

SYLLABUS FOR SESSION 2025-26

CLASS-XII

SUBJECT : ENGLISH

TERM-I				
Topics	Sub-Topics	Learning Objectives	Activities / Projects / Practicals	Assessment Tools & Values
1. Reading	 Unseen passage : Factual Descriptive / Literary Unseen Case- based factual passage 	 Students will be able to : 1. Engage themselves in the text. 2. Decode, analyze, infer & interpret the text. 3. Understand the core concept of the given passage and answer accordingly. 	Reading Newspaper & Drawing inferences from Reading passages.	 Worksheets Assignments Analytical Thinking
 2. Creative Writing Task Long Writing Task 	reative• Notice WritingStudents will be able to :ing• Invitations &1. Use appropriate formation formationortReplies& fluency.iting• Letter to the2. DemonstrateskEditor, Jobinformation to a specificngApplicationgroup of people.iting• Article &3. Precisely classify vastskReport Writingamounts of information.		• Activities related to real life experiences.	 Worksheets Class Test Assignments Creative Thinking
3. Literature FLAMINGO – Textbook & (Prose Text) Supplementary • The Last Lesson Reading Text • Literature Text Book • He Last Lesson		 Students will be able to : Understand the need for preserving one's mother tongue. be serious and sincere in doing work and not to Procrastinate. Change their lackadaisical attitude towards their mother tongue. 	 Group Discussion on the question : How would you respond when you discover that you will not be allowed to learn and speak in your mother tongue ? 	 Worksheets Assignments of Related Questions Class Test Responsibility
	Lost Spring	Students will be able to :1. Understand the plight of street children forced into labour early in life.2. Create social awareness	Classroom discussionon :plight of the streetchildren forced intolabour and deprived	 Worksheets Assignment of Related Questions Class Test

		regarding the laws against child labour. 3. Sensitize to the miserable plight of the poorest of the poor.	of the opportunities of schooling.	• Sympathy
	• Deep Water	 Students will be able to : 1. develop positive attitude towards life. 2. Know the importance of decision making and determination in adverse circumstances. 3. gain knowledge about different types of Phobias. 	 Personal Experience of swimming, if any will be asked about different fears they have. 	 Assignment of related questions. Character sketch Class Test Courage & Consistency
	• The Rattrap	 Students will be able to : 1. understand the values like trust, generosity, redemption and confession. 2. understand that everyone should get a second chance to improve onself. 3. understand that kindness & hospitality awaken conscience. 	 About the Tom & Jerry Show About the working of the Rattrap (Class Presentation) 	 Assignment of related questions. Character sketches Class Test Compassion
	FLAMINGO – (Poetry) • My Mother At Sixty-Six	 Students will be able to : 1. understand the importance of near and dear ones. 2. realise and fulfill their duties toward the elders. 3. comprehend and read the poem with proper pauses & expressions. 	Classroom discussionon :Time spent dailywith our elder ones.	 Extract-based questions Assignments Class Test Adaptability & Acceptance
	• Keeping Quiet	 Students will be able to : 1. inculcate values like concern, care for each other, patience & responsibility. 2. remain quiet and still be productive and active. 	 Example of COVID- 19 About Meditation (Classroom Discussion) 	 Extract-based questions Assignments Class-Test Integrity

Supplementary	VISTAS – (Prose)	Students will be able to :		
Reader	• The Third Level	 understand the contrast between the fantasy world and real world. acquire realistic approach towards real life challenges. 	• Example of movies related to Time Travel / Virtual Games.	 Worksheets Assignments Class-Test Reasoning & Accuracy
	• The Tiger King	Students will be able to :1. Judge the consequences of sycophancy.2. have insight into the political order.3. understand that whimsical decisions may prove disastrous.	 Examples of vulnerable & extinct species. Discussion about Astrology 	 Assignments Class Test Worksheets Courage & Commitment
	• Journey to the End of the Earth	Students will be able to :1. analyse and evaluate the effect of human population and climate change.2. understand that the young generation still has the idealism to save the world.	 About the continents. About the movies related to climate change. (Group Discussion) 	AssignmentsClass TestWorksheetsAccoutability
	• The Enemy	Students will be able to :1. Focus on the importance of fulfilling duties.2. Understand the importance of being humane.	 Discussion About Wars & their consequences Example of Crickt Teams 	 Assignments Class Test Worksheets Compassion & Accountability
		TERM-II		
1. Reading	 Unseen Passage : Factual / Descriptive / Literary Unseen Case- based Passage 	 Students will be able to : 1. Engage themselves in the text. 2. Decode, analyze, infer & interpret the text. 3. Understand the core concept of the given passage and answer accordingly. 	Reading Newspaper & Drawing inferences from Reading Passages.	 Worksheets for Practice Assignments Analytical thinking

2. Creative Writing Short Writing Task Long Writing Task	 Notice Writing Invitations & Replies Letter to the Editor, Job Application Article & Reprot Writing 	 Students will be able to : 1. Use appropriate format & fluency. 2. Demonstrate information to a specific group of people. 3. Precisely clarify vast amounts of information. 	Activities related to real life experiences.	 Worksheets Assignments Class Test Creative thinking
3. Literature Text Book & Supple- mentary Reading Text Literature Text Book	FLAMINGO - (Prose) • Indigo	 Students will be able to : 1. Understand the role of a leader. 2. Understand the importance of rights. 3. Know the sufferings & contributions of freedom fighters. 	Classroom discussion on :Role & Contribution of freedom fighters	 Worksheets Assignments Class Test Credibility
	• Poets & Pancakes	 Students will be able to : 1. Analyze the working conditions and people involved in the studios. 2. Understand the use of talent and creativity at its best. 3. Understand that ambition leads to success. 	 Classroom disussion on : Today's film technology compared with that of early days of Indian Cinema. 	 Worksheets Assignments Class Test Leadership & Teamwork
	• The Interview	 Students will be able to : 1. Express personal opinions on the interview genre. 2. Understand the art of questioning & answering skills. 3. Understand the challenges faced by journalists and reporters. 	 Role-playing as an interviewer & an interviewee Example of the movie – NAYAK 	 Worksheets Assignments Class Test Knowledge & Respect
	Going Places	 Students will be able to : 1. analyze the difference between realistic and unrealistic dreams. 2. Understand that there is no substitute to hard work. 3. to accept the reality in life and responsibility in the family. 	 Describe about one's favourite player. Discussion on one's ambition / goal in life. 	 Worksheets Assignments Class Test Realistic Goals

	FLAMINGO - (Poetry)A Thing of Beauty	Students will be able to :1. appreciate and admire the beauty of nature.2. learn from the stories of great people.3. understand that nature provide respite from sorrows.	• A meditation activity to think of a beautiful scenery / thing / story / thought	 Worksheets Assignments Class Test Extract-based Questions Beauty & Inspiration
	• A Roadside Stand	 Students will be able to : 1. Understand the contrast between the lives of rich and poor. 2. Understand that the economic well-being of a country depends on a balanced development of the villages and the cities. 	 Classorm Discussion : Have you ever stopped at the roadside stand while travelling ? List your observations. 	 Worksheet Assignment Class Test Extract-based Questions Sympathy
	• Aunt Jennifer's Tigers	 Students will be able to : 1. Empathise with the victims of male chauvinism. 2. Raise voice against domestic violence. 3. Visualise the constraint of married life experienced by a woman. 	Group discussion on : • Gender Equality	 Worksheet Assignment Class Test Extract-based Questions Empathy
Supplementary Reading Text	VISTAS – (Prose) • On the face of it	 Students will be able to : 1. gain insight into the loneliness of physically handicapped. 2. overcome negative attitude towards life. 3. face the challenges in life with a positive approach. 	Example of "Stephen Hawking" (Class Presentation)	 Worksheet Assignment Class Test Trust
	Memories of Childhood	 Students will be able to : 1. Raise Voice for injustice and discrimination. 2. learn and reflect their own perspective of treating underpriviledged & marginalized community. 	 Classroom Discussion on : An incident from the history which tells about untouchability, discrimination social injustice. 	 Worksheet Assignment Class Test Respect & Leadership

SUBJECT : ECONOMICS (030)

TERM-I (APRIL TO SEPTEMBER)			
Unit & Chapter	Key Concept	NCERT Learning Outcomes	Activities
1. Introduction	Introduction to Macro Economics Emergence of Macro Economics Importance of Macro Economics	 Explain the nature, scope and methodology of Economics and find out the difference between Micro & Macro. Explain the evolution of Macro- Economics. Explain the characteristics of Macro- Economics. 	Flow Chart Quiz
2. National Income Accounting	Some Basic Concept of Macroeconomics Circular flow of income and Methods of Calculating N.Y	 Communicate economic information and ideas related to N.Y Analyses the flow of Production in Economics Discuss the three methods of Measuring national Income : Value added or Product method, Expenditure method, Income method 	Mind Map Flow Chart M.C.Q.
National Accounting	Aggregate related to National Y	• GNP, NNP, GDP and NDP at Market Price, at factor cost, Real & Nominal GDP, GDP Deflator, GDP & Welfare.	
3. Determination of Income & Employment	AD & its concepts	 Explains the components of AD in closed & open economy. Different terms related to Consumption. 	Diagrams Case Studies
	A two-sector Model Short run Equilibrium output Investment Multiplier & its mechanism Problem of excess & Deficient Demand	 Discuss AD and AS Propensity to Consume & Propensity to Save (Average & Marginal) AS – AD & S + I approach Working of Multiplier Discuss the concept of MPC & K & MPS & K Differentiate between excess & deficient demand. Measures to correct Inflation & Deflation 	Diagrams M.C.Q. Quiz

4. Government Budget and the Economy	Govt. Budget Objectives of Govt. Budget Classification of Receipts Classification of Expenditure Balanced, Surplus & Deficit Budget	 Explain budget and reason out the main areas of govt. spending and its impact on those areas. Discuss the Role of the Govt. Revenue & Capital Receipts Revenue & Capital Expenditure How to correct Deficit By adopting Monetary & Fiscal Policy. 	Conduct Reserves and Present Findings
Part–B : Indian E	conomic Development		
6. Development Experience (1947-90)	Economic Development under Colonial Rule Indian Economy (1950- 1990)	 Discuss the critical issues of the Indian economy since independence (All the Sectors). Main features, Problems and Policies of Agriculture Industry (IPR-1956, SSI–Role & Importance) and Foreign Trade 	Conduct Research from Movies & History Books
Economic Reforms since 1991	Features & appraisals of LPG Policy; Concept of Demonetization and GST	 Discuss the need and main features of Liberalization, globalization and Privatization. 	Research & Present Case Studies on successful & unsuccessful Economic reforms
7. Current Challenges Facing Indian Economy			
Human Capital Formation	How People become resources Role of HCF in economic Development; Growth of Education Sector in India	 Discuss the links between Investment in Human Capital & Economic Growth Evaluate the State of India's educational attainment & Enlists the future prospects of Education in India. 	Case Study M.C.Q. Research
Rural Development	Credit & Marketing, role of Co-operatives, Agriculture, Diversification, alternative farming, Organic farmking	 Describe the critical role of Credit Describes the role of govt. in Agriculture Marketing & Evolution, the importance of diversification of Productive activities to sustain livelihood. 	M.C.Q. Pre-testing Pilot Survey

Employment	Growth & Changes in Work force participation rate in formal and informal sectors; Problems & Policies	 Describes the importance of employment in a Nation. Evaluate the distribution of workforce in different sectors. Evaluate the initiatives taken by Govt. in generating employment opportunities in various sectors and regions. 	Students will ask data from Govt. website
	TERM-II (OC)	TOBER TO FEBRUARY)	
Part–A : Introduc	ctory Macro Economics		
Money & Banking	Money–Meaning & Functions		Research regarding Barter System
Supply of Money	Supply of Money – Currency held by the Public & Net demand deposits held by Commercial Banks	 Explain various roles of Money & functions of Money Evaluates the demand of Money & describes the Supply of Money 	
Banking	Money creation by Commercial Banking System CRR, SLR, Repo rate, Bank rate, MRL	 Discuss the role & importance of Central Banks and Commercial Banks for Govt., Consumer & Producers Outline the Process of Money creation Differentiate Repo rate, Reverse Repo rate and Open market Operations. 	Project regarding visit of Bank.
5. Balance of Payments	BOP A/c – Meaning & Components BOP – Surplus & Deficit	 Explain the different components of Current & Capital A/c Evaluates autonomous & accomodating transactions. 	Hypothetical Example of BOP
Foreign Exchange	Foreign Exchange rate – Meaning & Components, Fixed, Flexible & Managed floating Determination of Exchange Rate, Merits & Demerits of Fixed & Flexible Exchange Rate	 Describe foreign exchange rate. Describe fixed & flexible exchange rate & their merits & demerits. Describes Managed Floating. 	Understanding the Concept of Devaluation & Depreciation by Role Playing
Part-B : Indian Economic Development			
Current Challenges Facing Indian Economy			

* Sustainable Economic Development	Meaning, effects of Economic Development on Resources & Environment : including Global Warming	 Analyses the causes and effects of envrionmental degradation and Resources Depletion. Discuss the strategies adopted for sustainable development in India. 	Case Study M.C.Q.
8. Development Exeprience of India	A comparison with neighbours India & Pakistan; India & China	• Analyses Comparative trends in various economic & human development indicators of India & its neighbours, China and Pakistan.	Flow Chart Quiz

SYLLABUS FOR SESSION 2025-26

CLASS-XII

SUBJECT : BUSINESS STUDIES (054)

PART-A PRINCIPLES AND FUNCTIONS OF MANAGEMENT

	Chapters	Marks
1.	Nature and Significance of Management	
2.	Principles of Management	16
3.	Business Environment	
4.	Planning	14
5.	Organising	
6.	Staffing	
7.	Directing	20
8.	Controlling	
	TOTAL	50

PART-B BUSINESS FINANCE AND MARKETING

	Unit	Marks
9.	Financial Management	15
10.	Financial Markets	
11.	Marketing	15
12.	Consumer Protection	
	TOTAL	30

SUBJECT : BUSINESS STUDIES

	TERM-I				
Topic and Subtopics	Learning Outcomes	Values	Activities, Project, Specific Assessment Tools		
Ch-1 Nature and Significance of Management	After going through the chapter, the students will be able to :				
 Management – Concept, Objectives, and Importance Management as Science, Art and Profession Levels of Management Management functions – Planning, Organizing, Staffing, Directing and Controlling Coordination – Concept and Importance 	 Understand the concept of management Explain the meaning of Effectiveness and Efficiency Discuss the objective of management Describe the 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 and characteristics of coordination Explain the importance of coordination 	 Decision Making Problem solving 	Case Studies Mind Map Pictorial MCQ Class test		
 Ch-2 Principles of Management Principles of Management – Concept and Significance 	 After going through the chapter, the students will be able to : Understand the concept of principles of management 	 Rational thinking Scientific aptitude 	Case Studies Mind Man		
 Fayol's principles of Management Taylor's Scientific 	 Explain the significance of management principles Discuss the principles of 	 Interpersonal relationship Problem Solving 	Project Work Class test Crossword puzzles		
management – Principles and Techniques	 management developed by Fayol Explain the principles and techniques of 'Scientific Management' Compare the contributions of Fayol and Taylor 				

 Ch-3 Business Environment Business Environment – Concept and Importance Dimensions of Business Environment – Economic, Social, Technological, Political and Legal Demonetization – Concept and Features 	 After going through the chapter, the students will be able to : Understand the concept of 'Business Environment'. Describe the importance of business environment. Describe the various dimensions of 'Business Environemnt'. Understand the concept of demonetization 	 Rational thinking Analytical Approach 	Case Studies Mind Map Project Work
 Ch-4 Planning Concept, importance and limitations Planning process Single use and standing plans : Objectives, Strategy, Policy, Procedure, Method, Rule, Budget and Programme 	 After going through the chapter, the students will be able to : 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 	• Rational thinking	Case Studies Mind Map Class Test
 Ch-5 Organising Concept and importance Organising Process Structure of Organisation Functional and Divisional Concept, Formal and informal organisation - concept Delegation : Concept, Elements and Importance Decentralisation : Concept and Importance 	 After going through the chapter, the students will be able to : Understand the concept of organising as a structure and as a process. Explain the importance of organising. Describe the steps in the process of organising. 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. 	 Decision Making Rational thinking Interpersonal relationship 	Case Studies Mind Map Pictorial MCQ Class Test

