, CH_3COO^-

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
PRE BOARD -I		
Unit- 13 : Amines : Students will be able to 1. Describe amines as derivatives of ammonia having a pyramidal structure, classify amines as primary, secondary and tertiary. 2. Name amines by common names and IUPAC system. 3. Describe some of the important methods of preparation of amines. 4. Explain the properties of amines. 5. Distinguish between primary, secondary and tertiary amines. 6. Describe the method of preparation of diazonium salts and their importance in the synthesis of a series of aromatic compounds.	Students would understand 1. Amines & its structure 2. Classification of amines 3. IUPAC names of amines 4. Preparation and properties of amines 5. Distinguish test between primary, sec & tert. Amines 6. Importance of aromatic compounds including azo dyes	Lab activity: Detection of amines as a functional group in a given compound.
Unit-8 : d and f block elements : Students will be able to 1. Learn the positions of the d- and f-block elements in the periodic table.	Students would understand 1. Position and electronic configuration of d & f block elements	

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
2. Know the electronic configurations of the transition (d-block) and the inner transition (f-block) elements. 3. Appreciate the relative stability of various oxidation states in terms of electrode potential values; 4. Describe the preparation, properties, structures and uses of some important compounds such as $K_2Cr_2O_7$ and $KMnO_4$. 5. Understand the general characteristics of the d- and f-block elements and the general horizontal and group trends in them. 6. Describe the properties of the f-block elements and give a comparative account of the lanthanoids and actinoids with respect to their electronic configurations, oxidation states and chemical behaviour.	2. Characteristics of d & f block elements 3. Preparation, properties, structure and uses of pot. dichromate and permanganate compounds	
Unit- 6 : General Principles and processes of isolation of elements Students will be able to	Students would understand 1. The term minerals, ores, calcinations, roasting refining etc.	Lab activity 1. Separation of pigments from extracts of leaves and flowers by

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
1. Explain the terms minerals, ores, concentration, benefaction, calcination, roasting, refining, etc. 2. Understand the principles of oxidation and reduction as applied to the extraction procedures. 3. Apply the thermodynamic concepts like that of Gibbs energy and entropy to the principles of extraction of Al, Cu, Zn and Fe. 4. Explain why reduction of certain oxides like Cu_2O is much easier than that of Fe_2O_3. 5. Explain why CO is a favourable reducing agent at certain temperatures while coke is better in some other cases. 6. Explain why specific reducing agents are used for the reduction purposes.	2. The principles of oxidation & reduction as applied for extraction 3. The thermodynamic concept behind extraction of metals 4. Role of reducing agents in the extraction of metals	paper chromatography and determination of R_f values. 2. Separation of constituents present in an inorganic mixture containing two cations only (constituents having large difference in R_f values to be provided).
Unit-12 : Aldehydes, ketones and carboxylic acids : Students will be able to 1. Write the common and IUPAC names of	Students would understand 1. IUPAC name of the aldehydes, ketones & carboxylic acids 2. Methods of preparation & chemical	Students to perform functional group detection test for aldehydes, ketones & carboxylic acids.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
aldehydes, ketones and carboxylic acids. - Write the structures of the compounds containing functional groups namely carbonyl and carboxyl groups. - Describe the important methods of preparation and reactions of these classes of compounds. - Correlate physical properties and chemical reactions of aldehydes, ketones and carboxylic acids, with their structures. - Explain the mechanism of a few selected reactions of aldehydes and ketones. - Understand various factors affecting the acidity of carboxylic acids and their reactions. - Describe the uses of aldehydes, ketones and carboxylic acids.	reactions of these three classes - Correlate physical properties - Mechanism of few selected reactions - Factors affecting the acidity of carboxylic acids	
Unit- 14 : Biomolecules : Students will be able to explain the characteristics of biomolecules like	Students would understand Classification and definition of carbohydrates, proteins & nucleic	Students to perform characteristic tests of carbohydrates, fats and proteins in

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
carbohydrates, proteins and nucleic acids and hormones. - Classify carbohydrates, proteins, nucleic acids and vitamins on the basis of their structures. - Explain the difference between DNA and RNA. - Describe the role of biomolecules in biosystem.	acids - Difference between DNA & RNA - Role of biomolecules in biosystem	pure samples and their detection in given food stuffs.
Unit-4 : Chemical kinetics : Students will be able to - Define the average and instantaneous rate of a reaction. - Express the rate of a reaction in terms of change in concentration of either of the reactants or products with time. - Distinguish between elementary and complex reactions. - Differentiate between the molecularity and order of a reaction.	Students would understand - Rate of chemical reactions - Factors influencing rate of the reactions - Pseudo first order reactions - Collision theory of chemical reactions	Lab activities: Effect of concentration and temperature on the rate of reaction between Sodium thiosulphate and Hydrochloric acid.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
5. Define rate constant. 6. Discuss the dependence of rate of reactions on concentration, temperature and catalyst. 7. Derive integrated rate equations for the zero and first order reactions. 8. Determine the rate constants for zeroth and first order reactions. 9. Describe collision theory.		
PRE-BOARD – II (COMPLETE SYLLABUS)		

OBJECTIVE	LEARNING OUTCOME	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Ch – 1. Reproduction in Organism To make the students able to: • To study Sexual and Asexual Reproduction • Their types (binary fission, budding, vegetative propagation. Different phases of life.	The students will be able to understand: • Study the Cell division, Binary fission • Vegetative propagation, • Pre -fertilisation events • Gamete transfer, and fertilisation • Post fertilisation event • Embryogenesis	• Permanent slide of reproduction in yeast and bread mould spore formation.
Ch-2. Sexual Reproduction in flowering Plants To study: • The different terms like microsporogenesis, megasporogenesis, doublefertilization, autogamy, geitonogamy ,xenogamy. • Apomixis, nucelus, • Synergies with examples. • Differentiate b/w self pollination and cross-pollination.	The students will be able to understand: • Microsporogenesis, megasporogenesis doublefertilization, autogamy, geitonogamy xenogamy. • Apomixis, nucleus, synergids etc. with examples. • Processes of self pollination and cross pollination. • They will be able to draw labelled	• Study pollen germination on a slide. • Pollen germination on stigma through a permanent slide. (To be done during the practical periods) • Controlled pollination – emasculation, tagging and bagging.

OBJECTIVE	LEARNING OUTCOME	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
- Diagrams of a) different parts of flower b) microsporangium c) pollen grain d) different stages in embryo development	diagrams of a) different parts of flower b) microsporangium c) pollen grain d) a typical anatropous ovule e) different stages in embryo development f) different types of seeds	
Ch-3. Human Reproduction To make students: - Explain the different terms like spermatogenesis, oogenesis, spermatids, ovulation etc. - Differentiate between spermatogenesis and oogenesis. - Answer reasoning facts on various concepts related to human reproduction. - Draw labelled diagrams of male & female reproductive system, sperm, ova etc. - Illustrate schematic representation of	The students will be able to understand: - Spermatogenesis, oogenesis, spermatids, ovulation etc. processes in detail. - Differentiate between spermatogenesis and oogenesis. - They will be able to answer the Qs based on reasoning facts on various concepts related to human reproduction. - To draw labelled diagrams of male	Observation of the permanent slides of T.S. of ovary , T.S. of Testis, T.S. of Blastula (to be done in the practical periods)

OBJECTIVE	LEARNING OUTCOME	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
spermatogenesis and oogenesis. • Explain the post fertilization events and the role of placenta during the development of embryo.	and female reproductive system, sperm, ova, etc. • Illustrate schematic representation of spermatogenesis and oogenesis. • Explain the post fertilization events. • The role of placenta during the development of embryo.	
Ch-4. Reproductive Health To make students: • Explain about Reproductive Health with respect to problems and strategies • Describe the various factors related to Population Explosion and also explain the different ways of Birth Control • Explain the process of Medical Termination of Pregnancy in brief • State the causes of Sexually Transmitted Diseases • Explain the factors causing Infertility	The students will be able to- • Explain about Reproductive Health with respect to problems and strategies • Describe the various factors related to Population Explosion and they can also explain the different ways of Birth Control. • The process of Medical Termination of Pregnancy in brief • They can state the causes of Sexually Transmitted Diseases • Able to explain the factors causing Infertility.	Common disease causing organisms like: • Ascaris, Entamoeba, Plasmodium, Roundworm through permanent slides or specimens. Comment on symptoms of diseases that they cause.

OBJECTIVE	LEARNING OUTCOME	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Ch. 13.Organisms and Populations To make the students understand: • Organisms and environment: Habitat and niche • Population and ecological adaptations • Population interactions-mutualism, competition, predation, parasitism; • Population attributes growth, birth rate and death rate, age distribution.	The students will be able to • Explain and discuss Organisms and environment: Habitat and niche • Describe population and ecological adaptations • Explain Population interactions • Discuss Population attributes growth, birth rate and death rate, age distribution.	• Study the plant population density by quadrat method. • Study the plant population frequency by quadrat method.
Ch 14. Ecosystem : To make the students understand: • Patterns, components; productivity and decomposition; energy flow • pyramids of number, biomass, energy; nutrient cycles (carbon and phosphorous); ecological succession • Ecological services - carbon fixation, pollination, seed dispersal and oxygen release (in brief).	The students will be able to explain: • Biotic and abiotic, components; productivity and decomposition; energy flow. • Explain nutrient cycles and ecological services.	• Observation of the permanent slides of T.S. of ovary , T.S. of Testis, T.S. of Blastula (to be done in the practical periods (Revision of experiments))

OBJECTIVE	LEARNING OUTCOME	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
HALF YEARLY EXAM		
Ch-5: Principles of Inheritance and Variation: To make the students understand: • Explain terms like allele, genes, incomplete dominance, co dominance, linkage etc. • Differentiate b/w the different types of genetic disorders. • Answer reasoning facts on concepts based on inheritance and variation. • Explain laws given by Mendel, chromosomal theory of inheritance analyse the pedigree chart and answer the questions based on it. • Find the genotypic and phenotypic ratio in the F1 and F2 generation	The students will be able to- • Explain terms like allele, genes, incomplete dominance, co dominance, linkage etc. • They can differentiate b/w the different types of genetic disorders. • They are able answer the reasoning facts on concepts based on inheritance and variation. • They are able to explain laws given by Mendel ,chromosomal theory of inheritance • They can analyse the pedigree chart and answer the questions based on it. They are able to find out the genotypic and phenotypic ratio in the F1 and F2 generation.	• Mendelian inheritance using seeds of different colour/sizes of any plant. • Prepared pedigree charts of any one of the genetic traits such as rolling of tongue, blood groups, earlobes, widow's peak and colour blindness.
Ch. 6 Molecular Basis Of Inheritance : To make the students:	The students will be able to explain terms:	

OBJECTIVE	LEARNING OUTCOME	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
• Explain terms like replication transcription translation etc. differentiate b/w a) DNA & RNA b) Transcription and translation c) m RNA & t RNA d) template strand & coding strand • Answer reasoning facts on concepts based on molecular basis of inheritance. • Explain various experiments conducted to find the molecular basis of inheritance. • Describe about Human Genome Project & DNA fingerprinting	• Replication, transcription, translation etc. • They can differentiate b/w a) DNA & RNA b) Transcription and translation c) m RNA & t RNA d) template strand & coding strand • They are able to answer reasoning facts on concepts based on molecular basis of Inheritance. • They are able to explain various experiments conducted to find the molecular basis of inheritance. • They Understood about Human Genome Project & DNA fingerprinting.	
Ch.7. Evolution : To study: • Origin of life; biological evolution and	The students will be able to explain: • Importance of evolution and the evidences of biological evolution	Revision of experiments. • Study pollen germination on a slide. • Pollen germination on stigma

OBJECTIVE	LEARNING OUTCOME	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
evidences for biological evolution (palaeontology, comparative anatomy, embryology and molecular evidences); • Darwin's contribution, modern synthetic theory of evolution; mechanism of evolution - variation (mutation and recombination) • Natural selection with examples, types of natural selection; Gene flow and genetic drift; • Hardy - Weinberg's principle; adaptive radiation; human evolution	• Darwin's contribution • Understand modern Synthetic theory of Evolution • Describe the mechanism of Evolution State the Hardy - Weinberg's principle.	through a permanent slide. (To be done during the practical periods) • Controlled pollination – emasculation, tagging and bagging.
Ch15. Biodiversity and its Conservation : To make the students understand: • Biodiversity-Concept, patterns, importance; loss of biodiversity; • Biodiversity conservation; hotspots, endangered organisms, extinction, • Red Data Book, biosphere reserves, national parks.	The students will be able to: • Discuss and explain the concept of biodiversity and conservation. • They understood the importance of Biodiversity.	• Collect and study soil from at least two different sites and study them for texture, • moisture content,

OBJECTIVE	LEARNING OUTCOME	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Ch. 16 Environmental Issues : To make the students understand: • Air pollution and its control; water pollution and its control; • Agrochemicals and their effects; • Solid waste management; radioactive waste management; • Greenhouse effect and climate change impact and mitigation; • Ozone layer depletion; • Deforestation; any one case study as success story addressing environmental issue(s)	The students will be able to: • Discuss air pollution, • Solid waste management, • Ozone layer depletion • They understood the importance of ozone layer and harmful effects of pollutions.	Revision of experiments.
PRE BOARD - I		
Ch-8.Human Health and Diseases : To study: • Pathogens; parasites causing human diseases (malaria, dengue, chickengunia, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control;	The students will be able to: • Classify pathogens and study the parasites causing human diseases. • Understand the basic concept of immunology.	