	 Understand the concept of delegation. Describe the elements of delegation. Appreciate the importance of Delegation. Understand the concept of decentralisation. Explain the importance of decentralisation. Differentiate between delegation and decentralisation. 		
 Ch-6 Staffing 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 Training and Internship Training 	 After going through the chapter, the students will be able to : 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 Describe the importance of training and development Appreciate the importance of training, vestibule training, apprenticeship training and development Discuss the meaning of induction training, vestibule training and development Differentiate between training and development Differentiate between training and development Discuss on-the-job and off-the-job methods of training 	Decisoin Making Rational Thinking	Case Studies Mind Map Cross Word Puzzles Pictorial MCQ Class Test

Ch-7 Directing	After going through the chapter.		
 Ch-7 Directing Concept and Importance 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 	 After going through the chapter, the students will be able to : Describe the concept of driecting Discuss the importance of directing Describe the various elements of directing Understand the concept of motivation Develop an understanding of Maslow's Hierachy of needs Discuss the various financial and non-financial incentives Understand the concept of leadership Understand the concept of communication Understand the concept of styles of leadership Understand the concept of communication Understand the concept of communication Understand the various styles of leadership Understand the concept of communication Understand the various styles of the communication Understand the various styles of the communication Understand the various styles of the communication Understand the various financial and informal communication Discuss the various barriers to effective communication Suggest measures for overcoming barriers to communication 	• Interpersonal relationship	Case Studies Mind Map Pictorial MCQ Class test
 Ch-8 Controlling Controlling – Concept and importance Relationship between planning and controlling Steps in process of control 	 After going through the chapter, the students will be able to : 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. 	• Rational thinking	Case Studies Mind Map Class test Practice test

	TERM-II				
 Ch-9 Financial Management Concept, role and objectives of Financial Management Financial decisions : investment, financing and dividend - Meaning and factors affecting Financial Planning - Concept and Importance Capital Structure – concept and factors affecting capital structure Fixed and Working Capital – Concept and factors affecting their requirements 	 After going through the chapter, the students will be able to : 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. 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 uncline aceptal 	 Decision Making Problem Solving Financial discipline 	Case Studies Mind Map Cross word puzzles Class test		
 Ch-10 Financial Markets Financial Markets : Concept Money Markets : Concept Capital Market and its types (Primary and Secondary) Stock Exchange – Functions and trading procedure Securities and Exchange Board of India (SEBI) – Objectives and Functions 	 After going through the chapter, the students will be able to : Understand the concept of Financial market. Understand the concept of money market. Discuss the concept of capital market. Explain primary and secondary markets as types of capital market. Differentiate between capital market and money market. Distinguish between primary and secondary markets. Give the meaning of a stock exchange. Explain the functions of a stock exchange. 	 Financial discipline Rational thinking 	Case Studies Mind Map Class test		

	 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. 		
 Ch-11 Marketing Marketing – Concept, Functions and Philosophies Marketing Mix – Concept and Elements Product - branding, labelling and packaging - Concept Price - Concept, Factors determining price Physical Distribution – Concept, Components and Channels of Distribution Promotion – Concept and Elements; Advertising, Personal Selling, Sales Promotion and Public Relations 	 After going through the chapter, the students will be able to : 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 product as an element of marketing mix. Understand the concept of product 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. Understand the concept of promotion mix. 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 advertising. Understand the concept of sales promotion. Discuss the concept of public relations. 	Rational Thinking	Case Studies Mind Map Pictorial MCQs Class Test Project Work

Ch-12 Consumer	After going through the chapter,		
Protection	the students will be able to :		
• Concept and importance	• Understand the concept of	 Problem Solving 	Case Studies
of Consumer Protection	consumer protection.	 Rational thinking 	Mind Map
Consumer Protection Act 2019	• Describe the importance of consumer protection.		Class test
- Meaning of consumer	• Discuss the scope of Consumer		
- Consumer Rights and	Protection Act, 2019		
Responsibilities	• Understand the concept of a		
– Who can file a	consumer according to the		
complaint ?	Consumer Protection Act, 2019		
- Redressal machinery	• Explain the consumer rights		
– Remedies available	• Understand the responsibilities of		
• Consumer awareness –	consumers		
Role of consumer	• Understand who can file a		
organization and Non-	complaint and against whom ?		
Governmental	• Discuss the legal rederessal		
Organization (NGOs)	machinery under Consumer		
	Protection Act, 2019		
	• Examine the remedies available to		
	the consumer under Consumer		
	Protection Act, 2019		
	• Describe the role of consumer		
	organizations and NGOs in		
	protecting consumers' interests.		

SYLLABUS FOR SESSION 2025-26

CLASS-XII

SUBJECT : PHYSICAL EDUCATION

COURSE CONTENT

TERM-I (APRIL TO SEPTEMBER)				
Unit No., Name & Topics	Specific Learning Objectives	Suggested Teaching Learning Process	Learning Outcomes with specific competencies	
UNIT-1 : Management of Sporting Events			After completing the unit, the students will be able	
 Functions of Sports Events Management (Planning, Organising, Staffing, Directing & Controlling) 	• To make the students understand the need and meaning of planning in sports, committees, and their responsibilities for conducting the sports events or tournament.	 Lecture-based instruction, Technology-based learning. Group learning. 	 Describe the functions of Sports Event Management Classify the committees and their responsibilities in the 	
2. Various Committees & their Responsibilities (pre; during & post)	 To teach them about the different types of tournaments and the detailed procedure of drawing fixtures for Knock Out, League Tournaments, and Combination 	 Individual learning Inquiry-based learning Kinesthetic learning. Game-based learning 	 Differentiate the different types of tournaments. Prepare fixtures of knockout, league & 	
3. Fixtures and their Procedures – Knock- Out (Bye & Seeding) & League (Staircase, Cyclic, Tabular method) and Combination tournaments.	 tournaments. To make the students understand the need for the meaning and significance of intramural and extramural tournaments 	• Expeditionary learning	 combination. Distinguish between intramural and extramural sports events. Design and prepare different types of community 	
4. Intramural & Extramural tournaments – Meaning, Objectives & its Significance				

5. Community Sports Program (Sports Day, Health Run, Run for Fun, Run for Specific Cause & Run for Unity)	• To teach them about the different types of community sports and their importance in our society.		
UNIT–2 : Children & Women in Sports			After completing the unit, the students will be able
 Exercise guidelines of WHO for different age groups. 	• To make students understand teh exercise guidelines of WHO for different age group	 Lecture-based instruction, Technology-based learning. 	 bifferentiate exercise guidelines for different stages of growth and development.
2. Common postural deformities-knock knees, flat foot, round shoulders, Lordosis, Kyphosis, Scoliosis, and bow legs and their respective corrective measures	• To make students aware of the common postural deformities	 Group learning. Individual learning Inquiry-based learning Kinesthetic learning 	 Classify common postural deformities and identify corrective measures. Recognize the role and importance of sports
 Women's participation in Sports – Physical, Psychological, and Social benefits. 	• To make students aware of women's sports participation in India and about the special conditions of women.	Game-based learningExpeditionary learning	 Identify special considerations relate to
4. Special consideration (menarche and menstrual dysfunction)			menarche and menstrual dysfunction.Express female athlete
5. Female athlete triad (osteoporosis, amenorrhea, eating disorders).	• To make them understand about female athlete triad.		triad according to eating disorders.
UNIT–3 : Yoga as Preventive measure for			After completing the unit, the students will be able
Lifestyle Disease			to :
1. Obesity : Procedure, Benefits & Contraindications for Tadasana, Katichakrasana,	• To make students Understand about the main life style disease – Obesity, Hypertension, Diabetes, Back Pain and	 Lecture-based instruction, Technology-based learning. 	 Identify the asanas beneficial for different ailments and health problems. Recognize importance
Pavanmuktasana,	Asthma.	• Group learning.	of various asanas for

	Matsayasana,	• To teach about different	Individual learning	preventive measures of
	Halasana,	Asanas in detail which		obesity, diabetes,
	Pachimottasana,	can help as a preventive	 Inquiry-based learning 	asthma, hypertension,
	Ardha –	Measures for those		back pain and arthritis
	Matsyednrasana,	Lifestyle Diseases.	• Kinesthetic learning.	
	Dhanurasana,			• Describe the procedure
	Ushtrasana,		Game-based learning	for performing a variety
	Suryabedhan			of asanas for maximal
	pranayama.		• Expeditionary learning	benefits.
2.	Diabetes :			
	Procedure, Benefits &			• Distinguish the
	Contraindications for			contraindications
	Katichakrasana,			associated with
	Pavanmuktasana,			performing different
	Bhujangasana,			asanas.
	Shalabhasana,			
	Dhanurasana, Supta-			• Outline the role of yogic
	vajarasana,			management for various
	Paschimottanasana,			health benefits and
	Ardha-Mastendrasana,			preventive measures.
	Mandukasana,			•
	Gomukhasana,			
	Yogmudra,			
	Ushtrasana,			
	Kapalabhati.			
3.	Asthma : Procedure,			
	Benefits &			
	Contraindications for			
	Tadasana,			
	Urdhwahastottansan			
	a, UttanMandukasan-			
	a, Bhujangasana,			
	Dhanurasana,			
	Ushtrasana,			
	Vakrasana,			
	Kapalbhati,			
	Gomukhasana			
	Matsyasana,			
	Anuloma-Viloma.			
4.	Hypertension :			
	Procedure, Benefits &			
	Contraindications for			
	Tadasana,			
	Katichakransana,			
	Uttanpadasana,			

Ardha Halasana, Sarala Matyasana, Gomukhasana, UttanMandukasan-a, Vakrasana, Bhujangasana, Makarasana, Shavasana, Nadi- shodhanapranayam, Sitlipranayam. 5. Back Pain and Arthritis : Procedure, Benefits & Contraindications of			
Tadasan, Urdhawahastottasana, Ardh-Chakrasana, Ushtrasana, Vakrasana, Sarala Matsyendrsana, Bhujangasana, Gomukhasana, Bhadrasana, Makarasana, Nadi- Shodhana pranayama.			
UNIT-4 : Physical			After completing the unit,
Education and Sports			the students will be able
for CWSN (Children		• Lecture-based instruction,	to :
with Special Needs –			• Value the advantages of
Divyang)		 Technology-based 	physical activities for
1. Organizations	• To make students	learning.	children with special
promoting Disability	understand the concept	~	needs
Sports (Special	of Disability and	• Group learning.	
Olympics;	Disorder.	T 1' ' 1 1 1 '	• Differentiate between
Paralympics;	To the shall be stard and a	• Individual learning	methods of
Dearlympics)	• To teach the students	• Inquiry based looming	categorization in sports
2. Concept of	dissolition & disorders	• Inquiry-based learning	101 C W SIN
Divisioning in Sports	their causes and their	• Kinesthetic learning	• Understand concepts
Divisioning in Sports	nature	- Kinestnette learning.	and the importance of
3 Concept of Inclusion	nature.	• Game-based learning	inclusion in sports
in sports, its need, and	• To make them aware of	Sume Suber rearining	menusion in sports
implementation.	Disability Etiquette.	• Expeditionary learning	• Create advantages for
L.		1 2 0	Children with Special

 Advantages of Physical Activities for children with special needs. Strategies to make Physical Activities assessable for children with special needs. 	 To make the students Understand the advantage of physical activity for CWSN. To make the students aware of different strategies for making physical activity accessible for Children with Special Needs. 		 Needs through Physical Activities Strategies physical activities accessible for children with special needs.
UNIT–5 : Sports & Nutrition			After completing the unit, the students will be able
 Concept of balanced diet and nutrition Macro and Micro Nutrients : Food Sources & Functions Nutritive & Non- Nutritive Components of Diet Eating for Weight control – A Healthy Weight, The Pitfalls of Dieting, Food Intolerance, and Food Myths Importance of Diet in Sports-Pre, During and Post competition Baguirements 	 To make the students understand the importance of a balanced diet To clear the concept of Nutrition – Micro & Macro nutrients, Nutritive & non- Nutritive & non- Nutritive Components of diet To make them aware of eating for weight loss and the results of the pitfalls of dieting. To understand food intolerance & food myths 	 Lecture-based instruction, Technology-based learning. Group learning. Individual learning Inquiry-based learning Kinesthetic learning. Game-based learning Expeditionary learning 	 to: Understand the concept of a balanced diet and nutrition. Classify Nutritive and Non- Nutritive components of the Diet Identify the ways to maintain a healthy weight Know about foods commonly causing food intolerance Recognize the pitfalls of dieting and food myths
UNIT-6 : Test & Measurement in Sports 1. Fitness Test – SAI Khelo India Fitness Test in School :	• To make students Understand and conduct SAI KHELO INDIA	 Lecture-based instruction, Technology-based 	After completing the unit, the students will be able to : • Perform SAI Khelo India Fitness Test in
Age group 5-8 years/ class 1-3 : BMI, Flamingo Balance	Fitness Test and to make students Understand and conduct General Motor Fitness Test.	learning.Group learning.	School [Age group 5-8 years/ (class 1-3) and Age group 9-18 yrs/ (class 4-12)

Test, Plate Tapping	• To make students to	Individual learning	• Determine physical
Test	determine physical		fitness Index through
	fitness Index through	 Inquiry-based learning 	Harvard Step Test/
Age group 9-18 yrs/	Harvard Step Test/		Rock- port Test
class 4-12 : BMI,	Rockport Test	• Kinesthetic learning.	
50mt Speed test,	• To make students to		Compute Basal
600mt Run/Walk, Sit	calculate Basal	Game-based learning	Metabolic Rate (BMR)
& Reach Flexibility	Metabolic Rate (BMR)		
test, Strength test	• To measure the fitness	• Expeditionary learning	• Describe the procedure
(Partial Abdominal	level of Senior Citizens		of Rikli and Jones -
Curl Up, Push-Ups for	through Rikli and Jones		Senior Citizen Fitness
boys, Modified Push-	Senior Citizen Fitness		Test
Ups for girls).	Test.		
2. Measurement of			
Cardio-Vascular			
Fitness – Harvard Step			
Test – Duration of the			
Exercise in Seconds \times			
100/5.5 X Pulse count			
of 1-1.5 Min after			
Exercise.			
3. Computing Basal			
Metabolic Rate			
(BMR)			
4. Rikli & Jones - Senior			
Citizen Fitness Test			
Chair Stand Test for			
lower body strength			
Arm Curl Test for			
Chair Sit & Deech			
• Chair Sit & Reach Test for lower body			
flexibility			
Back Scratch Test for			
upper body flexibility			
 Eight Foot Up & Go 			
Test for agility			
 Six-Minute Walk Test 			
for Aerobic Endurance			
5. Johnsen – Methney			
Test of Motor			
Educability (Front			
Roll, Roll, Jumping			
Half-Turn, Jumping			
full-turn)			