OBJECTIVE	LEARNING OUTCOME	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
• Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse.		
Ch-9. Strategies for Enhancement in Food Production. To make the students understand: • Animal Husbandry. • Plant Breeding. • Single Cell Protein. • Tissue Culture.	The students will be able to explain: • Strategies for Enhancement in Food Production • Improvement in food production • Plant breeding, tissue culture, single cell protein, • Bio fortification • Apiculture and Animal husbandry.	Different soil sample to study: • pH and water holding capacity. • Correlate with the kinds of plants found in them.
Ch.10 Microbes in Human Welfare : To study: • Microbes in Household Products. • Microbes in Industrial Products. • Microbes in Sewage Treatment. • Microbes in Product of Biogas. • Microbes as Bio control Agent. • Microbes as Bio fertilisers.	The students will be able to explain: • How microbes play an vital role in household food processing, industrial production, sewage treatment, • Energy generation and microbes as bio-control agents and bio-fertilizers. • Antibiotics; production and judicious use.	• Collect water from two different water bodies around you • Study them for pH, clarity. • Study the presence of living organisms.

OBJECTIVE	LEARNING OUTCOME	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Ch. 11 Biotechnology and Its Principals : To make the students understand: • Principal of Biotechnology. • Tools of Recombinant DNA Technology. • Processes of Recombinant DNA.	The students will be able to explain: • Biotechnology - Principles and processes • Genetic Engineering (Recombinant DNA Technology • Describe the methodology of Recombinant DNA technology • Define and explain genetic engineering	• Isolate DNA from available plant material such as spinach, green pea seeds, papaya, etc.
Ch-12. Biotechnology and Its Application : To make the students understand: • Application of Biotechnology in health and agriculture • Genetically modified organisms-BT crops • Transgenic Animals; • Bio safety issues, bio piracy and patents.	The students will be able to explain: • Application of biotechnology in health and agriculture. • Human insulin and vaccine production, Stem cell technology, gene therapy; • Genetically modified organisms - BT crops; transgenic animals; bio safety issues, bio piracy & patents.	Revision of experiments.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/INTEGRATED ART EDUCATION
MACROECONOMICS-Unit: 6 Chapter 5 & 6 : Money and Banking. Meaning of supply, Factors affecting supply Students will be able to understand the Meaning of Barter system. Difficulties of it and introduction of money. Meaning of primary function with examples and meaning of secondary function with the example and their main functions of banks.	Students will to able to understand the value of money and its features, limitations etc. and also how money supply is controlled by RBI	Students understand about the difficulties in barter system, why money was introduced and their functions.
MACROECONOMICS Unit: 8 Chapter 10 The Government Budget and the Economy. Enable student to understand Meaning of budget, Types of budget and Measures of Government Deficit.	They will understand the meaning of budget, and types of budget and different types of Deficit.	Discussion of different phases and create relevance that which one is suitable at the time of inflation and in deflation.
MACROECONOMICS Unit: 9 Chapter 11 & 12 Balance of payment foreign exchange rates,	They will understand how BOP and BOT calculated and what is the impact of these in our economy.	Different practical problems related with the calculation and analysis of foreign

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/INTEGRATED ART EDUCATION
determination of income in open economy Enable students to understand the different types of trade a country does. Surplus and deficit of trade and payment, foreign exchange rate and different methods to calculate exchange rate between the countries		exchange rate of a period.
HALF YEARLY EXAM		
MACROECONOMICS Unit: 7 Chapter 7,8 & 9 : Income Determination Meaning of Aggregates of determinants Aggregate supply Enable students to understand Meaning of aggregate demand, equilibrium, meaning of propensity to consume and paradox of thrift. Meaning of Ex ante consumption, Autonomous change, meaning of effective demand	Students are able to understand Meaning of aggregate demand and supply, autonomous changes and the meaning of effective demand.	Rational study about the change in demand and supply in the market through practical approach.
MACROECONOMICS Unit: 5 Chapter 1,2,3 & 4 :	Students are able to understand Meaning of National income, different methods of	Inculcate the practical approach in students by