UNIT-7 : Physiology &			After completing the unit,
 Physiological factors determining components of physical fitness Effect of exercise on the Muscular System Effect of exercise on the Cardio-Respiratory 	 Understanding the physiological factors determining the compounds of physical fitness Learning the effects of exercises on Cardiovascular system. Learning the effects of exercises on cardiovascular system. 	 Lecture-based instruction, Technology-based learning. Group learning. Individual learning Inquiry-based learning 	 to: Recognize the physiological factors determining the components of physical fitness. Comprehend the effects of exercise on the Muscular system and conditionary instance.
4. Physiological changes due to aging	exercises on the Respiratory System.Learning the changes caused due to aging.	Kinesthetic learning.Game-based learning	Figure out the
 5. Sports injuries : Classification (Soft Tissue Injuries - Abrasion, Contusion, Laceration, Incision, Sprain & Strain; Bone & Joint Injuries - Dislocation, Fractures - Green Stick, Comminuted, Transverse Oblique & Impacted) 	 Understanding the Sports Injuries (Classification, Causes, and Prevention) Understanding the Aims & Objectives of First Aid Understanding the Management of Injuries 	• Expeditionary learning	 physiological changes due to ageing Classify sports injuries with its Management.
	TERM-II (OCTOBI	ER TO FEBRUARY)	1
 UNIT-8 : Biomechanics and Sports 1. Newton's Law of Motion & its application in sports 2. Types of Levers and their application in 	 Understanding Newton's Laws of Motion and their Application in Sports. Make students understand the level and its application in sports 	 Lecture-based instruction, Technology-based learning. Group learning. 	 After completing the unit, the students will be able to: Understand Newton's Law of Motion and its application in sports Recognize the concept
 Sports 3. Equilibrium – Dynamic & Static and Centre of Gravity and its application in sports 	 Make students understand the concept of Equilibrium and its application in sports. 	 Individual learning Inquiry-based learning Kinesthetic learning. 	of Equilibrium and its application in sports.Know about the Centre of Gravity and will be able to apply it in sports

 Friction & Sports Projectile in Sports 	 Understanding Friction in Sports. Understanding the concept of Projectile in sports. 	Game-based learningExpeditionary learning	 Define Friction and application in sports. Understand the concept of Projectile in sports.
 UNIT-9 : Psychology and Sports 1. Personality; its definition & types (Jung Classification & Big Five Theory) 2. Motivation, its type & techniques. 3. Exercise Adherence : Reasons, Benefits & Strategies for Enhancing it 4. Meaning, Concept & Types of Aggressions in Sports 5. Psychological Attributes in Sports – Self-Esteem, Mental Imagery, Self-Talk, Goal Setting 	 To make students understand Personality & its classifications. To make students understand motivtaion and its techniques. To make students about Exercise Adherence and Strategies for enhancing Adherence to Exercise. To make them aware of Aggression in sports and types. To make students understand Psychological Attributes in Sports. 	 Lecture-based instruction, Technology-based learning. Group learning. Individual learning Inquiry-based learning Kinesthetic learning. Game-based learning Expeditionary learning 	 After completing the unit, the students will be able to : Classify different types of personality and their relationship with sports performance. Recognise the concept of motivation and identify various types of motivation. Identify various reasons to exercise, its associated benefits and strategies to promote exercise adherence. Differentiate between different types of aggression in sports. Explain various psychological attributes in sports.
 UNIT-10 : Training in Sports 1. Concept of Talent Identification and Talent Development in Sports 2. Introduction to Sports Training Cycle – Micro, Meso, Macro Cycle. 	 Making the students understand the concept of talent identification and methods in sports Making the students understand sports training and the different cycle in sports training. 	 Lecture-based instruction, Technology-based learning. Group learning. Individual learning Inquiry-based learning 	 After completing the unit, the students will be able to : Understand the concept of talent identification and methods used for talent development in sports. Understand sports training and the different cycle used in the training process.

3. Types & Methods to	• Making the students	• Kinesthetic learning.	• Understand different
Develop – Strength,	understand different		types & methods to
endurance, and Speed.	types & methods of	Game-based learning	develop – strength,
	strengths, endurance,		endurance, and speed in
	and speed.	• Expeditionary learning	sports training.
4. Types & Methods to	• Making the students		 Understand different
Develop – Flexibility	understand different		types & methods to
and Coordinative	types & methods of		develop – flexibility and
Ability	flexibility and		coordinative ability.
	coordinative ability.		
5. Circuit Training –	• Making the students		 Understand Circuit
Introduction & its	understand Circuit		training and its
importance	training and its		importance.
	importance.		

GUIDELINES FOR INTERNAL ASSESSMENT (PRACTICAL / PROJECTS ETC.)

PRACTICAL (M	(ax. Marks 30)
Physical Fitness Test : SAI Khelo India Test, Brockport Physical Fitness Test (BPFT)*	6 Marks
Proficiency in Games and Sports	7 Marks
(Skill of any one IOA recognized Sport/Game of Choice)**	
Yogic Practices	7 Marks
Record File***	5 Marks
Viva Voce (Health/Games & Sports/Yoga)	5 Marks

- Test for CWSN (any 4 items out of 27 items. One item from each component : Aerobic Function, Body Composition, Muscular strength & Endurance, Range of Motion or Flexibility)
- **CWSN (Children With Special Needs Divyang) : Bocce / Boccia, Sitting Volleyball, Wheel Chair Basketball, Unified Badminton, Unified Basketball, Unified Football, Blind Cricket, Goalball, Floorball, Wheel Chair Races and Throws, or any other Sport/Game of choice.
- **Children with Special Needs can also opt any one Sport/Game from the list as alternative to Yogic Practices.
 However, the Sport/Game must be different from Test 'Proficiency in Games and Sports'

***Record File shall include :

- *Practical-1* : Fitness tests administration (SAI Khelo India Test)
- Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease.
- *Practical-3*: Anyone IOA recognized Sport/Game of choice. Labelled diagram of Field & Equipment. Also mention its Rules, Terminologies & Skills.

SUBJECT : MATHEMATICS (041)

Recommended Books : NCERT Part-1, NCERT Part-2

TERM-I (APRIL TO SEPTEMBER)				
Chapters	Topics	Learning Objectives	Values	Activities
3. Matrices	 Types of Matrices Operations on Matrices Transpose of a matrix Symmetric and Skew Symmetric Matrices 	 Types of Matrices To add, subtract & multiply the matrices Transpose of a matrix Properties of Symmetric and skew symmetric Matrices 	• Creativity	Case Study on Matrix Multiplication
4. Determi- nants	 Definition Minors and Cofactors Adjoint and Inverse of a matrix Applications of Determinants & Matrices 	 To find the Value of determinant To find Minors and Cofactors To solve system of linear equations using inverse of a Matrix 	 Creativity Problem Solving 	Case Study on Matrix Method
2. Inverse Trigonometric Functions	Introduction,Basic ConceptsGraphs of ITFs	 Definition, Domain & Range of ITFs, Principal Values of ITFs Finding Simplest Form of ITFs 	• Logical Reasoning	To draw Graph of $\sin^{-1} x$
5. Continuity & Differen- tiability	 Continuity - Differentiability Exponential and Logarithmic Functions Logarithmic Differentiation, Derivatives of functions in Parametric forms, Second order Derivatives 	 Continuous Functions Diff of ITFs Diff of Implicit Functions Diff of Exponential and Logarithmic Functions Logarithmic Differentiations, Diff of fns expressed in Parametric forms Second order Derivatives 	• Problem Solving	To find limit of a function & Check its Continuity
12. Linear Programming	 Introduction, related terminology such as constraints, objective function, optimization. Graphical method of solution for problems in two variables, 	 Graphical method of solution for problems in two variables, feasible and infeasible regions (bounded or unbounded), feasible and infeasible solutions, 	• Logical Understanding	Case Study on LPP

	 Feasible and infeasible regions (bounded or unbounded), Feasible and infeasible solutions, Optimal feasible solutions 	• optimal feasible solutions (up to three non-trivial constraints).		
6. Application of Derivatives	 Rate of Change of Quantities, Increasing / Decreasing Functions, Maxima and Minima 	 Rate of Change of Quantities Increasing / Decreasing Functions Points of Local Maxima & Local Minima Absolute Maxima and Minima 	Acquiantance with Real Life Problems	Concepts of Maxima & Minima
7. Integrals	 Integration as inverse process of differentiation. Integration of a variety of functions by different methods Definite Integrals Fundamental Theorem of Calculus Basic properties of definite integrals and evaluation of definite integrals 	 Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts. Evaluation of simple integrals of different types Basic Properties of definite integrals and evaluation of definite integrals 	 Logical Reasoning Problem Solving 	Case Study on Properties of Integrals
8. Applications of Integrals	IntroductionArea under simple curvesarea between two curves	Applications in finding the area under simple curves, especially lines, circles / parabolas / ellipses (in standard form only)	• Critical Understanding	To find area using limit as a sum
9. Differen- tial Equations	 Introduction, Definition, Order and degree, General and particular solutions of a diff. equation. Methods of solving First order and first Degree Differential Equations. 	 General and particular solutions of a diff. equation. by method of separation of variables, Solutions of homogeneous diff. equation - Solving linear diff. equation of the type : - dy / dx + py = q, where p and q are functions of x or constant. 	• Problem Solving	Real Life Problems

TERM-II (OCTOBER TO FEBRUARY)					
10. Vectors	 Introduction, Some basic Concepts Types of Vectors Addition of Vectors multiplication of a vector by a scalar, Position vector of a point dividing a line segment in a given ratio. Product of two vectors 	 Definition, Types of vectors position vector a point, negative of a vector, components of a vector, addition of vectors, Multiplication of a vector by a scalar, Definition and properties of scalar (dot) product of vectors, Definition and properties of vector (cross) product of vectors. 	• Critical thinking	To verify $\vec{c} \times (\vec{a} + \vec{b})$ $= \vec{c} \times \vec{a} + \vec{c} \times \vec{b}$	
11. Three Dimensional Geometry	 Introduction Direction cosines and direction ratios of a line joining two points. Equations of a line in space Shortest distance between two lines. Angle between two lines. 	 Direction cosines and direction ratios of a line joining two points. Cartesian equation and vector equation of a line, Definition of skew lines, Shortest distance between two lines. Angle between two lines. 	• Logical Understanding	To find shortest distance between Two Skew Lines	
13. Probabi- lity	 Introduction Conditional probability, Multiplication theorem on probability, Independent events, Bayes' theorem, Random variable and its probability distribution. 	 Conditional probability, Multiplication theorem on probability, Independent events, Total probability, Bayes' theorem, Random variable and its probability distribution, Mean of random variable. 	• Problem Solving	To find Conditional Probability	
1. Relations and Functions	Types of RelationsTypes of Functions	 Reflexive, Symmetric and Transitive Relations Equivalence relation and Equivalence classes 	• Critical thinking	To show Bijective Function	

SUBJECT : APPLIED MATHEMATICS (241)

Recommended Books : NCERT, APC Publications

	TERM-I (APRIL TO SEPTEMBER)					
Chapters	Topics	Learning Objectives	Values	Activities		
Matrices	Matrices and types of matrices	 Define matrix Identity different kinds of matrices Find the size / order of matrices 				
	Equality of matrices, Transpose of a matrix, Symmetric and Skew symmetric matrix	 Determine equality of two matrices Write transpose of given matrix Define symmetric and skew symmetric matrix 	CreativityProblem Solving	 Creativity Case Stud Matrix Problem Solving 	 Creativity Problem Solving Case Study Matrix Multiplication 	Case Study on Matrix Multiplication
	Algebra of Matrices	 Perform operations like addition & subtraction on matrices of same order Perform multiplication of two matrices of appropriate order Perform multiplication of a scalar with matrix 				
Determinants	Determinants	 Find determinant of a square matrix Use elementary properties of determinants 				
	Inverse of a matrix	 Define the inverse of a square matrix Apply properties of inverse of matrices 	 Analytic approach Problem Solving 	Case Study on Matrix Method		
	Solving system of simultaneous equations using matrix method, Cramer's rule and	 Solve the system of simultaneous equations using (i) Cramer's Rule (ii) Inverse of coefficient matrix Formulate real life problems into a system of simultaneous linear equations and solve it using these methods 	Jornig			

Linear Programming	Introduction and related terminology	• Familiarize with terms related to Linear Programming Problem		
	Mathematical formulation of Linear Programming Problem	Formulate Linear Programming Problem	Critical thinking	Case Study on LPP
	Different types of Linear Programming Problems	• Identify and formulate different types of LPP		
	Graphical method of solution for problems in two variables	• Draw the Graph for a system of linear inequalities involving two variables and to find its solution graphically		
	Feasible and Infeasible Regions	 Identify feasible, infeasible, bounded and unbounded regions 		
	Feasible and infeasible solutions, optimal feasible solution	 Understand feasible and infeasible solutions Find optimal feasible solution		
Differentiation & Its Applications	Higher Order Derivatives	 Determine second and higher order derivatives Understand differentiation of parametric functions and implicit functions 	• Critical thinking	Case Study Based
	Application of Derivatives	 Determine the rate of change of various quantities Understand the gradient of tangent and normal to a curve at a given point Write the equation of tangents and normal to a curve at a given point 	• Problem solving	Questions
	Marginal Cost and Marginal Revenue using derivatives	 Define marginal cost and marginal revenue Find marginal cost and marginal revenue 		

	Increasing / Decreasing Functions Maxima and Minima	 Determine whether a function is increasing or decreasing Determine the conditions for a function to be increasing or decreasing Determine critical points of the function Find the point(s) of local maxima and local minima and corresponding local maximum and local minimum values Find the absolute maximum and absolute minimum value of a function Solve applied problems 		
Integration & Its Applications	Integration Indefinite integrals as family of curves	 Understand and determine indefinite integrals of simple functions as anti-derivative Evaluate indefinite integrals of simple algebraic functions by method of : (i) substitution (ii) partial fraction (iii) by parts 	• Problem solving	Competency Based Questions
	Definite Integrals as area under the curve Application of Integration	 Define definite integral as area under the curve Understand fundamental theorem of integral calculus and apply it to evaluate the definite integral Apply properties of definite integrals to solve the problems Identify the region representing C.S. and P.S. graphically Apply the definite integral to find consumer surplus-producer surplus 		

Differential Equations & Modeling	Differential Equations	 Recognize a differential equation Find the order and degree of a differential equation 	• Problem	Case Studies
	Formulating and Solving Differential Equations	 Formulate differential equation Verify the solution of differential equation Solve simple differential equation 	solving	
	Application of Differential Equations	 Define Growth and Decay Model Apply the differential equations to solve Growth and Decay Models 		
Probability Distributions	Probability Distribution	 Understand the concept of Random Variables and its Probability Distributions Find probability distribution of discrete random variable 	 Logical Reasoning 	Conditional Probability
	Methematical Expectation	• Apply arithmetic mean of frequency distribution to find the expected value of a random variable		
	Variance	• Calculate the Variance and S.D. of a random variable		
	Binomial Distribution	 Identify the Bernoulli Trials and apply Binomial Distribution Evaluate Mean, Variance and S.D. of a binomial distribution 		
	Poison Distribution	 Understand the Conditions of Poisson Distribution Evaluate the Mean and Variance of Poisson distribution 		
	Normal Distribution	 Understand normal distribution is a Continuous distribution Evaluate value of Standard normal variate Area relationship between Mean and Standard Deviation 		

Quanti- fications & Numerical Applications	Modulo Arithmetic	 Define modulus of an integer Apply arithmetic operations using modular arithmetic rules 		
	Congruence Modulo	Define congruence moduloApply the definition in various problems	 Logical Reasoning Problem Solving 	Case Studies on Real Life Situations
	Alligation and Mixture	 Understand the rule of alligation to produce a mixture at a given price Determine the mean price of a mixture Apply rule of alligation 		
	Numerical Problems	• Solve real life problems in mathematics		
	Boats and Streams (upstream and downstream)	 Distinguish between upstream and downstream Express the problem in the form of an equation 		
	Pipes and Cisterns	• Determine the time taken by two or more pipes to fill or empty the tank		
	Races and Games	• Compare the performance of two players w.r.t. time, distance		
	Numerical Inequalities	 Describe the basic concepts of numerical inequalities. Understand and write numerical inequalities. 		
	TERN	1-II (OCTOBER TO FEB	BRUARY)	
Inferential Statistics	Population and Sample	 Define Population and Sample Differentiate between population and sample Define a representative sample from a population Differentiate between a representative and non- representative sample Draw a representative sample using simple random sampling 	• Real Life Problem Accquaintance	Population Migration Data & Its Influence on Urbanisation