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/INTEGRATED ART EDUCATION
National Income and Related aggregates Enable students to know the Meaning of National income and different types of measuring national income and difficulties in measuring national income and what are the precautions has to be taken, and meaning of Gross domestic product and its calculation and meaning of Net national product and its calculation.	measuring national income and what precautions has to be taken while calculating and calculation of national income	discussing various type of policies and procedure government adopt for increasing national income and critical analysis of national income of over a decade.
INDIAN ECONOMIC DEVELOPMENT Ch. 1 Indian Economy on the eve of Independence Enable students to understand the position of Indian economy at the time of colonial rule and on the eve of independence	Students are able to understand the position of Indian economy on the eve of independence.	Critical analysis Current position of Indian Economy and changes we had done over a period of time.
PRE- BOARD I		
INDIAN ECONOMIC DEVELOPMENT Ch. 2 : Indian Economy (1950-1990) Enable students to understand about different types of economy, policies adopted by the Indian government.	Students are able to understand about Capitalism, Socialism and Mixed Economy and five year plans.	Discussion about what are the impact of different economy in India.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/INTEGRATED ART EDUCATION
INDIAN ECONOMIC DEVELOPMENT Ch. 3 : Liberalisation, Privatisation and Globalisation Enable students to understand about the different policies of Liberalisation, Privatisation and Globalisation and the need of these policies.	Students are able to understand about the different policies and their need for Indian Economy.	Analysis of Indian economy of Before 1990 and after 1991.
INDIAN ECONOMIC DEVELOPMENT Ch. 4 : Poverty Enable students to understand about the Poverty, Absolute poverty, Relative poverty, poverty line, causes and their impacts.	Students will be able to understand about poverty and different terms related to it.	Critical analysis of the causes of poverty and how can it can be corrected.
INDIAN ECONOMIC DEVELOPMENT Ch. 6 : Rural Development Enables students to understand the need of rural development, Challenges, Credit facility, Sustainable development and Organic Farming	Students will be able to understand about the rural development and their need in Indian Economy.	Analysis of different areas of India and their position in recent years, remedies available for restoration of Rural areas of economy.
PRE-BOARD II		
INDIAN ECONOMIC DEVELOPMENT Ch 5. : Human Capital Formation Enable students to understand about capital	Students will be able to understand about the importance of human capital formation. And how education plays a	Critical analysis about brain drain in India and why it has to be stopped.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/INTEGRATED ART EDUCATION
formation, role, importance, measuring their contribution, education system in India and need for government intervention.	vital role in the capital formation.	
INDIAN ECONOMIC DEVELOPMENT Ch. 7 : Employment and Unemployment in India Enable students to understand about employment and unemployment in India, types of Unemployment and their causes.	Students will be able to understand how unemployment can be measured and what are the causes of unemployment in India.	Critical analysis how we can reduce unemployment in India.
INDIAN ECONOMIC DEVELOPMENT Ch. 8 : Infrastructure Enable students to know about India's recent position related with the Infrastructure, health, energy and importance of infrastructure in the development of an economy.	Students will be able to understand the need of infrastructure for the growth of an economy.	Analysis of the current position of infrastructure.
INDIAN ECONOMIC DEVELOPMENT Ch. 9 : Environment and sustainable development Enable students to understand about the need of environment, meaning of degradation, Crisis, current position, policy in India and sustainable	Students will be able to understand the importance of environment and need to save environment.	Analysis of Strategies of Government to save environment.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/INTEGRATED ART EDUCATION
development.		
INDIAN ECONOMIC DEVELOPMENT Ch. 10 : Comparative development of China, India and Pakistan Enable students to know about the level of these three countries development over a period of time on the basis of their Income, Human resource, Infrastructure, communication, profile of the country, employment status and External trade.	Students will be able to compare between the economy of India, China and Pakistan	Critical analysis of the position of economy and how India can compete with the economy of China.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Ch. 1 : Nature and Significance of Management To make students understand: Management – concept meaning and features, objectives and importance Management as a science, art and profession Levels of management Management functions planning , organizing , staffing, directing and controlling Coordination concept & importance	Students would be able to understand the concept of Management, they will be able to explain the meaning of effectiveness and efficiency. Learner would be able to discuss the objectives and importance of management, examine the nature of management as a science, art and profession. Understand the role of top, middle and lower levels of management, explain the functions of management .Discuss the concept, characteristics and importance of coordination.	Discussion method, using role play for explaining the role of different levels of management, management games to understand the importance of coordination, case studies to explain meaning of effectiveness and efficiency
Ch. 2 : Principles of management To make students understand: Concept and significance of principles of management, Fayol’s principles of management , Taylor’s scientific management, principles and techniques.	Learner would be able to understand the concept of principles of management and explain the significance of management principles . Students would be able to discuss the principles of management developed by Fayol and understand the principles and techniques of scientific management. Learner would be in a position to compare the contribution of Fayol and Taylor.	Principles of management are presented in a simple easy manner appropriately supported by examples. Diagrams have been used to strengthen the explanations. Cases are used to develop analytical and interpretational skills.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Ch. 3 : Business environment To make students understand: Business environment concept and importance. Dimensions of business environment- economic, social, technological, political and legal. Impact of government policy changes on business with special reference to liberalization , privatization and globalization in India	After careful reading of this chapter students would be able to understand and explain the meaning of business environment, appreciate the importance of business environment. Describe the various dimensions of business environment and examine the economic environment in India. Evaluate the impact of government policies on business and industries	Cases and current issue has been referred from various newspapers to examine the impact of government policy on business and industries.
Ch. 4 : Planning To make students understand: Concept, importance and limitation Planning process Single use and standing plans. Objectives, Strategy, Policy, Procedure, method Rule, budget and Programme.	Understand the concept of Planning .Describe the importance of planning. Understand the limitations of Planning. Describe the steps in the process of planning Develop an understanding of single use and standing plans Describe objectives, policies strategy, procedure, method, rule, budget and programme as types of plans.	Discussion method to understand and appreciate the concept and importance of planning. Guest lectures by industries experts for enhancing experiential learning
HALF YEARLY EXAM + PT-I		
Ch. 5 : Organising	Understand the concept of organizing as a structure	Case studies to understand

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
To make students understand: Concept and importance, Organising Process, Structure of organisation- functional and divisional concept. Formal and informal organisation- concept Delegation: concept, elements and importance. Decentralization: concept and importance	and as a process. Explain the importance of organising. Describe the steps in the process of organizing Describe functional and divisional structures of organisation. Explain the advantages, disadvantages and suitability of functional and divisional structure. Understand the concept of formal and informal organisation. Discuss the advantages, disadvantages of formal and informal organisation	concept, process of organizing. Visit to an organization to understand organization structure
Ch. 6 : Staffing To make students understand: Concept and importance of staffing ,Staffing as a part of Human Resource Management concept Staffing process Recruitment process Selection – process Training and Development - Concept and importance, Methods of training - on the job and off the job - vestibule training, apprenticeship	Understand the concept of staffing. Explain the importance of staffing Understand the specialized duties and activities performed by Human Resource Management Describe the steps in the process of staffing Understand the meaning of recruitment. Discuss the sources of recruitment Explain the merits and demerits of internal and external sources of recruitment .Understand the meaning of selection. Describe the steps involved in the process of selection. Understand the concept of training and development.	Understanding the concept and process of staffing through lecture & videos from e-library. Appreciate the need of training and development. Students are able to understand various ‘on the job’ and ‘off the job’ training methods.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
training and internship training.	Appreciate the importance of training to the organisation and to the employees. Discuss the meaning of induction training, vestibule training, apprenticeship training and internship training. Differentiate between training and development. Discuss on the job and off the job methods of training.	
Ch. 7 : Directing To make students understand: Concept and importance of Directing, Elements of Directing, Motivation - concept, Maslow's hierarchy of needs, Financial and non-financial incentives, Leadership - concept, styles - authoritative, democratic and laissez faire. Communication - concept, formal and informal communication; barriers to effective communication, how to overcome the barriers	Describe the concept of directing. Discuss the importance of directing. Describe the various elements of directing. Understand the concept of motivation. Develop an understanding of Maslow's Hierarchy of needs. Discuss the various financial and non-financial incentives. Understand the concept of leadership. Understand the various styles of leadership. Understand the concept of Communication Understand the elements of the communication process.	To understand and explain the concept of directing and identify the importance of directing in business organizations by using suitable business examples and real life problems. Simulation exercises would be used to understand concept of motivation, supervision, and Maslow's theory of hierarchy of needs. Role play would be used to understand the concept of leadership and communication.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
	Discuss the concept of formal and informal communication. Discuss the various barriers to effective communication. Suggest measures to overcome barriers to communication	
Ch. 8 : Controlling To make students understand: Controlling - Concept and importance Relationship between planning and Controlling, Steps in process of control.	Understand the concept of controlling. Explain the importance of controlling Describe the relationship between planning and controlling Discuss the steps in the process of controlling	Students are able to analyse the relationship between planning and controlling and describe the steps in the process of controlling
Ch. 9 : Financial Management To make students understand: Concept, role and objectives of Financial Management. Financial decisions: investment, financing and dividend- Meaning and factors affecting. Financial Planning - concept and importance.	Understand the concept of financial management. Explain the role of financial management in an organisation. Discuss the objectives of financial Management Discuss the three financial decisions and the factors affecting them. Describe the concept of financial planning and its objectives. Explain the importance of financial planning.	To study concept of Financial Management and its objectives Income statement of organization is explained through lecture method. Students would be able to understand various financial decisions. Learners will also be in position to differentiate between