	Parameter and Statistics and Statistical Inferences	 Draw a representative sample using and systematic random sampling Define Parameter with reference to Population Define Statistics with reference to Sample Explain the relation between Parameter and Statistic Explain the limitation of Statistic to generalize the estimation for population Interpret the concept of Statistical Significance and Statistical Significance and Statistical Inferences State Central limit Theorem Explain the relation between Population-Sampling Distribution-Sample 		
	t-Test (one sample t-test and two independent groups t-test)	 Define a hypothesis Differentiate between Null and Alternate hypothesis Define and calculate degree of freedom Test Null hypothesis and make inferences using t-test statistic for one group / two independent groups 		
Time Based Data	Components of Time Series	• Distinguish between different components of time series		
	Time Series analysis for univariate data	 Solve practical problems based on statistical data and interpret the result 	• Logical Reasoning	Weather Prediction
	Secular Trend	• Understand the long term tendency		
	Methods of Measuring trend	• Demonstrate the techniques of finding trend by different methods		
Financial Mathematics	Perpetuity, Sinking Funds Calculation of EMI	 Explain the concept of perpetuity and sinking fund Calculate perpetuity Differentiate between sinking fund and saving account Explain the concept of EMI Calculate EMI using various 	• Problem	Stock Price
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	Calculation of Returns, Nominal Rate of Return	 methods Explain the concept of rate of return and nominal rate of return Calculate rate of return and nominal rate of return 	Solving	Movement
	Compound Annual Growth Rate	 Understand the concept of Compound Annual Growth Rate Differentiate between Compound Annual Growth Rate and Annual Growth Rate Calculate Compound Annual Growth Rate 		
	Linear Method of Depreciation	 Define the concept of linear method of Depreciation Interpret cost, residual value and useful life of an asset from the given information Calculate depreciation 		

SUBJECT : ACCOUNTANCY

	TERM-I					
Chapters	Topics	Learning Objectives	Proposed Activities	Values		
Part-A : Accou	unting for Partnership Firm	s and Companies				
1. Accounting for Partnership Firms – Fundamental	Partnership features, Provisions of Indian Partnership Act 1932 in the absence of Partnership deed Fixed v/s Fluctuating Capital Accounts, Preparation of Profit and Loss Appropriation Account, Division of Profits among partners including gurantee of profits, Past adjustment.	Describe the characteristics of partnership and contents of partnership deed, significance of provisions 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 involving guarantee of profits and skill of making past adjustment.	Quiz	Problem Solving		
2. Goodwill : Nature and Valuation	Meaning, Factors affecting and methods of valuation – average profit, super profit and capitalisation	State the meaning, and develop the understanding and skill of valuation of goodwill using different methods.	Case Study	Creative thinking		
3. Change in Profit Sharing Ratio Among the Existing Partners	Sacrificing Ratio, gaining ratio, accounting for revaluation of assets and reassessment of liabilities and treatment of reserves, accumulated profits and losses, preparation of revaluation account and balance sheet.	Meaning of sacrificing ratio, gaining ratio and change in profit sharing ratio among existing partners develop the understanding of accounting treatment of revaluation of assets and liabilities, treatment of reserves and accumulated profits by preparing revaluation account and balance sheet.	Case Study	Applying and Analysing		

4. Admission of a Partner	Effect of admission of a partner on profit sharing ratio, treatment of revaluation of assets, reassessment of liabilities, reserves, accumulated profits and losses, of goodwill (as per AS 26), adjustment of capital accounts, preparation of current accounts and preparation of balance sheet.	Explain the effect of admission of a partner on profit sharing ratio, treatment of goodwill as per AS26, on revaluation of assets and liabilities, treatment of reserves. Adjustment of capital accounts. Preparation of capital, Current Account and balance sheet of the new firm.	Case Study	Analytical thinkng + Understanding
5, 6. Retirement and Death of a Partner	Effect of retirement and death of a partner on change in profit sharing ratio, treatment of goodwill, treatment for revaluation of assets and reassessment of liabilities, adjustment of accumulated profits, losses and reserves and capital accounts. Preparation of Capital Account, Current account, balance sheet and loan account of the retiring partner, Calculation of deceased partner's share of profits till the date of death, deceased partners capital account and his executor's Account.	Develop the understanding of change in profit sharing ratio due to retirement and death of a partner, Treatment of goodwill, revaluation of assets and liabilities, reserves and accumulated profits or losses on retirement or death of a partner. Learn to make partner's capital account, current account and Balance Sheet. Develop the skill of calculation of deceased partner's share of profits and preparation of Loan Account in both cases – retirement and death of a partner.	Case Study	Problem solving
7. Dissolution of a Partnership firm	Meaning of dissolution of partnership and partnership firm. Types of dissolution of partnership firm, Settlement of accounts – Realisation account, Capital Account, Cash / Bank account and other related accounts.	Understanding the situations under which a partnership firm can be dissolved, develop the understanding and skill of preparing realisation account and other related accounts.	Group Discussion	Analysing & Applying

Unit-2 : Accounting for Companies				
Accounting for share capital	Features and types of companies. Share and share capital – nature and types Accounting for share capital – over subscription, and under subscription, issue at par or at premium, calls in advance and arear, issue for consideration other than cash. Private placement, ESOP, Sweat Equity, forfeiture and Reissue of Shares and disclosure of share capital in Balance Sheet.	Understanding of Differentiate between Equity Shares and Preference Shares, different types of share capital, Accounting treatment of share capital, transactions regarding issue of shares, Understanding of treatment of forfeiture and reissue of shares, and presentation of share capital as per schedule (III) Part I of Companies Act.	Group Discussion and Case Study	Problem Solving and Analytical thinking
Accounting for debentures	Debentures – Meaning, Types, Issue of debentures at par, at premium and at a discount. Issue of debentures for consideration other than cash, Issue with terms of redemptions, issue as colleteral security, Interest on debentures and writing off discount / loss on issue of debentures.	Understanding of transactions related to issue of debentures, Developing the skill of writing of discount / loss on issue of debentures, Understanding the concept of colleteral security and its presentation in balance sheet – Developing the skill of calculating interest on debentures and its accounting treatment.	Quiz	Problem solving
		TERM-II		
Part-B : Analy	vsis of Financial Statements			
Financial Statement of a company	Meaning, Nature, Uses and importance of Financial Statement. Statement of Profit and Loss and Balance Sheet in the prescribed form with major headings and Sub-headings (as per Schedule III of the Companies Act, 2013).	Development of Understanding of major headings and sub-headings (as per Schedule III of the Companies Act, 2013) of Balance Sheet as per the prescribed norms / format.	Vocabulary game	Remembering

Financial Statement Analysis	Meaning, Significance, Objectives, Importance and Limitations. Tools for financial statement analysis : Comparative Statements, Common-size Statements, Ratio Analysis, Cash Flow Analysis.	The students will be able to state the meaning of financial statement analysis along with the objectives and limitations of it. They will be able to discuss the meaning of different tools of 'Financial Statements Analysis'.	Quiz	Applying
Accounting Ratio	 Meaning, Objectives, Advantages, Classification and Computation. Liquidity Ratios : Current Ratio and Quick Ratio Solvency Ratios : Debt to Equity Ratio, Total Assets to Debt Ratio, Proprietory Ratio, Interest coverage ratio and Debt to Capital Employed Ratio Activity Ratios : Inventory Turnover Ratio, Trade Receivable Turnover Ratio, Trade Payable Turnover Ratio, Fixed Asset Turnover Ratio, Net Assets Turnover Ratio and Wroking Capital Turnover Ratio. Profitability Ratios : Gross Profit Ratio, Net Profit Ratio, Operating and Operating Profit Ratio, ROI. 	Understanding of the meaning, objectives and significance of different type of ratios along with computation of Liquidity Ratios, Solvency Ratios, Activity Ratios and Profitability Ratios.	Quiz	Problem Solving and Applying
Cash Flow Statement	Meaning, Objectives, Benefits, Cash and Cash Equivalents, Classification of Activities and preparation (as per AS-3 Revised) (Indirect Method Only)	Students will be abe to state the meaning and objectives of Cash Flow Statement and also develop the understanding of prepration of Cash Flow Statement using indirect method a per AS-3 with given adjustments.	Group Discussion	Understanding

Tools of	Tools for financial	Developing the	Quiz	Applying
Financial	Statement Analysis :	understanding of meaning		
Statement	Meaning, Significance,	and objectives of common		
Analysis	Objectives, Importance and	size statements and		
- Comparative	limitations of Comparative	comparative statements		
Statements	Statements and Common	along with the skill of		
and Common	Size Statements	preparation of these		
Size		statements, understand		
Statements		their uses and difference		
		between the two.		

SUBJECT : YOGA

PART-A

Unit No. & Name	Topics covered Per unit	Learning Objectives & Outcomes	Values Inculcated
UNIT-1 Introduction to Yoga & Yogic Practices-II	 Shatkarma meaning, purpose and their signifance in Yoga Sadhana. Yogasana – Meaning, Principal and their Health Benefits Introduction to Pranayam and Dhyana and their health benefits Identify career opportunities in Yoga 	Students learn in this unit about Shat-karma and different asana.	After completing the unit, students are able to learn the technique to purify the body and different asana.
UNIT-2 Introduction to Yoga Text-II	 Concepts of Ahara (Diet) according yogic text Significance of Hath Yoga practice in health promotion Concepts of mental health well being according to Patanjali Yoga Yogic practice of Patanjali Yoga, Bhairanga and Antranga Yoga Concept of healthy living style in Bhagavad Gita Importance of Subjective experience in daily yoga practice 	To learn students about nutrition and different types of nutrients	Student learn about the proper diet for body- effects of diet on human system and developing healthy living according to Bhagavad Gita.
UNIT-3 Yoga for Health Promotion–II	 Introduction to First AID and CPR Yogic management of Stress and its Consequences Yogic prevention of common diseases Yoga and personality development 	To learn students about First AID	Students learn the importance of First Aid. Stress and types of stress. Stress management technique

PART-B

1. Communication Skills	Active listening, Parts of Speech, Writing Sentences	Make students to learn objective of Communication Skills	Students learn about Communication Skills like listening, speaking and writing. Overcome the barriers in communications.
2. Self Motivation Skills	Motivation and Positve attitude Result Orientation Self Awareness	To learn students about self control	Students learn about goal setting, motivation and awareness.
3. ICT Skills	Basics in MS Office and MS Excel	To learn students about technology skills	Students create Spread Sheet, learn how to present data.
4. Entrepreneurial Skills	Entrepreneurship and entrepreneur barriers in entrepreneur	Learn about Financial Risk and Business	
5. Green Skills	Green jobs and importance of Green Jobs	To aware students about environment	Students aware about pollution in environment and how to minimise it.

PRACTICAL GUIDELINES (50 marks)

1. Project – 10 Marks

Students will be assigned.

2. VIVA based on project – 05 Marks

Teacher may ask verbal question related to project, if no project assigned to students Viva may be based on the questions of practical nature from the field.

3. Practical File – 15 Marks

Students to make Power Point Presentation assignment, Practical File, Report. Instruction shall assign them any outlet to study the elements of Yoga.

4. Demonstration of Skills Competency in Lab activities - 20 Marks

SUBJECT : PHYSICS (042)

Recommended Books :

- 1. Physics, Class XII, Part-I and II, Published by NCERT
- 2. Laboratory Manual of Physics for Class XI published by NCERT
- 3. The list of other related books and manuals brought out by NCERT (consider multimedia also).

Chapters	Topics and Subtopic	Value	Learning Outcomes	Proposed Activities / Activity in the Class
Ch-1 Electric Charges and Fields	Electric charges, Conservation of charge, Coulomb's law-force between two point charges, forces between multiple charges; superposition principle and continuous charge distribution. 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. Electric flux, statement of Gauss's theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite pla sheet and uniformly charged thin spherical shell (field inside and outside)	Critical & Logical thinking	 Students will be able to produce static electricity. Students will be able to observe the effects of static electricity. Students will be able to recognize and define the terms attract and repel as they relate to static electricity. Students will be able to collect and graph data. 	1. comb & straw activity for electrostatic induction and conduction.
Ch-2 Electrostatic Potential and Capacitance	Electric potential, potential difference, electric potential due to a point charge, a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two-point charges and of electric dipole in an electrostatic	Scientific aptitude	 Understand the meaning and significance of electric potential. Use electric potential energy to analyze the motion of charged particles. 	2. To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items

	field. Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarization, capacitors and 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 (no derivation, formulae only)		 3. Calculate the electric potential that a collection of charges produces at a point in space. 4. Calculate the electric potential of useful and important charge distributions. 	
Ch-3 Current Electricity	Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity, temperature dependence of resistance, Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel, Kirchhoff's rules, Wheatstone bridge.	Human Welfare and rational thinking	To enable students to understand the concept of electric current and potential, Ohm's law, EMF and terminal potential difference. Mechanism of current conduction in metals, temperature dependence of resistance and resistivity, Kirchhoff's laws, Wheatstone bridge	 To determine resistivity of two / three wires by plotting a graph for potential difference versus current. To find resistance of a given wire / standard resistor using metre bridge. To verify the laws of combination (series) of resistances using a metre bridge. OR To verify the laws of combination (parallel) of resistances using a metre bridge.
Ch-4 Moving Charges and Magnetism	Concept of magnetic field, Oersted's experiment. Biot - Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinitely long straight wire. Straight solenoid	Honesty,	To enable students to understand and apply Biot Savart law and Ampere circuital law Force on a charged conductor in magnetic field Behaviour of the conductor in magnetic field, Moving coil	 4. To determine resistance of a galvanometer by half- deflection method and to find its figure of merit. 5. To convert the given galvanometer (of known resistance

	(only qualitative treatment), force on a moving charge in uniform magnetic and electric fields. 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; Current loop as a magnetic dipole and its magnetic dipole moment, moving coil galvanometer current sensitivity and conversion to ammeter and voltmeter.		galvanometer and its conversion into an ammeter and voltmeter	and figure of merit) into a voltmeter of desired range and to verify the same. OR To convert the given galvanometer (of known resistance and figure of merit) into an ammeter of desired range and to verify the same.
Ch-5	Bar magnet, bar magnet as an equivalent solenoid (qualitative treatment only), magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitative treatment only), magnetic field lines. Magnetic properties of materials- Para-, dia- and ferro-magnetic substancs with examples, Magnetization of materials, effect of temperature on magnetic properties.	Numerical and Data Inter- pretation Ability	To enable students to understand magnets and its properties. Various terms to study magnetic properties and classification of magnetic materials and their practical applications in our day to day life.	Demonstration of properties of magnet.

Ch-6	Electromagnetic	Critical	To enable students to	To measure the
Electromagnetic	induction; Faraday's	Thinking,	understand magnetic	resistance and
Induction	laws, induced EMF and	Creativity,	flux, electromagnetic	impedance of an
	current; Lenz's Law, Self	Reasoning,	induction, self and	inductor with or
	and mutual induction.	Logical	mutual inductance and	without iron core.
		Ability	their applications.	
Ch-7	Alternating currents, peak		To enable students to	
Alternating	and RMS value of		undertstand alternating	
Current	alternating current /		current it's various	
	voltage; reactance and		terms flow of	
	impedance; LCR series		alternating current	
	circuit (phasors only),		through resistance	
	resonance, power in AC		inductor and	
	circuits, power factor,		capacitance and power	
	wattless current. AC		of the AC circuit : To	
	generator, Transformer.		enable students to	
			understand concept of	
Ch-8	Basic idea of		electromagnetic waves	
Electromagnetic	displacement current,		its properties and	
Waves	Electromagnetic waves,		applications	
	their characteristics, their			
	transverse nature			
	(qualitative idea only).			
	Electromagnetic			
	spectrum (radio waves,			
	microwaves, infrared,			
	visible, ultraviole,t X-			
	rays, gamma rays)			
	facts about their use			
	facts about their use			
Ch-9	Ray Optics : Reflection	Life		researches in the area
Ray Optics and	of light, spherical	Lessons in		of optics to increase
Optical	mirrors, mirror formula,	nature.		the resolution power
Instruments	refraction of light, total	Responsi-		of microscope and
	internal reflection and	bility		telescope
	optial fibers, refraction at			
	spherical surfaces, lenses,			
	thin lens formula, lens			
	maker's formula,			
	magnification, power of a			
	lens, combination of thin			
	lenses in contact,			
	refraction of light through			
	a prism. Optical			

	instruments; Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.			
Ch-10 Wave Optics	Wave Optics : Wave front and Huygen's principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle. Inteference, Young's double slit experiment and expression for fringe width (No derivation final expression only), coherent sources and sustained interference of light, diffraction due to a single slit, width of central maxima (qualitative treatment only).	Reasoning, Application, Analysis, Accuracy,		
Ch-11 Dual Nature of Radiation and Matter Ch-12 Atoms	Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation- particle nature of light. Experimental study of photoelectric effect Matter waves-wave nature of particles, de- Broglie relation. Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model of hydrogen atom, Expression for radius of <i>n</i> th possible orbit, velocity and energy of electron in <i>n</i> th orbit, hyrodgen line spectra (qualitative treatment only)		Honesty Unity Team building	Students takes initiative to learn about the newer research, discoveries and inventions in Physics; such as, accelerators, thermistors, electrical properties of materials, India's atomic energy programme; research on the possibility of static electricity charging electronic devices; improving magnetic bottles to keep high energy plasma fusion under control

Ch-13 Nuclei	Composition and size of nucleus, nuclear force Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.		Critical Thinking, Creativity, Reasoning, Logical Ability	develops positive scientific attitude, and appreciates the role and impact of Physics and technology towards the improvement of quality of life and human welfare
Ch-14 Semiconductor	Energy bands in conductors, semiconductors and insulators (qualitative ideas only) Intrinsic and extrinsic semiconductors- <i>p</i> and <i>n</i> type, <i>p</i> - <i>n</i> junction Semiconductor diode I-V characteristics in forward and reverse bias, application of junction diode-diode as a rectifier.	Semi- conductors and diodes form the backbone of modern electronics, finding applications in various domains; Integrated circuits (ICs) power our smartphones, computers, and IoT devices. Light- emitting diodes (LEDs) illuminate our world with energy- efficient lighting solutions.	To enable students to understand conversion of A.C. into D.C. current	Students takes initiatives to learn about the newer research, in electronic as Semiconductor is the building of electronic

SUBJECT : CHEMISTRY

Recommended Books : NCERT Chemistry

	PERIODIC TEST-I							
Chapter Name	Topics	Value	Learning Outcomes	Proposed Activities (In School)	Proposed Activities (To be done at home for Revision)			
Solutions	Solutions : Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties - relative lowering of vapour pressure, Raoult's law, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor.	Logical reasoning and Problem Solving	The students will be able to : 1. Able to express concentration of different types of solutions in different units 2. Describe colligative properties of solutions 3. Solve numericals related to colligative properties. 4. Comprehend the concept of Raoult's Law and Ideal and Non Ideal solutions. 5. Use Van't Hoff Factor for association and dissociation.	Determination of concentration / molarity of KMnO ₄ solution by titrating it against a standard solution of : (i) Oxalic acid, (ii) Ferrous Ammonium Sulphate (Students will be required to prepare standard solutions by weighing themselves).	Assignment and Class Test			
Electro- chemistry	Electrochemistry : Redox reactions, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell- electrolytic cells and	Critical thinking, Problem Solving and Awareness	The students will be able to : 1. Comprehend the concept of Eletro- chemical cells and redox reactions taking place. 2. Write the cell representations and calculate EMF of the Galvanic Cells. 3. Understand the effect of change of concentration on EMF.	Variation of cell potential in $Zn/Zn^{2+} \parallel Cu^{2+} /$ Cu with change in concentration of electrolytes (CuSO ₄ or ZnSO ₄) at room temperature.	Assignment, Project Work and Class Test			

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	accumulator, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, fuel cells, corrosion.		 4. Define and use the Faraday's Laws of Electrolysis 5. Differentiate between Primary, Secondary and Fuel cells along. 		
Haloalknes	Cents, corrosion.Curiosion.Haloalkanes and Haloarenes :Curiosity, scientific aptitude and reasoningHaloalkanes and Haloalkanes :aptitude and reasoningHaloalkanes :reasoningNomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation		The students will be able to : 1. Comprehend the preparation, properties and uses of Haloalkanes and Haloarene. 2. Write the reactions for preparation and properties. 3. Understand the concept of Chirality and Optical Activity. 4. List the steps for the mechanisms–SN1 and SN2.	To demonstrate the concept of SN1 and SN2 reaction using Ball and Stick models (Structures)	Assignment and Class Test
		TE	RM-I		
Alcohols, Phenols and Ethers	Alcohols, Phenols and Ethers : Alcohols : Nomenclature, methods of preparation physical	Curiosity, scientific aptitude and reasoning	The students will be able to : 1. Comprehend the preparation_properties	Tests for the functional groups present in organic	Assignment, and Class Test
	and chemical properties (of primary alcohols only); identification of primary, secondary and tertiary alcohols, mechanism of	, in the second s	 and uses of Alcohols, phenols and Ethers. Write the reactions for preparation and properties. Explain the 	compounds : Unsaturation, alcoholic, phenolic, groups	

	dehydration, uses with special reference to methanol and ethanol; Phenols : Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophillic substitution reactions, uses of phenols. Ethers : Nomenclature, methods of preparation, physical and chemical properties, uses		properties and concept of Isomerism. 4. List the steps for the important mechanisms and naming reactions.		
Aldehydes, Ketones and Acids	Aldehydes, Ketones and Carboxylic Acids : Aldehydes and Ketones : Nomenclature, nature of carbonyl group, method of preparation, physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes, uses. Carboxylic Acids : Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.	Curiosity, scientific aptitude and reasoning	The students will be able to : 1. Understand the preparation and properties of Aldehydes, Ketones and Acid 2. Write the reactions related to properties and preparation of the compounds. 3. List the steps for mechanisms for the reactions. 4. Distinguish between various sets of compounds on the basis of functional group present.	Tests for the functional groups present in organic compounds : Unsaturation aldehydic, ketonic, carboxylic and amino (Primary) groups	Assignment and Class Test
Chemical Kinetics	Chemical Kinetics : Rate of a reaction (Average and instantaneous), factors affecting rate of reaction : concentration, temperature, catalyst; order and molecularity of a reaction, rate law and specific rate constant, integrated rate	Problem solving and Scientific Aptitude	The students will be able to : 1. Comprehend the concept of Chemical Kinetics, Rate of reaction and factors affecting rate of reaction. 2. Define Rate Law, Order and Molecularity for reaction.	Effect of concentration and temperature on the rate of reaction between Sodium Thiosulphate and Hydrochloric acid.	Assignment, Project Work and Class Test

	equations and half-life (only for zero and first order reactions), concept of collision theory (elementary idea, no mathematical treatment). Activation energy, Arrhenius equation.		 3. Write the integrated rate law as per kinetics of the compound. 4. Solve the numericals of the first order kinetics and Arrhenius equation. 5. List units and examples for different type of order of a reaction. 	(b) Study of reaction rates of any one of the following : (i) Reaction between Potassium Iodate, (KIO ₃) and Sodium Sulphite; (Na ₂ SO ₃) using starch solution as indicator (clock reaction).	
Coordination Compounds	CoordinationCuriosity, compounds :Cordination compoundsand logical- Introduction, ligands, coordination number, colour, magneticreasoningproperties and shapes, IUPAC nomenclature of mononuclear coordination		The students will be able to : 1. Define and understand the concept of co-ordinate bond and co-ordination compounds. 2. List the postulates of Werner's Theory, Valence Bond Theory and Crystal Field Theory with suitable examples. 3. Comprehend the different types of Isomerism exhibited by the co-ordination compounds. 4. Write the IUPAC names.	Project making on applications of coordination chemistry in day to day activities	Assignment, Project Work and Class Test
Amines	Amines : Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines. Diazonium Salts :	Curiosity, scientific aptitude and reasoning	The students will be able to : 1. Concept clarity for nomenclature, preparation, reactions and uses of amines. 2. Compare the basic behaviour of aliphatic and aromatic amines.	Tests for the functional groups present in organic compounds	Assignment, and Class Test

	Preparation, chemical reactions and importance in synthetic organic chemistry		3. Able to distinguish between primary, and tertiary amine.		
d and f- Block Elements	d f- kd and f- BlockkElements : General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first row transition metals - metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic properties, interstitial compounds, alloy formation, preparation and properties of K $_2$ Cr $_2$ O $_7$ and KMnO $_4$. Lanthanoids - Electronic configuration, oxidation states, chemical 		LogicalThe students will be ablereasoningto :and1. Explain thescientificproperties of d-blocktemperamentlanthanoids andlanthanoids (f-block)with respect to theirelectronicconfigurations,oxidation state,structure and chemicalproperties.2. Write chamicalreactions of preparationand properties ofand properties ofcompounds of d-blockelements.3. List the properties tomake the comparativestudy of differentelements.3. List the properties to		Assignment, Project Work and Class Test
Biomolecules	Biomolecules : Carbohydrates - Classification (aldoses and ketoses), monosaccahrides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of	General awareness and under- standing	The students will be able to : 1. Classify carbohydrates, proteins, vitamins and nucleic acid on the basis of their structure. 2. Explain the structure of various biomolecules. 3. Write reactions to elucidate structure of glucose molecule.	Test for carbohydrates, fats and proteins in pure samples and given food stuffs	Assignment, Project Work and Class Test

C F a b F F F S S S	carbohydates. Proteins - Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary, tertiary structure and quaternary		4. Appreciate the role of biomoelcules in biosystem.5. Enumerate points of differences between different types of biomolecules.			
s id C H iv V a A F	structures (qualitative dea only), denaturation of proteins; enzymes. Hormones - Elementary dea excluding structure. Vitamin Classification and functions. Nucleic acid : DNA and RNA					
PERIODIC TEST-II						
Full Syllabus						

SYLLABUS FOR SESSION 2025-26

CLASS-XII

SUBJECT : TAXATION (822)

PART-A EMPLOYABILITY SKILLS

S.No.	Units	Duration in Hours
1.	Unit 1 : Communication Skills-IV	13
2.	Unit 2 : Self-management Skills-IV	07
3.	Unit 3 : Information and Communication Technology Skills-IV	13
4.	Unit 4 : Entrepreneurial Skills-IV	10
5.	Unit 5 : Green Skills-IV	07
	TOTAL DURATION	50

The detailed Curriculum / Topics to be covered under Part A : Employability Skills can be downloaded from CBSE website.

PART-B SUBJECT SPECIFIC SKILLS

S.No.	Units	Duration in Hours
1.	IT-1 : Deductions from Gross Total Income	40
2.	IT-2 : Computation of Tax Liability of an Individual	60
3.	IT-3 : TDS and Advance Payment Tax	20
4.	IT-4 : Goods & Service Tax (GST)	30
	TOTAL DURATION	150

SUBJECT : TAXATION

	PART-A : EMPLOYABILITY SKILLS						
	Unit		Topics to be covered	Le	arning Outcomes		Proposed Activity
1.	Communication Skills	1. 2.	Importance of active listening at workplace Steps to active listening	1.	Describe the steps to active listening skills	1. 2.	Demonstration of the key aspects of becoming active listener Preparing posters of steps for active listening
		1.	 Writing skills to the following : Sentence Phrase Kinds of Sentences Parts of Sentence Parts of Speech Articles Construction of a Paragraph 	2.	Demonstrate basic writing skills	1.	Demonstration and practice of writing sentences and paragraphs on topics related to the subject
2.	Self- Management Skills-IV	1. 2.	Finding and listing motives (needs and desires); Finding sources of motivation and inspiration (music, books, activities); expansive thoughts; living fully in the present moment; dreaming big	1.	Describe the various factors influencing self- motivation	1. 2.	Group discussion on identifying needs and desire Discussion on sources of motivation and inspiration
		1. 2. 3. 4.	Describe the meaning of personality Describe how personality influence others Describe basic personality traits Describe common personality disorders- paranoid, antisocial, schizoid, borderline, narcissistic, avoidant, dependent and obsessive	2.	Describe the basic personality traits, types and disorders	1.	Demonstrate the knowledge of different personality types
3.	Information and Communication Technology Skills-IV	1. 2. 3. 4. 5. 6.	Introduction to spreadsheet application Spreadsheet applications Creating a new worksheet Operating workbook and entering text Resizing fonts and styles Copying and moving	1.	Perform tabulation using spreadsheet application	1.	 Demonstration and practice on the following : Introduction to the spreadsheet application Listing the spreadsheet applications

 7. Filter and Sorting 8. Formulas and functions 9. Password protection 10. Printing a spreadsheet 11. Saving a spreadsheet in various formats. 		 Creating a new worksheet Opening the workbook and enter text Resizing fonts and styles Copying and move the cell data Sorting and Filter the data Applying elementary formulas and functions Protecting the spreadsheet with password Printing a spreadsheet Saving the spreadsheet in various formats.
 Introduction to presentation Software packages for presentation Creating a new presentation Adding a slide Deleting a slide Entering and editing text Formatting text Inserting clipart and images Slide layout Saving a presentation Printing a presentation document 	2. Prepare a presentation using presentation application	 Demonstration and practice on the following : Listing the software packages for presentation Explaining the features of presentation Creating a new presentation Adding a slide to presentation Adding a slide Entering and edit text Formatting text Inserting clipart and images Sliding layout Saving a presentation document

4.	Entrepreneurial Skills Green Skills-IV	1. 2.	Barriers to becoming entrepreneur Behavioral and entrepreneurial competencies – adaptability / decisiveness, initiative / perseverance, interpersonal skills, organizational skills, stress management, valuing service and diversity	1.	Identify the general and entrepreneurial behavioral competencies	 1. 2. 3. 4. 	Administering self- rating questionnaire and score responses on each of the competencies Collect small story / anecdote of prominent successful entrepreneurs Identify entrepreneurial competencies reflected in each story and connect it to the definition of behavioral competencies Preparation of competencies profile of students
		1.	Entrepreneurial competencies in particular : self-confidence, initiative, seeing and acting on opportunities, concern for quality, goal setting and risk taking, problem solving and creativity, systematic planning and efficiency, information seeking, persistence, influencing and negotiating, team building.	2.	Demonstrate the knowledge of self-assessment of behavioral competencies	1.	Games and exercises on charging entrepreneurial behaviour and development of competencies for enhancing self- confidence, problem solving, goal setting, information seeking, team building and creativity.
5.	Green Skills-IV	1. 2. 3. 4. 5. 6. 7. 8. 9.	Role of green jobs in toxin-free homes, Green organic gardening, public transport and energy conservation, Green jobs in water conservation Green jobs in solar and wind power, waste reduction, reuse and recycling of wastes, Green jobs in green tourism Green jobs in building and construction Green jobs in appropriate technology Role of green jobs in improving energy and raw materials use Role of green jobs in limiting greenhouse gas emissions	1.	Identify the role and importance of green jobs in different sectors	1.	Listing of green jobs and preparation of posters on green job profiles Prepare posters on green jobs.

		 Role of green jobs minimizing waste and pollution. Role of green jobs in protecting and restoring ecosystems Role of green jobs in support adaptation to the effects of climate change 		c
_	Unit	FARI-D ; SUDJECI SI	Learning Outcomes	Proposed Activity
1.	Deductions from Gross Total Income	 1.1 Introduction : Basic Rules Governing Deduction & Deduction in Respect of Some Payments 1.2 Basic Overview of Deductions in Respect of certain incomes & Deduction 80QQB, 60RRB, 80TTA & 80U. 	Basic rules applicable to deductions and know the permissible deduction in respect of incomes.	Session : Discussion related to deduction. Session : Discussion of deduction 80C to 80GGC with practical example. Session : Discussion of deduction related to disability, royalty, patents and saving bank account interest.
2.	Computation of Tax Liability of an individual	2.1 Introduction : Calculation of Tax Liability of Individual	Understand the rules for computation of Taxable Income	Session : Discussion related to rules related to computation of tax liability. Session : Discussion on Practical problems.
3.	TDS and Advance Payment of Tax	3.1 Tax Deducted At Source	Understand the meaning of tax deducted at source, various provisions relating to deductions of tax at source, advance tax and Presumptive Taxation Scheme	 Session : Introduction of various ways for collection and recovery of income-tax and TDS. Discussion of the provisions relating to deduction of tax at source in respect of different incomes. Collection and analysis of TDS returns of various tax-payers such as salaried employee, corporate assesse, etc. Acquaint with various provisions related to lower or non-deduction, duties of persons, deducting tax at source and right of tax payers, possible defaults and prosecution proceedings, etc.