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Capital Structure – concept and factors affecting capital structure Fixed and Working Capital - Concept and factors affecting their requirements	Understand the concept of capital structure. Describe the factors determining the choice of an appropriate capital structure of a company. Understand the concept of fixed and working capital. Describe the factors determining the requirements of fixed and working capital	fixed capital and working capital and capital structure which gives maximum return on Investment.
PRE- BOARD I		
Ch. 10 : Financial Market To make students understand: Financial Markets: Concept, Functions and Types. Money market and its instruments Capital market and its types (primary and secondary), methods of floatation in the Primary Market. Stock Exchange - Functions and trading Procedure. Securities and Exchange Board of India (SEBI) - Objectives and functions.	Understand the concept of financial market. Explain the functions of financial market. Understand capital market and money market as types of financial Market. Understand the concept of money market. Describe the various money market instruments. Discuss the concept of capital market. Explain primary and secondary markets as types of capital market. Differentiate between capital market and money market. Discuss the methods of floating new issues in the primary market. Distinguish between primary and secondary markets.	To study one of the important components of Financial System, student would refer Business Newspapers and Business News channel. Lecture would be given to learners for explaining Financial Markets, Its concept, functions and types. Students would be able to understand role of SEBI as a regulator and practical experience of working of stock exchange will enable them to understand

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
	Give the meaning of a stock exchange. Explain the functions of a stock exchange. Discuss the trading procedure in a stock exchange. Give the meaning of depository services and demat account as used in the trading procedure of securities. State the objectives of SEBI. Explain the functions of SEBI.	trading procedure.
Ch. 11 : Marketing Management To make students understand: Marketing – Concept, functions and philosophies. Marketing Mix – Concept and elements. Product - branding, labeling and packaging – Concept Price - Concept, Factors determining price. Physical Distribution – concept, components and channels of distribution.	Understand the concept of Marketing Explain the features of marketing. Discuss the functions of marketing. Explain the marketing philosophies Understand the concept of marketing mix. Describe the elements of marketing mix. Understand the concept of product as an element of marketing mix. Understand the concept of branding, labeling and packaging. Understand the concept of price as an element of marketing mix. Describe the factors determining	Learners would be able to understand concept of Marketing, what can be marketed, they will be able to differentiate between selling and marketing through application based examples and case studies. They will develop understanding of marketing management and concept of marketing mix. With the help of demonstration of various products branding, labeling and

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Promotion – Concept and elements; Advertising, Personal Selling, Sales Promotion and Public Relations	price of a product. Understand the concept of price as an element of marketing mix. Describe the factors determining price of a product. Understand the concept of physical distribution. Explain the components of physical distribution. Describe the various channels of distribution. Understand the concept of promotion as an element of marketing mix. Describe the elements of promotion mix. Understand the concept of advertising. Understand the concept of sales promotion. Discuss the concept of public relations.	packaging can be understood. Learning will develop through lecture method about Marketing Mix and distribution of product. Students would also develop understanding about concept of public relations.
Ch. 12 : Consumer protection To make students understand: Concept and importance of consumer protection Consumer Protection Act 1986: Meaning of consumer Rights and responsibilities of consumers Who can file a complaint? Redressal	Understand the concept of consumer protection. Describe the importance of consumer protection. Discuss the scope of Consumer Protection Act, 1986 Understand the concept of a consumer according to the Consumer protection Act 1986. Explain the consumer rights. Understand the responsibilities of Consumers	Students should be able to describe consumer rights and consumer's responsibilities. They are also in a position to identify the ways and means of consumer protection.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
machinery Remedies available, Consumer awareness - Role of consume organizations and Non- Governmental Organizations (NGOs) + Project Work	.Understand who can file a complaint and against whom? Discuss the legal Redressal machinery under Consumer protection Act 1986. Examine the remedies available to the consumer under Consumer protection Act 1986. Describe the role of consumer organizations and NGOs in protecting consumers' interests.	
PRE- BOARD II (FULL SYLLABUS)		

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Volume I: Ch. 2 : Accounting for Partnership Firms: Fundamentals of Partnership To make students understand: Partnership: features, Partnership Deed. Provisions of the Indian Partnership Act 1932. Rules in the absence of partnership deed. Fixed v/s fluctuating capital accounts. Preparation of Profit and Loss Appropriation account- division of profit among partners, guarantee of profits. Past adjustments (relating to interest on capital, interest on drawing, salary and profit sharing ratio)	After going through this Chapter, the students will be able to: State the meaning of partnership, partnership firm and partnership deed. Describe the characteristic features of partnership and the contents of partnership deed. Discuss the significance of provision of Partnership Act in the absence of partnership deed. Differentiate between fixed and fluctuating capital, outline the process and develop the understanding and skill of preparation of Profit and Loss Appropriation Account. Develop the understanding and skill of preparation profit and loss appropriation account involving guarantee of profits. Develop the understanding and skill of making past adjustments.	Students will learn to record, report and interpret financial information related to Partnership Firms. Explanation, Discussion, Solving sums on Black Board will enhance the understanding of learner's. Financial Statements of firms will be shown to students for conceptual clarity.
Ch.3: Goodwill: Nature and Valuation To make students understand: Factors affecting goodwill and	After going through this chapter student will state the meaning, nature and factors affecting Goodwill, develop the understanding and skill of	Explanation, Demonstration Solving Sums on Black Board. Discussion on the factors affecting

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
methods of valuation of goodwill - average profit, super profit and capitalization.	valuation of goodwill using different methods.	goodwill.
Ch. 4 : Accounting for Partnership firms – Change in the Profit Sharing Ratio To make students understand: Change in the Profit Sharing Ratio among the existing partners- sacrificing ratio, gaining ratio, accounting for revaluation of assets and reassessment of liabilities and treatment of reserves and accumulated profits. Preparation of revaluation account and balance sheet.	Students would state the meaning of sacrificing ratio, gaining ratio and the change in profit sharing ratio among existing partners. Develop the understanding of accounting treatment of revaluation assets and reassessment of liabilities and treatment of reserves and accumulated profits by preparing revaluation account and balance sheet.	Discussion method to understand and appreciate the concept , practical problems for practice case studies based on change in PSR to understand concept.
Ch. 5 : Admission of a partner. To make students understand: Effect of admission of partner on change in the profit sharing ratio, treatment of goodwill (as per AS 26),	Students will develop the understanding and skill of treatment of goodwill as per AS-26, treatment of revaluation of assets and re-assessment of liabilities, treatment of reserves and accumulated profits, adjustment of capital accounts and	Students are able to analyse the accounting treatment of admission of a partner through solving problems. Discussion on the topic would make them