		3.2 Advance Payment of Tax		 Session : Acquaint with the concept advance payment of tax. Discussion of provisions of Presumptive Taxation Scheme. Discussion of method to calculate the liability of advance tax on due date. Discussion of the role of Assessing officer.
4.	Goods and Service Tax (GST)	4.1 Meaning of Direct Tax and GST4.2 Introduction to GST	Meaning of Direct and Indirect Taxes, Previous Tax Structure, Meaning of GST, Features, Advantages and Disadvantages of GST.	 Session : Introduction of various types of Indirect Taxes prior to coming of GST on 01/07/2017 Session : Discussion on the various taxes and tax rates under the pre-GST system. Discussion on meaning and objectives of GST. Discussion of various features of GST Law (CGST Act & SGST Act of any state). Discussion on the advantages and the challenges of GST. Discussion on the dual GST and IGST calculation. Discussion on various types of Returns in GST.

SUBJECT : PAINTING (049)

	TERM-I					
Topic – Sub-Topic	Learning Objectives	Values	Activity			
 TOPIC – The Rajasthani School : 1. Origin and Development 2. Sub-Schools-Mewar, Bundi, Jodhpur, Bikaner, Kishangarh and Jaipur 3. Main features of the Rajasthani School 4. Appreciation of the following Rajasthani paintings : (1) Maru-Ragini (2) Radha (Bani- Thani) (3) Chaugan Players (4) Bharat Meets Rama at Chitrakuta (5) Krishna on swing 	Students can know about the culture, costume, jewellery, life style of Rajasthan through Paintings of Rajasthani School of Art. Foster intellectual, Curiosity, Global Knowledge, Critical thinking, Cultural awarness.	Through Paintings students can learn team work towards a common goal, life values.	Students will make one painting of Rajasthani Folk art on A2 size sheet.			
 TOPIC – The Pahari School Origin and development Sub-Schools-Basohli, Guler, Kangra, Chamba and Garwal Main features of the Pahari School Appreciation of the following Pahari paintings : (1) Krishna with Gopis, Nand, Yashoda and Kinsmen Going to Vrindavana 	Students will able to know : Learning with art helps to increase knowledge and understanding of subject Area. Establish framework for students to develop an aesthetic appreciation for life arts.	Prepare students to be responsible citizens, life long learners and ready leaders in their chosen fields.	Students will make one painting of Landscape with Mountain river and trees.			

UN	UNIT-2 : The Mughal and Deccan Schools of Miniature (16th Century AD to 19th Centiry AD)					
TC Scl 1. 2. 3.	PIC – The Mughal nool Origin and development Main features of the Mughal School Appreciation of the following Mughal <u>Paintings :</u> (1) Falcon on a Bird- Rest (2) Marriage Procession of Dara Shukoh (3) Krishna Lifting Mount Goverdhana (4) Kabir and Raidas	Students will be able to know : 21st century skill critical thinking, Improved imagination, creativity, observation. Student will gain knowledge of different cultures and different artist like Haji Madini	They can learn human life values through great Paintings like humanity, mutual harmony.	Make chart of Mughal Time Period on A4 size.		
TC Sci 1. 2. 3.	PIC – The Deccan nool Origin and Development Main Features of the Deccan School Appreciation of the following Deccan Paintings : (1) Hazrat Nizamuddin Auliya and Amir Khusro (2) Chand Bibi Playing Polo (Chaugan)	Students will able to know : Through art work of different types of artists, students can learn respect of gurus, senior or juniors. All in all, mutual respect for each other.	Students can see different types of religious influence on Indian Art.	Make one composition on Music & playing scene Size A2.		
		TER	M-II			
UN TC Scl 1. 2.	NIT-3 (a) PIC – The Bengal nool of Painting Introduction to the Bengal School National Flag of India and the Symbollic,	Students can know about the wash technique. They can learn renaissance period of Indian art and contribution of India Artist in the struggle of National Freedom Movement.	Through paintings students can learn love and respect, loyalty to the master. Do not be in human and cruel towards animals.	Students will make one painting & wash technique or Bengali folk art.		

3.	Significance of its	Students will know about		
	forms and the	of the wash technique and		
	colours.	folk art.		
	(1) Origin and			
	development of the			
	Bengal School of			
	Panting			
	(2) Main features of			
	the Bengal School of			
	Painting			
4.	Contribution of			
	Indian artists in the			
	struggle for National			
	Freedom Movement			
	Paintings :			
	(1) Journey's End –			
	Abanindranath			
	Tagore			
	(2) Shiv and Sati –			
	Nandia Bose			
	(3) Radhika – M.A.R.			
	Chughtal			
	(4) Meghdoot – Ram			
	Gopal Vijaivargiya			
то	Gopal Vijaivargiya PIC – The Modern			
TO Tre	Gopal Vijaivargiya PIC – The Modern ends in Indian Art			
TC Trc 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the	Students will be able to	Art education activity is	Make one canvas painting
TC Tre 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following	Students will be able to known : Demonstrate deep	Art education activity is helpful for the	Make one canvas painting with oil or acrylic colours.
TC Tro 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary	Students will be able to known : Demonstrate deep understanding about	Art education activity is helpful for the improvement of art	Make one canvas painting with oil or acrylic colours.
TO Tro 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art	Students will be able to known : Demonstrate deep understanding about various Indian Modern	Art education activity is helpful for the improvement of art education, cognitive	Make one canvas painting with oil or acrylic colours.
TC Tro 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art <u>Paintings :</u>	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques.	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages	Make one canvas painting with oil or acrylic colours.
TC Trc 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art <u>Paintings :</u> (1) Rama	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques. Examine major art school,	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages Critical Thinking, Problem	Make one canvas painting with oil or acrylic colours.
TC Tro 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art Paintings : (1) Rama Vanquishing the	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques. Examine major art school, tradition, artist, artworks,	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages Critical Thinking, Problem Solving and Decision	Make one canvas painting with oil or acrylic colours.
TC Tro 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art <u>Paintings :</u> (1) Rama Vanquishing the Pride of the Ocean –	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques. Examine major art school, tradition, artist, artworks, aesthetic values and	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages Critical Thinking, Problem Solving and Decision Making abilities.	Make one canvas painting with oil or acrylic colours.
TC Tro 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art Paintings : (1) Rama Vanquishing the Pride of the Ocean – Raja Ravi Varma	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques. Examine major art school, tradition, artist, artworks, aesthetic values and theories to assess the	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages Critical Thinking, Problem Solving and Decision Making abilities.	Make one canvas painting with oil or acrylic colours.
TC Tre 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art Paintings : (1) Rama Vanquishing the Pride of the Ocean – Raja Ravi Varma (2) Mother and Child	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques. Examine major art school, tradition, artist, artworks, aesthetic values and theories to assess the qualities of work of art in	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages Critical Thinking, Problem Solving and Decision Making abilities.	Make one canvas painting with oil or acrylic colours.
TC Tro 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art Paintings : (1) Rama Vanquishing the Pride of the Ocean – Raja Ravi Varma (2) Mother and Child – Jamini Roy	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques. Examine major art school, tradition, artist, artworks, aesthetic values and theories to assess the qualities of work of art in their historical and cultural	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages Critical Thinking, Problem Solving and Decision Making abilities.	Make one canvas painting with oil or acrylic colours.
TC Tre 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art Paintings : (1) Rama Vanquishing the Pride of the Ocean – Raja Ravi Varma (2) Mother and Child – Jamini Roy (3) Haldi Grinders –	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques. Examine major art school, tradition, artist, artworks, aesthetic values and theories to assess the qualities of work of art in their historical and cultural settings.	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages Critical Thinking, Problem Solving and Decision Making abilities.	Make one canvas painting with oil or acrylic colours.
TC Tro 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art Paintings : (1) Rama Vanquishing the Pride of the Ocean – Raja Ravi Varma (2) Mother and Child – Jamini Roy (3) Haldi Grinders – Amrita Sher Gill	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques. Examine major art school, tradition, artist, artworks, aesthetic values and theories to assess the qualities of work of art in their historical and cultural settings.	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages Critical Thinking, Problem Solving and Decision Making abilities.	Make one canvas painting with oil or acrylic colours.
TC Tro 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art Paintings : (1) Rama Vanquishing the Pride of the Ocean – Raja Ravi Varma (2) Mother and Child – Jamini Roy (3) Haldi Grinders – Amrita Sher Gill (4) Mother Teresa –	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques. Examine major art school, tradition, artist, artworks, aesthetic values and theories to assess the qualities of work of art in their historical and cultural settings.	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages Critical Thinking, Problem Solving and Decision Making abilities.	Make one canvas painting with oil or acrylic colours.
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TC Tro 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art Paintings : (1) Rama Vanquishing the Pride of the Ocean – Raja Ravi Varma (2) Mother and Child – Jamini Roy (3) Haldi Grinders – Amrita Sher Gill (4) Mother Teresa – M.F. Hussain Graphic – Prints : (1) Pitti	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques. Examine major art school, tradition, artist, artworks, aesthetic values and theories to assess the qualities of work of art in their historical and cultural settings.	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages Critical Thinking, Problem Solving and Decision Making abilities.	Make one canvas painting with oil or acrylic colours.
TC Tre 1.	Gopal Vijaivargiya PIC – The Modern ends in Indian Art Appreciation of the following contemporary (Modern) Indian Art Paintings : (1) Rama Vanquishing the Pride of the Ocean – Raja Ravi Varma (2) Mother and Child – Jamini Roy (3) Haldi Grinders – Amrita Sher Gill (4) Mother Teresa – M.F. Hussain Graphic – Prints : (1) Children –	Students will be able to known : Demonstrate deep understanding about various Indian Modern trends and techniques. Examine major art school, tradition, artist, artworks, aesthetic values and theories to assess the qualities of work of art in their historical and cultural settings.	Art education activity is helpful for the improvement of art education, cognitive abilities and encourages Critical Thinking, Problem Solving and Decision Making abilities.	Make one canvas painting with oil or acrylic colours.

(2) Devi – Jyoti Bhatt		
(3) Of Walls –		
Anupam Sud		
(4) Man, Woman and		
Tree – K. Laxma		
Goud		
Sculptures :		
(1) Triumph of		
Labour – D.P.		
Roychowdhury		
(2) Santhal Family –		
Ramkinkar Vaij		
(3) Cries Un heard		
– Amar Nath Sehgal		
(4) Ganesha – P.V.		
Janaki Ram		

PRACTICAL

One Practical Paper

70 Marks Time : 6 Hours (3+3)

UNIT WISE WEIGHTAGE

Units	Content	Periods	Marks
1	Nature and Object Study	50	25
2	Painting Competition	50	25
3	Portfolio Assessment	48	20
		148	70

Unit 1 : Nature and Object Study

Study of two or three natural and geometric forms in pencil with light and shade from a point of view. Natural forms like plants, vegetables, fruits and flowers, etc., are to be used Geometrical forms of objects like cubes, cones, prisms, cylinders and spheres should be used.

Unit 2 : Painting Composition

(i)	Simple exercises of basic design in variation of geometric and rhythmic shapes	geometrical and decorative
	designs and colours to understand designs as organism visual arrangements.	10 Marks 25 Periods
(ii)	Sketches from life and nature	15 Maks 25 Periods
Un	it 3 : Portfolio Assessment	20 Marks 48 Periods
(a)	Record of the entire years performance from sketch to finished products.	10 Marks
(b)	Five selected nature and object study exercises in any media done during session in	cluding the minimum of two
	still life exercises.	05 Marks
(c)	One selected work of paintings composition done during the year.	03 Marks
(d)	Two selected works of paintings done during the year.	02 Marks
	These selected works prepared during the course by the candidates and certified work, done in the school will be placed before examiners for assessment.	the school authorities as the

Note :

- 1. The candidates should be given one hour-break after first three hours.
- 2. The time-table to be so framed a to allow the students to work continuously for minimum of two periods at a stretch.

25 Marks 50 Periods

25 Marksd 50 Periods

SYLLABUS FOR SESSION 2025-26

CLASS-XII

SUBJECT : MUSIC VOCAL (PRACTICAL) (034)

Sr. No.	Topics
1.	One Vilambit Khayal with simple elaborations and few tanas in any two of the prescribed Ragas.
2.	One Drut Khayal with simple elaborations and few tanas in the following Ragas-Bhairav, Bageshri, and Malkauns.
3.	One Tarana and one Dhamar with dugun and chaugun in any one of the prescribed Ragas.
4.	Ability to recognize the Ragas from the Phrases of swaras rendered by the examiner.
5.	Recitation of the Thekas of Jhaptala, Rupak, and Dhamar with Dugun and Chaugun, keeping tala with hand beats.
6.	Tuning of Tanpura.

SUBJECT : MUSIC VOCAL (034)

	TERM-I						
	प्रकरण	अधिगम उद्देश्य	जीवन कौशल	कला एकीकृत गतिविधियाँ			
1.	प्रकरण अलंकार, कण, मींड, खटका, मुर्की, गमक	आधगम उद्दश्य अलंकार के माध्यम से स्वर ज्ञान के साथ-साथ लय तथा लयकारियों का ज्ञान विद्यार्थियों को मिलेगा। इन्हीं अलंकारों के माध्यम से अनेकानेक अलंकारों की रचना करने में सहायता मिलेगी तथा विद्यार्थियों में कल्पना तथा सृजनात्मक गुणों का विकास संभव हो सकेगा तथा कण, मींड, खटका, मुर्की, गमक	जावन काशल इस ज्ञान के बिना विद्यार्थियों का सांगीतिक ज्ञान रसहीन होता है।	कला एकाकृत गातावाधया इनके माध्यम से विद्यार्थी गायन का अभ्यास करके अपने कंठ को मधुर बनायेंगे तथा स्वर ज्ञान को बढ़ाने के लिये रियाज करेंगे।			
2.	ग्राम, मूर्च्छना, आलाप, तान रागों का समय सिद्धान्त	के ज्ञान से विद्यार्थियों का गायन रंजकता से परिपूर्ण होगा। इनके ज्ञान से विद्यार्थी गण संगीत की बारीकियों से अवगत हो जाते हैं। उनका गायन माधुर्यता से ओत-प्रोत हो जाता है। इनके ज्ञान से रागों के गायन समय का ज्ञान विद्यार्थियों को हो	इनके ज्ञान से विद्यार्थियों का ज्ञान कलात्मकता से भरपूर होगा। इसके अभाव में विद्यार्थी सही समय पर उचित राग का प्रदर्शन	विद्यार्थियों के रियाज़ का स्तर बढ़ेगा। विद्यार्थी समय के अनुसार राग गायन करते हैं।			
4.	उस्ताद फैयाज खॉं, उस्ताद बड़े गुलाम अली खॉं, पंडित कृष्ण राव शंकर जीवनी	जाता है। विद्यार्थियों को इन महान् शास्त्रीय संगीत के विद्वानों के जीवन, संघर्ष तथा उपलब्धियों का ज्ञान होता है।	नहीं कर पाते। संगीत के इन महान गायकों की जीवनी के ज्ञान से विद्यार्थियों का उत्साह बढ़ता है।	विद्यार्थी इन महान् विद्वानों के जीवन को पढ़ेंगे, समझेंगे तथा ज्ञान में वृद्धि करेंगे।			
		TER	M-II	-			
5.	ताल झपताल, ताल रूपक, ताल धमार	इन तालों के ज्ञान से विद्यार्थी का गायन लय में रहता है तथा रंजकता भरा होता है।	इसके अभाव में गायन भावपूर्ण तथा सौंदर्यात्मक हो ही नहीं सकता।	विद्यार्थी इन तालों का गायन तथा वादन सीखते हैं।			
6. तानपूरा		इस वाद्य के ज्ञान से विद्यार्थियों में स्वर में गाने में भरपूर मदद मिलती है।	इसके ज्ञान के अभाव में स्वर ज्ञान कमज़ोर होता है।	विद्यार्थी तानपूरे के विभिन्न भागों की जानकारी के साथ– साथ इसके प्रयोग का ज्ञान लेते हैं।			

SUBJECT : INFORMATICS PRACTICES (065)

UNIT-I

Unit 2 : Database Query using SQL Revision of database concepts and SQL commands covered in class XI Math functions : POWER(), ROUND(), MOD(). Text functions : UCASE ()/UPPER(), LCASE()/LOWER(), MID()/SUBSTRING()/SUBSTR(), LENGTH(), LEFT(), RIGHT(), INSTR(), LTRIM(), RTRIM(), TRIM(). Date Functions : NOW(), DATE(), MONTH(), MONTHNAME(), YEAR(), DAY(), DAYNAME(). Aggregate Functions : MAX(), MIN(), AVG(), SUM(), COUNT(); using COUNT(*).