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
treatment for revaluation of assets and re- assessment of liabilities, treatment of reserves and accumulated profits, adjustment of capital accounts and preparation of balance sheet.	preparation of balance sheet of the new firm.	competent to understand need of adjustment of capital
Ch. 6 : Retirement and death of a partner. To make students understand: Effect of retirement / death of a partner on change in profit sharing ratio, treatment of goodwill (as per AS 26), treatment for revaluation of assets and reassessment of liabilities, adjustment of accumulated profits and reserves, adjustment of capital accounts and preparation of balance sheet. Preparation of loan account of the retiring partner. ☐ Calculation of deceased partner's	After going through this chapter students would understand the effect of retirement / death of a partner on change in profit sharing ratio. Develop the understanding of accounting treatment of goodwill, revaluation of assets and re-assessment of liabilities and adjustment of accumulated profits and reserves on retirement / death of a partner and capital adjustment. Develop the skill of calculation of deceased partner's share till the time of his death and prepare deceased partner's executor's account. Discuss the preparation of the capital accounts of the remaining partners and the balance sheet of the firm after retirement / death of a partner.	Interactive method Discussion Problem solving method. They would also in a position to identify the ways and means of settlement of retiring /deceased partner claim.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
share of profit till the date of death. Preparation of deceased partner's capital account and his executor's account.		
Ch. 7 : Dissolution of a partnership firm To make students understand: Meaning of dissolution of partnership and partnership firm, types of dissolution of a firm. Settlement of accounts - preparation of realization account, and other related accounts: capital accounts of partners and cash/bank a/c (excluding piecemeal distribution, sale to a company and insolvency of partner(s)).	After going through this topic learner's would understand the situations under which a partnership firm can be dissolved. Develop the understanding of preparation of realisation account and other related accounts.	Explanation Discussion Problem solving on the Board Accounting process and entries explained with the help of flow chart.
HALF YEARLY EXAM + PT – I		
Part B, Volume III Ch. 1,2,3,4 Financial Statement Analysis	After going through this Unit, the students will be able to: Develop the understanding of major headings and	Explanation Interaction Discussion and solving sums on

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Unit 4: Analysis of Financial Statements Financial statements of a company. Financial Statement Analysis. Tools for Financial Statement Analysis, Accounting Ratios: To make students understand: Statement of Profit and Loss and Balance sheet in a prescribed form with major headings and sub headings (as per Schedule III to the Companies Act, 2013). Objectives, importance and limitations of financial statement analyses. Comparative statements, common size statements, cash flow analysis, ratio analysis. Accounting Ratios: Meaning,	sub-headings (as per Schedule III to the Companies Act, 2013) of balance sheet as per the prescribed norms / formats. State the meaning, objectives and limitations of financial statement analysis. Discuss the meaning of different tools of 'financialstatements analysis'. Develop the understanding and skill of preparation of comparative and common size financial statements. State the meaning, objectives and significance of different types of ratios. Develop the understanding of computation of current ratio and quick ratio. Develop the skill of computation of debt equity ratio, total asset to debt ratio, proprietary ratio and interest coverage ratio. Develop the skill of computation of inventory turnover ratio, trade receivables and trade payables ratio and working capital turnover ratio.	the Board. Students will be able to interpret the financial statements of various forms of business organizations. Annual report can be referred to enhance skills.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Objectives, classification and computation. Liquidity Ratios: Current ratio and Quick ratio. Solvency Ratios: Debt to Equity Ratio, Total Asset to Debt Ratio, Proprietary Ratio and Interest Coverage Ratio. Activity Ratios: Inventory Turnover Ratio, Trade Receivables Turnover Ratio, Trade Payables Turnover Ratio and Working Capital Turnover Ratio. Profitability Ratios: Gross Profit Ratio, Operating Ratio, Operating Profit Ratio, Net Profit Ratio and Return on Investment. Note: Net Profit Ratio is to be calculated on the basis profit before and after tax.	develop the skill of computation of gross profit ratio, operating ratio, operating profit ratio, net profit ratio and return on investment.	

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Unit 5 Ch. 5 : Cash Flow Statement To make students understand: Meaning, objectives and preparation (as per AS 3 (Revised) (Indirect Method only)	After going through this Unit, the students will be able to: State the meaning and objectives of cash flow statement. Develop the understanding of preparation of Cash Flow Statement using indirect method as per AS 3 with given adjustments.	Explanation Interaction Solving sums on the Board. Students will be able to Analyse financial statement of firms with the help of Cash Flow Statement. By referring annual report difference between operating, investing and financing activities of a business organization would be learned.
PRE-BOARD I		
Volume II Ch. 8 : Accounting for Share Capital To make students understand: Share and share capital: nature and types. Accounting for share capital: issue and allotment of equity and preferences	After going through this chapter, the students will be able to: State the meaning of share and share capital and differentiate between equity shares and preference shares and different types of share capital. Understand the meaning of private placement of	Explanation, Discussion, Questioning, Interaction and problem solving. Students would be able to learn the concept by referring business news papers and by visit to

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
shares. Public subscription of shares - over subscription and under subscription of shares; issue at par and at premium, calls in advance and arrears (excluding interest), issue of shares for consideration other than cash. Concept of Private Placement and Employee Stock Option Plan (ESOP). Accounting treatment of forfeiture and re-issue of shares. Disclosure of share capital in the Balance Sheet of a company.	shares and Employee Stock Option Plan. Explain the accounting treatment of share capital transactions regarding issue of shares. Develop the understanding of accounting treatment of forfeiture and re-issue of forfeited shares. Describe the presentation of share capital in the balance sheet of the company as per schedule III part I of the Companies Act 2013.	financial services provider's office.
Ch. 9 : Accounting for Debentures. To make students understand: Debentures: Issue of debentures at par, at a premium and at a discount. Issue of debentures for consideration other than cash; Issue of debentures with terms of redemption;	After going through this chapter learner would explain the accounting treatment of different categories of transactions related to issue of debentures. Develop the understanding and skill of writing of discount / loss on issue of debentures. Understand the concept of collateral security and	Explanation, Narration Interaction Brain Storming Discussion and Solving sums on the Board.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
debentures as collateral security- concept, interest on debentures. Writing off discount / loss on issue of debentures.	its presentation in balance sheet. Develop the skill of calculating interest on debentures and its accounting treatment.	
Ch. 10:Redemption of debentures To make students understand: Methods: Lump sum, draw of lots. Creation of Debenture Redemption Reserve.	State the meaning of redemption of debentures. Develop the understanding of accounting treatment of transactions related to redemption of debentures by lump sum, draw of lots and Creation of Debenture Redemption Reserve.	Explanation, Narration Interaction Brain Storming Discussion and Solving sums on the Board.
Volume I Ch. 1 : Accounting for Not-for-Profit Organisations Financial Statements of Not-for- Profit Organisations To make students understand: Not-for-profit organizations: concept. Receipts and Payments Account: features and preparation. Income and Expenditure Account: features, preparation of income and	After going through this Chapter, the students will be able to: State the meaning of a Not-for-profit organisation and its distinction from a profit making entity. State the meaning of receipts and payments account, and understanding its features. Develop the understanding and skill of preparing receipts and payments account. State the meaning of income and expenditure account and understand its features. Develop the understanding and skill of preparing	Explanation, Discussion, Brain Storming, practice through Solving sums on the Board which would enable learners to understand and prepare financial statements of Non Profit Organization.

OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
expenditure account and balance sheet from the given receipts and payments account with additional information.	income and expenditure account and balance sheet of a not-for-profit organisation with the help of given receipts and payments account and additional information.	
PRE-BOARD II (COMPLETE SYLLABUS)		

TOPIC / OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Chapter-7 : MySQL – SQL Revision Tour To make the students understand : ● Relational data Model ● MySQL – A popular DBMS ● Accessing database in MySQL ● Creating tables in MySQL ● Inserting data into table ● Making simple queries using select command ● Creating tables with SQL constraints ● Viewing a table structure ● Inserting data into another table ● Modifying data in tables ● Deleting data from tables ● Altering tables ● Dropping tables ● SQL Joins ● Indexes in database	Students will be able to : understand the database transaction concepts and its queries and able to write queries on their own	Programming Practical in computer Lab and solving the worksheets
Chapter-8 : More on SQL To make the students understand : ● Ordering Records in Result - Order by clause	Students will be able to : understand the use of GROUP BY and ORDER BY clause and its functions and	Programming Practical in computer Lab and solving the worksheets

TOPIC / OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
● Aggregate Functions ● Types of SQL Functions ● Grouping Result – Group By	other aggregation functions in SQL	
Chapter - 9 : Creating a Django Based Basic Web Application To make the students understand : ● What is Web Framework? ● How Web, Websites and Web-applications Work? ● Introduction Django ● Installing Django ● Activating Virtual Environment ● Django Basics and Project Structure ● Steps to Create a Basic Django Web Application ● Creating Models, Views and Templates ● Writing Dictionary Data to CSV and Text Files ● Practically Processing Get and Post Request	Students will be able to : Understand Web, Web application with Django Framework.	Programming Practical in computer Lab and solving the worksheets eg: Write a Django based web server to parse a user request (POST), and write it to a CSV file.
Chapter-1 : Working with Numpy To make the students understand :	Students will be able to : understand NumPy Arrays data structure	Programming Practical in computer Lab and solving the

TOPIC / OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
• What are NumPy Arrays? • NumPy Data Types • Creating Numpy Arrays • Working with Numpy Arrays • Applications of Numpy Arrays	,aggregation operations and applications of Numpy Arrays	worksheets
Chapter- 2 : Python Pandas To make the students understand : • Descriptive Statistics with Pandas • Advanced Operations on DataFrame • Creating Histogram • Function Application • Reindexing and Altering Labels.	Students will be able to : understand the use of Python Pandas , their functions applications, aggregation operations, descriptive statistics, and re-indexing columns in a Data Frame. Apply functions row-wise and element-wise on a Data Frame	Programming Practical in computer Lab and solving the worksheets
HALF YEARLY EXAM (SYLLABUS OF PT-I + CHAPTER 3, 4)		
Chapter -3 : Plotting with Pyplot I - Bar Graphs and Scatter Plots To make the students understand : • What is Data Visualization? • Using Pyplot of Matplotlib Library • Creating Line Charts and Scatter Charts • Creating Bar Charts	Students will be able to : understand Data Visualization and creating charts ,Plot bar graphs, scatter plots etc.	Programming Practical in computer Lab and solving the worksheets

TOPIC / OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Customizing the Plot		
Chapter – 4 : Plotting With Pyplot II - Histograms, Frequency Distribution, BoxPlots To help the students learn : - Creating Histograms with Pyplot - Creating Frequency Polygons - Creating BoxPlots - Customizing/Adding Details to the Plots	Students will be able to : understand histograms, frequency polygons, box plots, and scatter plots	Programming Practical in computer Lab and solving the worksheets For Eg : Take data from government websites, aggregate and summarize it. Then plot it using different plotting functions of the PyPlot library.
PRE-BOARD I (SYLLABUS OF HALF YEARLY + CHAPTER 5, 6, 10 & 11)		
Chapter – 5 : Introduction to Software Engineering To make the students understand : - What is Software engineering? - Software Process Activities - Software Process Models - Delivery Models	Students will be able to : understand Software Engineering Concepts and Software Process Models	Discussing Software Processes: waterfall model, evolutionary model, and component based model, Delivery models: incremental delivery, spiral delivery.
Chapter - 6 : Agile Methods and Practical Aspects of Software Engineering To make the students understand :	Students will be able to : understand Agile software Development, business use-case diagrams, and version	Business use-case diagrams for an airline ticket booking system, train reservation system, stock

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● What is Agile Software Development? ● Pair Programming ● Scrum ● Version Control Systems ● Business Use-Case Diagrams	control systems	exchange. Collaboratively write a program and manage the code with a version control system (GIT)
Chapter – 10 : Interface Python With MySQL To make the students understand : ● Connecting to MySQL from Python ● Parameterised Queries ● Performing INSERT and UPDATE Queries.	Students will be able to : Perform Connectivity of a Python program with a MYSQL database.	Programming Practical in computer Lab and solving the worksheets For e.g.: Integrate SQL with Python by importing MYSQL dB
Chapter – 11 : Society, Law and Ethics To make the students understand : ● Ethical Issues ● Open Source Philosophy and Software Licences ● Privacy ● Online Fraud ● Cybercrime ● Computer Forensics ● Cyber Law and IT Act	Students will be able to : Have a clear understanding of cyber ethics and cybercrime. Understand the value of technology in societies, gender and disability issues, and the technology behind biometric ids.	Discussing and finding solutions for intellectual property rights, plagiarism, digital rights management, and licensing (Creative Commons, GPL and Apache), open source, open data, privacy.

TOPIC / OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
● Technology and Society ● E-Waste Management ● Identity Theft ● Gender Issues While Teaching/Using Computers ● Disability Issues while Teaching and Using Computers ● Role of New Media in Society ● Issues with Internet ● Role in New Media- Case Studies		
PRE-BOARD II (Complete Syllabus)		

TOPIC	OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
UNIT-1 Planning in Sports : Meaning & objectives of planning Various committees & its responsibilities (per : during & post) Tournament knock out , league or round robin & combination Procedure to draw fixtures –knock-out (bye & seeding) & league & (staircase & cyclic) Intramural & extramural meaning 'objectives & its significance' Specific sports programme (sports day 'health run 'run for fun 'run for specific cause & run for unity) Practical classes.(choice of any game)	This unit will help the students to understand the need of planning and management of tournament, formation of different committees, etc.	Students will be able to understand the need of planning and management of tournament, formation or different committees in sports events, organization of intramural and extramural activities, various types of fixtures in sports tournaments, mass participation programs for fitness etc.	Flow chart preparation
UNIT-2 Sports and nutrition : Balanced diet & nutrition ;macro & micro nutrients Nutritive & non –nutritive components of	This unit will make students aware of the role of balance diet on sports performance.	Students will be able to develop the understanding of balance diet and its importance. It will also give	Project work (CD) based

TOPIC	OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
diet Eating for weight control –a healthy weight ‘the pitfalls of dieting ‘food intolerance & food myths. Practical classes. (choice of any game)		knowledge related to various elements and components of diet, factors affecting diet, sports diet, sports diet, etc.	
UNIT-3 Yoga and lifestyle : Asanas as preventive measures Obesity : procedure ‘benefits & contraindications for vajrasana , hastasana trikonasana, ardhmatsyendrasana Diabetes; procedure ,benefits & contraindications for bhujangasana, paschimottasana, pavan muktasana, ardhmatsyendrasana Asthma ; procedure, benefits & contraindications for sukhasana, chakrasana, gomukhasana, parvatasana, Bhujangasana, paschimottasana, muktasana	Enable the students to understand the benefits of yoga and its effects on our life.	Through this unit students will understand how to lead a happy and healthy life and will also come to know the components of physical fitness through which they can enhance their performance.	Physical fitness test.

TOPIC	OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Hypertension; tadasana ,vajrasana ,pavan muktasana ,ardha chakrasana, bhujangasana, sharasan Back pain; tadasana, ardh matsyendrasana, vakrasana ,shalabhasan, bhujangasana Practical classes. (choice of any game)			
HALF YEARLY EXAM			
UNIT-4 Physical education and sports for CWSN : Concept of disability & disorder Types of disability ,its cause & nature (cognitive disability ,intellectual disability, physical disability) Types of disability ,its cause & nature (adhd, spd, asd, odd, ocd) Disability etiquettes. Advantage of physical activities for children with special need.	To make children aware of different types of disabilities, disorder and adopted physical education.	In this unit children will understand the services of physical education provided to the people with unique needs. They will understand that CWSM are a part of main stream society. They will understand various competitions organized for differently abled people	Modified activities for specially abled child.

TOPIC	OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Strategies to make physical activities assess able for children with special need. Practical classes. (choice of any game)		and role of various educators and therapist in the field of APE.	
UNIT-5 : Children and women in sports : Motor development & factors affecting it Exercise guidelines at different stages of growth & development Common postural deformities – knock knee; flat foot ; flat foot, round shoulders; lordosis, kyphosis, bow legs and scoliosis Corrective measures for postural deformities Sports participation of woman in India Special consideration on menarche and menstrual dysfunction Female athlete triad (osteoporosis, amenorrhoea , eating disorder) Practical classes (choice of any game)	This unit will make us understand the effects of sports on children and women and make them aware of posture.	This chapter will make the student understand physiological, psychological and social aspects of women in sports they will also understand motor development, exercises which are to be perform at different stages of growth and development along with posture and its deformities.	Modified activities.

TOPIC	OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Unit-6 : Test and measurement in sports : Motor fitness test-50m standing strat,600m run/walk, sit and reach ,partial curl, push ups (boys)modified push ups (girls),standing broad jump, agility 4x10m shuttle run General motor fitness test- barrow three item general motor ability (standing broad jump, zigzag run, medicine ball put for boys 03 kg and for girls 01 kg Measurement of cardiovascular fitness- harvard step test/ rockport test Computation for fitness index Du.of exe in sec. X100 5.5 x pulse count of 1-1.5min. After exercise. Rikli and Jones –senior citizen fitness test ; 1. Chair stand test 2. Arm curl test for upper body strength 3. Chair sit and reach	This unit is delivered to students so that they can understand various tests to check individual ability.	Children will understand the process of inculcating leadership. They will also understand the benefits and objectives of adventure sports along with various adventures activities. They will also understand the causes of sports injuries and there preventions.	Data collection and comparative charts.

TOPIC	OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
test 4. Back scratch test test 5. eight foot up test 6. Six minute walk test for aerobic endurance Practical classes (choice of any game)			
UNIT-7 : Physiology and injuries in Sports. Physiological factor determining component of physical fitness Effect of exercise on cardio vascular system Effect of exercise on respiratory system Effect of exercise on muscular system Physiological changes due to ageing Sports injuries; classification bone and joint injuries causes ,prevention and treatment Soft tissue injuries (abrasion ,contusion , laceration ,sprain &strain) Bone & joint injuries (Dislocation, fractures: stress fracture,	To make the students understand the role of physiology and various types of sports injuries	Through this chapter students will understand the functioning of various systems and their improvement through regular exercises. Students will also become aware of first aid, treatment, prevention, diagnosis and rehabilitation of injuries caused in sports.	Project work(CD) based

TOPIC	OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
green stick, transverse, impacted, simple, compound etc. Practical classes (choice of any game)			
PRE – BOARD – I – EXAM (Half Yearly + Unit- 8, 9, 10)			
UNIT-8 : Biomechanics and sports Meaning and importance of biomechanics in sports Types of movements; Newton's laws of motion and its application in sports Friction and sports	To understand the movements of human beings we need a specialized subject "kinesiology and biomechanics" which deals in sports.	Children will understand correct movement of individuals, understands the force and its application in life, gives knowledge about laws of motion, equilibrium and its application, lever, forces and its application on body.	Physical fitness test
UNIT-9 : Psychology and sports Personality ;its definition &types –trait &types (sheldon & jung classification) & big five theory Motivation ,its type & techniques	This chapter guides coaches and players to give individual attention regarding various methods and various	Through this chapter children will understand the importance of psychology in our life, specially in the field of	Lecture through audio visual aids.

TOPIC	OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Exercise adherence ;reasons to exercise, benefits to exercise Strategies for enhancing adherence to exercise Meaning, concept &types of aggressions in sports.	motivational techniques.	physical education, personality, motivation and its types	
UNIT-10 : Training and sports Strength –definition ,types &methods of improving strength –isometric ,isotonic & isokinetic Endurance –definition, types &methods to develop endurance –continuous training ,interval training & fartlek training Speed –definition ,types &methods to develop speed –acceleration run &pace run Flexibility –definition ,types &methods to improve flexibility Coordinative abilities –definition &types	To guide students the correct method to perform physical activity and effects of Drugs on performance.	This chapter guides the students about the correct methodology of performing physical activity and what is the best training method for developing and improving the excellence	Children participate in Macro meso and micro cycles .

TOPIC	OBJECTIVE	LEARNING OUTCOMES	EXPERIENTIAL LEARNING/ INTEGRATED ART EDUCATION
Circuit training – introduction & its importance Practical classes (choice of any game)			
PRE – BOARD –II – EXAM (ENTIRE SYLLABUS)			