Querying and manipulating data using Group by, Having, Order by. Working with two tables using equl-join.

Unit 1 : Data Visualization : Purpose of plotting; drawing and saving following types of plots using Matplotlib – line plot, bar graph, histogram Customizing plots : adding label, title, and legend in plots.

TERM-I

Unit 3 : Introduction to Computer Networks Introduction to networks, Types of network : PAN, LAN, MAN, WAN. Network Devices : modem, hub, switch, repeater, router, gateway Network Topologies : Star, Bus, Tree, Mesh. Introduction to Internet, URL, W W, and its applications – Web, email, Chat, VoIP.

Unit 1 : Data Handling using Pandas - I Introduction to Python libraries - Pandas, Matplotlib. Data structures in Pandas - Series and Data Frames. Series : Creation of Series from – ndarray, dictionary, scalar value; mathematical operations; Head and Tail functions; Selection, Indexing and Slicing.

UNIT-II

Data Frames : creation - from dictionary of Series, list of dictionaries, Text/CSV files; display; iteration; Operations on rows and columns : add, select, delete, rename; Head and Tail functions; Indexing using Labels, Boolean Indexing; Importing/Exporting Data between CSV files and Data Frames.

TERM-2

Unit 4 : Societal Impacts Digital footprint, net and communication etiquettes, data protection, intellectual property rights (IPR), plagiarism, licensing and copyright, free and open source software (FOSS), cybercrime and cyber laws, hacking, phishing, cyber bullying, overview of Indian IT Act.

E-waste : hazards and management. Awareness about health concerns related to the usage of technology.

Website : Introduction, difference between a website and webpage, static vs dynamic web page, web server and hosting of a website. Web Browsers : Introduction, commonly used browsers, browser settings, add-ons and plug-ins, cookies.

SUBJECT : COMPUTER SCIENCE (083)

UNIT-I

CH-1 : REVISION OF BASIC PYTHON

Programming fundamentals, condition and looping statements, strings, lists, dictionary, Tuples and related functions

CH-8: RELATIONAL DATABASE AND SQL

Introduction to database, DDL commands, DML commands, DCL commands and SQL aggregate functions

CH-2 : FUNCTIONS

Scope and parameters, functions using libraries (math and string functions), user defined functions

TERM-I

CH-7 : COMPUTER NETWORKS AND ITS CONCEPTS

CH-9 : INTERFACE PYTHON WITH SQL

Creating database connectivity, creation of cursor and its execution, fetchone (), fetchall (), rowcount () functions

UNIT-II

CH-3 : USING PYTHON LIBRARIES

CH-4 : DAT FILE HANDLING

Need of a data file, text file, binary file, csv file, various file operations, open, close append, update modes and its operations

TERM-2

CH-6 : DATA STRUCTURES IN PYTHON

Pop, push methods using lists

Insert delete methods using queue

TEDMI							
Chapters	Topics	Sub Topics of the Chapter	Value	Learning Outcomes	Proposed Activities (To be done in school)	Proposed Activities (To be done home for revision)	
Ch-1 Sexual reproduction in flowering plants	Flower structure : development of male and female gametophytes : pollination – types, agencies and examples; out breeding devices; pollen-pistil interaction : double fertilization; post- fertilization events – development of endosperm and embryo development of seed and formation of fruit; special modes – apomixis parthenocarpy, polyembryony; Significance of seed dispersal and fruit formation.	 micro-sporogenesis megasporo-genesis pollen sacs structure of micros-porangium structure of pollen grain megasporo-genesis structure of anatropous ovule. formation and structure of embryo sac. pollination and its types. emas-culation and bagging. double fertilization endosperm formation monocot and dicot embryo albuminous seeds and exalbuminous seeds and exalbuminous seeds 	Students will be able to understand the concept of variations amongst plants and causes behind it.	To enable students to : 1. State the structure & function of the floral parts including : Sepal, petal, stamen, carpel. 2. State that the Pollen grain produces male gamete and define the terms : pollination, self-pollination with Outline methods of pollination including : cross- pollination & self- pollination & self- pollination. 3. Explain various techniques of outbreeding devices. 4. State that the Emrbyo sac produces an egg cell & polar nuclei.	1. To study temporary mount of pollen germination on stigma. 2. Emascu- lation and bagging	1. Collect five seeds of monocots and dicots. 2. Germinate at two types of seeds and study their plants. 3. Collect any three flowers and study their pollination types.	

SUBJECT : BIOLOGY
	5 Define the
• partneno-	5. Define the
carpic truits	term :
• apomixix	fertilisation.
• polyembry-	6. Outline
ony	seed structure
• significance	& function of
of seed	following;
dispersal	testa, plumule,
and fruit	radicle,
formation	embryo,
	cotyledon
	7. Explain
	development
	of embryo and
	seed. & food
	supply
	(endosperm or
	seed leaves)
	8 Classify
	plante as
	monocotuladon
	ar diatoyladan
	bi dictoyledoli
	& distinguish
	o Mala
	9. Make
	reference to
	non-endosper
	mic seed.
	10 Outline
	fruit
	formation.
	Outline
	seedless fruit
	production.
	11. Define the
	term
	dormancy.
	State
	advantages of
	dormancy.
	12. Explain
	importance of
	apospory for
	hybrid seed
	production.

				13. Draw well labelled diagrams of mega sporangium, micro- sporangium, various stages of mega micro- sporogenesis, development of embryo and structure of seed		
Ch-2 Human Reproduction	 Male and Female Reproductive Systems Menstrual Cycle and Gameto- genesis Fertilization and implantation Pregnancy and embryonic development Parturition and lactation 	The process of gamete formation • the hormonal control of the menstrual cycle • fertilization, implantation, embryonic development • birth, and postnatal care. – The chapter also discusses reproductive health issues such as STDs, infertility, and - conctra- ception, and explores the challenges of	The study of human reproduction on not only imparts knowledge about the bilogical aspects of reproduction but also helps in understanding the ethical, social, and cultural dimensions of human sexuality and reproduction. The following are some of the values that can be learnt from the chapter.	 Understand the structure and functions of the male and female reproductive systems Describe the process of gametogenesis and menstrual cycle Explain the process of fertilization and implantation Understand the stages of embryonic development and the process of parturition and lactation 	 To study permanent stained slides of T.S of testis and T.S of ovary. To study permanent stained side of T.S of blastula. 	 Make a colourful chart showing various stages of menstrual cycle. Make a chart of comparison of spermat- genesis and oogenesis.

		population growth and the measures that can be taken to control it.			
Ch-3 Reproductive Health	 Reproductive health Sexually transmitted diseases (STDs) Infertility and assisted reproductive technologies (ART) Population control reproductive health issues such as STDs, infertility and contra- ception, and explores the challenges of population growth and the measures that can be taken to control it. 	The following are some of the values that can be learnt from the chapter; Respect for diversity : The chapter highlights the variations in the human reproductive system and emphasizes the importance of respecting individual differences. Responsibility: The discussion on reproductive health and birth control measures highlights the need for responsible sexual behaviour and decision- making.	This chapter not only imparts knowledge about reproduction the biological aspects of repproductive solutions. It discusses the importance of population control and different birth control methods available to individuals. The chapter also discusses the legal aspects of Medical Termination of Pregnancy (MTP), including the conditions under which it can be done and the responsibilities of the medical practitioners. The section on STIs covers the types of	 Awareness of the different methods of contraception and their advantages and dis- advantages, and the importance of making informed choices about contra- ception. Knowledge of the legal and ethical apsects of medical termination of pregnancy (MTP), including the conditions under which MTP can be performed and the responsi- bilities of medical practitionare 	
		chapter	Jr Jr Jo OI	practitioners	

-			
	stresses the	in providing	
	equality of	safe and	
	men and	legal MTP	
	women in	services.	
	reproductive		
	roles, with an	• Under-	
	emphasis on	standing the	
	the role of	causes of	
	men in birth	infertility	
	control and	and the	
	family	different	
	planning.	treatment	
	1 2	options	
	Empathy :	avaiable for	
	The chapter	couples	
	emphasizes	struggling	
	the Sexually	with	
	Transmitted		
	Infections		
	(STIs)		
	Infertility and		
	assisted		
	reproductive		
	technology		
	(ART) Social		
	issues related		
	to		
	reproductive		
	health.		
	including sex		
	education.		
	female		
	foeticide, and		
	maternal and		
	child health.		
	The chapter		
	explores the		
	various		
	reproductive		
	health		
	problems and		
	their		

Ch-4MendelianPrinciples of Inheritance and VariationsInheritance DeviationsYariationsFrom Mendelism - Incomplete dominance Co-dominance Inheritance of blood groupsInheritance of Blood groupsPleiotropy Elementary idea of polygenic inheritanceInheritance InheritanceChromosome InheritanceInheritance InheritanceChromosome InheritanceInheritance InheritanceChromosome InheritanceInheritance InheritanceInheritanceInheritance InheritanceChromosome InheritanceInheritance InheritanceInheritanceInheritance InheritanceChromosome InheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritanceInheritance InheritanceInheritance <th> principle of dominant and recessive traits and the concept of homozygous and heterozygous alleles. The inheritance patterns of traits controlled by a single gene, including complete Scientific temper : The chapter dominance, -incomplete dominance, and co- dominance, and co- dominance Down syndrome and -Turner syndome. It also discusses genetic counselling and the ethical issues related to genetic testing. </th> <th>1. Apprecia- tion for the diversity of life : The study of inheritance patterns shows the incredible diversity of traits that can be found in different species, as well as the variation importance of understanding the physical and emotional changes that occur during pregnancy, child birth, and postnatal care. Sensitivity : The chapter emphasizes the need for sensitivity and confidentiality while dealing with issues related to reproductive health.</th> <th> Understand the basic principles of Mendelian inheritance Describe the chromosome theory of inheritance Explain the molecular basis of inheritance Identify and describe various genetic disorders within a species. This can lead to appre- ciation of the beauty and complexity of the natural world. Under- standing of scientific inequiry : The work of Gregor Mendel and other scientifics the scientific method, </th> <th>1. Study of Dihybrid Cross : In this practical, students can study the inheritance of two different traits using a dihybrid cross. By observing the phenotypic ratio of the offpsring, students can understand mysteries of the natural world,</th> <th>1. Study any 2-inherited characteristics in people around you.</th>	 principle of dominant and recessive traits and the concept of homozygous and heterozygous alleles. The inheritance patterns of traits controlled by a single gene, including complete Scientific temper : The chapter dominance, -incomplete dominance, and co- dominance, and co- dominance Down syndrome and -Turner syndome. It also discusses genetic counselling and the ethical issues related to genetic testing. 	1. Apprecia- tion for the diversity of life : The study of inheritance patterns shows the incredible diversity of traits that can be found in different species, as well as the variation importance of understanding the physical and emotional changes that occur during pregnancy, child birth, and postnatal care. Sensitivity : The chapter emphasizes the need for sensitivity and confidentiality while dealing with issues related to reproductive health.	 Understand the basic principles of Mendelian inheritance Describe the chromosome theory of inheritance Explain the molecular basis of inheritance Identify and describe various genetic disorders within a species. This can lead to appre- ciation of the beauty and complexity of the natural world. Under- standing of scientific inequiry : The work of Gregor Mendel and other scientifics the scientific method, 	1. Study of Dihybrid Cross : In this practical, students can study the inheritance of two different traits using a dihybrid cross. By observing the phenotypic ratio of the offpsring, students can understand mysteries of the natural world,	1. Study any 2-inherited characteristics in people around you.
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Down's syndrome Turner's Klinefelter's syndromes	including hypothesis testing, data collection, and analysis. This chapter can teach students the importance of scientific inequiry.	the law of independent assortment and the inheritance pattern of the two traits. 2. Study of Genetic Disorders : This practical involves the study of genetic disorders and their inheritance pattern. By analyzing pedigree charts and identifying the mode of inheritance of a particular disorder, students can understand the mechanisms of genetic inheritance and the importance of genetic inheritance
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Ch-5	Search for	1 DNA	1 Under	Understanding	
Molecular	genetic	structure .	1. Under-	the moleculer	
basis of	genetic motorial and	The structure	statiunig	basis of	
Inheritance	DNA as	of DNA the	information :	inhoritonaa	
	DNA as	of DNA, the	The meleculer	halma ya	
	genetic	molecule that	The molecular	neips us	
	material	carries genetic	basis of	understand	
	Structure of	information, is	inheritance	how evolution	
	DNA and	crucial to	helps us	occurs and	
	RNA	understanding	understand	how species	
	DNA	how genetic	how genetic	adapt to	
	packaging	information is	information is	changes in	
	DNA	passed from	stored and	their	
	replication	one generation	transmitted	environment.	
	Central dogma	to the next.	from one		
	Transcription,	<u>2. DNA</u>	generation to	6. Persona-	
	genetic code,	<u>replication :</u>	the next.	lized	
	translation	process is the	2. Advance-	medicine: The	
	Gene	key to cell	ment in	molecular	
	expression and	division and	medicine :	basis of	
	regulation	the	Understanding	inheritance is	
	_	reproduction	the molecular	used in	
	Lac Operon	of genetic	basis of	personalized	
	Genome and	material.	genetic	medicine,	
	human	<u>3. DNA</u>	diseases can	where genetic	
	ganeome	transcription:	help us	testing is used	
	project DNA	Transcription	develop better	to predict an	
	fingerprinting	is the process	diagnostic	individual's	
		by which the	tools,	susceptibility	
		information	therapies, and	to certain	
		encoded in	treatments for	diseases and	
		DNA is used	genetic	to develop	
		to create	disorders.	tailored	
		RNA, which	3. Advance-	treatment.	
		can then be	ment in		
		used to make	biotechnology	7. Agriculture	
		proteins	4. Under-	Understanding	
		4. Translation	standing the	the molecular	
		Translation is	molecular	basis of	
		the process by	morecului		
		the process by			

	which RNA is	basis of	inheritance is	
	used to make	inheritance	important in	
	proteins,	has led to the	agriculture, as	
	which are the	development	it can help	
	molecules that	of	breeders	
	perform most	biotechnology.	develop new	
	of the	including	crop varieties	
	functions in	genetic	with desired	
	living cells	engineering	traits	
	5. Genetic	gene therapy		
	code : The	and DNA		
	genetic code is	sequencing		
	the set of rules	technologies		
	that governs	teennologies.		
	how the	5 Evolution ·		
	information is	6 Forensic		
	DNA is	science. The		
	translated into	molecular		
	proteins	hasis of		
	6. Gene	inheritance is		
	regulation :	used in		
	The regulation	forensic		
	of gene	science to		
	expression is	identify		
	crucial to the	suspects in		
	development	criminal		
	and function	investigations		
	of living	and to		
	organisms,	establish		
	and is	naternity		
	controlled by a	Parorinej.		
	complex			
	network of			
	regulatory			
	molecules.			
	7. Genetic			
	<u>variation :</u>			
	The variation			
	in DNA			
	sequences is			
	what makes			
	each			
	individual			
	unique, and			
	understanding			

		the mechanisms of genetic variation is important in fields such as genetics, evolution, and medicine. 8. Epigenetics: Epigenetic modifications are changes to DNA that do not alter the				
Ch-6 Evolution	 Origin of life Biological evolution and evidences for biological evolution (Paleontological, compartive anatomy, embryology and molecular evidence) Darwin's contribution Modern Synthetic theory of Evolution Mechanism of evolution – Variation (Mutation and Recombination) Natural Selection with examples Types of natural acheation 	 The origin and history of life on Earth. Darwin's theory of evolution by natural selection. Evidence for evolution, including fossil record, comparative anatomy, and molecular biology Mecha- nisms of evolution, including genetic drift, gene flow, mutation, and natural selection The Hardy- Weinberg principle and genetic equilibrium 	 Under- standing the diversity of life : The chapter Evolution emphasizes the data that all living organisms on the earth have evolved over time through the process of natural selection, and it has led to the enormous diversity of life forms we see today. This concept helps students appreciate the diversity of life and develop a deeper understanding 	1. Under- standing the concept of evolution : Students will learn about the basic concept of evolution and how it relate to the diversity of life on Earth. 2. Under- standing the evidence for evolution : Students will learn about the various lines of evidence that support the theory of evolution, including the fossil record, bio-geography, comparative anatomy, and molecular biology.	1. Natural Seelection Seelection Simulation : Students can participate in a simulation activity that demonstrates the concept of natural selection. They can be divided into different groups representing different traits and placed in different traits. The activity helps students understand how natural selection Works and how it leads to the evolution of traits.	1. Bio- geography : Students can analyze the distribution of different specie around the world and identify patterns. This activity helps students understand the concept of biogeography and how it supports the theory of evolution.

	.	6 1 1	A T L	(1' C	
6. Gene flow	7. Types of	of the living	<u>3. Under-</u>	teaching of	
and genetic	natural	world.	standing the	evolution in	
drift	selection,	2. Critical	<u>mechanisms</u>	schoolos, the	
7. Hardy-	including	thinking : The	of evolution :	impact of	
Weinberg's	directional,	chapter	Students will	human	
principle	stabilizing,	Evolution	learn about the	activities on	
8. Adaptive	and disruptive	requires	mechanisms	evolution, or	
Radiation	selection	students to	of evolution,	the ethics of	
9. Human	8. Speciation,	think critically	including	genetic	
evolution	its factors	and analyze	natural	engineering.	
	9. Evolution	evidence that	selection,	This activity	
	of human	supports the	genetic drift,	helps students	
	beings,	theory of	gene flow, and	develop their	
	including the	evolution. It	mutation.	critical	
	evolution of	helps students	4. Under-	thinking and	
	primates and	develop their	standing the	argumentation	
	hominids, and	analytical and	role of	skills while	
	the origin of	critical	<u>natural</u>	also exploring	
	modern	thinking skills	selection :	the social and	
	humans	by examining	Students will	ethical	
	10. The role of	scientific	learn how	implications	
	evolution of	evidence,	natural	of evolution	
	the	analyzing	selection is a	skills,	
	development	data, and	driving force	including	
	of drug	evaluating	of evolution,	critical	
	resistance in	arguments.	leading to the	thinking, data	
	bacteria and	3. Scientific	adaptation of	analysis, and	
	other	inquiry : The	organisms to	hypothesis	
	organisms	chapter	their	testing,	
	11. The	Evolution	environments.	through the	
	importance of	emphasizes	5. Under-	examination	
	conservation	the scientific	standing the	of evidence	
	biology and	inquiry	impact of	for evolution.	
	the impact of	process, where	<u>human</u>	<u>7. Appre-</u>	
	human	students learn	<u>activities on</u>	ciating the	
	activities on	to ask	evolution :	<u>history of</u>	
	evolution and	questions,	Students will	<u>evolutionary</u>	
	biodiversity.	formulate	learn about	thought :	
		hypothesis,	how human	Students will	
		design	activities, such	learn about the	
		experiments,	as habitat	history of	
		and interpret	destruction,	evolutionary	
		data. It helps	climate	thought,	
		students learn	change, and	including the	
		how to apply	pollution, are	contributions	

	scientific	affecting the	of Charles	
	inequiry to	evolution of	Darwin and	
	real-world	species.	Alfred Russel	
	problems.	6. Developing	Wallace, and	
	4. Respect for	scientific	how the theory	
	evidence-	skills :	of evolution	
	based	Students will	has developed	
	reasoning .	develop their	over time.	
	The chapter	scientific		
	Evolution	skills		
	emphasizes	including		
	the importance	critical		
	of evidence	thinking data		
	based	analysis and		
	reasoning and	hypothesis		
	scientific	testing		
	principles in	through the		
	understanding	examination		
	the notural	of avidance		
	world It halps	for evolution		
	students	7 Approxia		
	students	<u>7. Apprecia-</u>		
	appreciate the	history of		
	value of	<u>mstory or</u>		
	scientific	<u>evolutional y</u>		
	to distinguish	<u>thoughts</u> :		
	to distinguish	loom about the		
	Detween	history of		
		nistory of		
		thought		
		including the		
		aontributions		
		of Charles		
		Dorwin and		
		Alfred Duccel		
		Wallace and		
		wanace, and		
		of evolution		
		bas developed		
		over time		

Ch-7	• Pathogens	Common	Health	Understand	To study the	To study the
Human	 parasites 	Diseases :	Awareness :	the various	specimens of:	medical card
Health and	causing	Such as	The chapter	types of	Common	of
Diseases	human	bacterial,	emphasizes	diseases :	disease	themselves
	diseases –	viral, and	the importance	Students will	causing	in which
	Malaria,	fungal	of health	learn about the	organisms like	various
	Filariasis,	infections,	awareness and	different types	Ascaris,	vaccines are
	Ascariasis,	and non-	encourages	of diseases	Entamoeba,	mentioned
	Typhoid,	communicable	students to	that affect	Plasmodium,	that they
	Pneumonia,	diseases like	adopt healthy	humans,	Roundworm	were given
	Common	cancer and	lifestyle	including	through	in their early
	cold,	diabetes.	choices.	infectious and	permanent	childhood
	Amoebiasis,	• Immuno-	Students are	non-infectious	slides or	stage
	Ring worm	logy:	encouraged to	diseases.	specimens.	- Diseases
	• Basic	immune	learn about the	They will also	Comment on	for which
	concepts of	system and	various	understand the	symptoms of	these
	immunology	its functions,	contribute to	causes,	disease that	injections
	 Vaccines – 	including	good health,	symptoms,	they cause.	were given
	- HIV	the	such as proper	and treatment		and purpose
	- AIDs	recognition	nutrition,	of these		behind it.
	- Adolescence	and	exercise, and	diseases.		
	- drug and	elimination	stress	<u>Understand</u>		
	alcohol	of foreign	management.	<u>the immune</u>		
	abuse	pathogens		<u>system :</u>		
		- the role of	Personal	Students will		
		white blood	Responsibility	gain an		
		cells, and	: The chapter	understanding		
		the	emphasizes	of the immune		
		production	the importance	system and its		
		of	of personal	role in		
		antibodies.	responsibility	protecting the		
		• <u>HIV/AIDS :</u>	in maintaining	body against		
		the human	good health.	diseases. They		
		immuno-	Students are	will learn		
		deficiency	encouraged to	about the		
		virus (HIV)	take	different types		
		and the	responsibility	of immune		
		acquired	for their own	cells and their		
		deficier and	meanin and	including the		
		aundrama	well-being by	menualing the		
		synarome	informed	production of		
		(AIDS),	abaiaaa and	anuboules		
		the mode of	toking			
		tronomiccior	annonrista			
		transmission,	appropriate			

	symptoms,	measures to	<u>Understand</u>	
	and	prevent	the causes	
	prevention.	disease.	and	
	• <u>Cancer :</u> T		<u>prevention of</u>	
	different	Compassion	<u>diseases :</u>	
	types of	and Empathy :	Students will	
	cancer, their	The chapter	learn about the	
	causes, risk	emphasizes	various factors	
	factors,	the importance	that contribute	
	diagnosis,	of compassion	the	
	and	and empathy	development	
	treatment	towards those	of diseases,	
	 Drug and 	who are	such as	
	Alcohol	suffering from	genetic,	
	Abuse; the	illness or	environmental,	
	use and	disease.	and lifestyle	
	abuse of	Students are	factors. They	
	drugs and	encourage to	will also learn	
	alcohol and	understand the	about the	
	their effects	challenges	various	
	on the body,	faced by	measures that	
	including	individuals	can be taken	
	addiction,	with health	to prevent the	
	dependence,	issues and to	spread of	
	and	treat them	diseases.	
	withdrawal.	with respect	<u>Understanding</u>	
	• <u>Mental</u>	and dignity.	<u>the</u>	
	<u>Health :</u>		importance of	
	This section	Respect for	<u>public health:</u>	
	covers	Medical	Students will	
	mental	Professionals :	gain an	
	health	The chapter	understanding	
	disorders,	highlights the	of the	
	including	important role	importance of	
	depression,	played by	public health	
	anxiety,	medical	measures in	
	bipolar	professionals	preventing the	
	disorder,	in promoting	spread of	
	and schizo-	health and	disease. They	
	phrenia, and	preventing	will learn	
	their causes,	disease.	about the role	
	symptoms,		of public	
	and		nealth officials	
	treatment		in promoting	
			health and	

l.		
• <u>Health and</u>	preventing	
Medicine :	disease	
This section	outbreaks.	
covers the	Understanding	
role of	the	
public	importance of	
health in	medical	
promoting	nrofessionals.	
health and	Students will	
preventing	gain an	
disease	understanding	
including	of the	
nicidaling	important role	
vaccillation	niportant fore	
	played by	
samation,		
and hygiene.	professionals.	
It also		
covers the		
different		
types of		
medical		
practitioners		
and their		
roles,		
including		
doctors,		
nurses, and		
other		
healthcare		
professionals.		
• <u>Personal</u>		
and Social		
Health :		
This section		
cover the		
importance		
of personal		
and social		
health.		

Ch-8	In household	Types of	1. Nutrient	Understanding	Make a chart
Microbes in	food	microbes, their	cycling :	the role of	of various
Human	processing	structure, and	Microbes play	microbes in	microbes,
Welfare	Industrial	their	a crucial role	nutrient	write their
	production	importance to	in nutrient	cvcling and	kind, sources
	Sewage	humans.	cycling by	soil fertility.	and use.
	treatment	,	decomposing		
	Energy	Microbes in	organic matter	Identifying the	
	generation and	Household	and releasing	various types	
	as bicontrol	Products ·	nutrients such	of microbes	
	agents	This section	as nitrogen	used in biogas	
	Biofertilizers	explores the	nhosphorus	production	
	Antibiotics	use of	and sulfur	and their	
	-	microbes in	back into the	importance in	
	Production	household	soil This	generating	
	and judicious	products such	helps in	renewable	
		as food	maintaining	energy	
	use	beverages and	the fertility of	chergy.	
		cosmetics	the soil and	Exploring the	
		cosmeties.	promoting	process of	
		Microbes in	plant growth	antibiotic	
		Industrial	plant glowth.	production by	
		Products ·	2 Biogas	microbes and	
		This section	2. Diogas	understanding	
		covers the use	Certain	the use of	
		of microbes in	microbas such	antibiotics to	
		the production	as mothenogo	traat baatarial	
		of industrial	as incutatioge	infactions	
		products such	are used to	infections.	
		products such	are used to	Deceribing the	
		as alcollol,	bioges from	production of	
		antibiotics,		production of	
		and enzymes.	organic waste	enzymes by	
		Mianahaa in	material.	their uses in	
		<u>Microbes in</u>	Biogas is an	in ductric1	
		<u>Sewage</u>	eco-irrendly	industrial	
		<u>This section</u>	and renewable	processes.	
		I his section	source of	A	
		explains now	energy that	Analyzing the	
		microbes are	can be used	use of	
		used to treat	for cooking,	microbes in	
		sewage and	lighting, and	sewage	
		otner waste	generating	the size	
		products.	electricity.	tneir	
				significance in	
				maintaining	

	Microbes in	3 Production	the cleanliness	
	Riogas	of antibiotics :	of the	
	Diogas Droduction :	Mony	onvironment	
	This section	antibiotics are	chivitoinnent.	
	avplores how	antibiotics are	Understanding	
	mianahaa ana	produced by	the process of	
	microbes are	microbes such	the process of	
	used in the	as bacteria and	Termentation	
	production of	rungi. These	and the role of	
	biogas from	antibiotics are	microbes such	
	organic waste.	used to treat	as yeast in	
		bacterial	producing	
	Microbes in	infections in	various food	
	Biocontrol :	humans and	and beverage	
	This section	animals.	products.	
	covers the use			
	of microbes in	4. Production		
	biocontrol,	of enzymes :		
	which	Microbes are		
	involves the	used to		
	use of one	produce		
	organism to	enzymes that		
	control the	are used in		
	growth or	various		
	behaviour of	industrial		
	another	processes such		
	organisms.	as brewing,		
		baking and		
	<u>Microbes in</u>	cheese		
	<u>Agriculture :</u>	making.		
	This section			
	explores the	5. Sewage		
	use of	treatment :		
	microbes in	Microbes are		
	agriculture,	used to treat		
	including the	sewage and		
	use of	waste waster		
	biofertilizers	by breaking		
	and	down organic		
	biopesticides.	matter and		
		removing		
	Microbes as	pollutants.		
	Biothera-	This helps in		
	peutics : This	maintaining		
	section covers	the cleanliness		
	the use of	of the		

		microbes as biotherapeutics, including the use of probiotics and other microbial therapies.	 environment and preventing the spread of diseases. 6. Furmentation : Microbes such as yeast are used in fermentation to produce alcoholic beverages such as beer and wine. They are also used to produce bread and other fermented food products. 			
Ch-9 Biotechnology Principles and Processes	1. Intro- duction to biotechnology principles and processes 2. Steps involved in genetic engineering (isolation of DNA, amplification of DNA, cloning, etc.) 3. Appli- cations of genetic engineering (production of genetically modified organisms,	Recombinant DNA technology tools. Restriction enzymes. DNA ligases Palindromes. Recognition sequence Restriction sites. Recombinant DNA GEAC and its role.	 Improving human health: Biotechnology can be used to produce vaccines gene therapies and personalized medicines that can improve human health and treat diseases. Increasing agricultural productivity : Biotechnology can be used to develop genetically modified 	Promise sustainability: Biotechnology can be used to develop sustainable agriculture practices that reduce the use of pesticides and fertilizers conserve water resources and minimize soil erosion. • Creating economic opportunities: Biotechnology can create jobs and economic	Isolation of DNA from available plant material such as spinach green pea seeds, papaya, etc.	Make raw material of different kind of fresh substance from home for the practical of DNA isolation.

	gene therapy, etc.) 4. DNA fingerprinting and its applications		crops that are more resistant to pests and diseases, have higher yields, and are more nutritious. • Advancing scientific knowledge: Biotechnology research can help advance our understanding of genetics, molecular biology, and other fields of science.	growth through the development of new products and technologies, such as bio- pharmaceuticals and biofuels.	
Ch-10 Bio- technology and its Applications	Application of Biotechnology in health and agriculture – Human insulin and vaccine production, gene therapy Genetically modified organisms – Bt crops Transgenic Animals : biosafety issues, biopiracy and patents	RNA interference Mechanism of genetic engineering Artificial insulin Uses of genetic engineering in medicinal industry Gene thearpy Biopatent and biopiracy.	1. Scientific inquiry : Biotechnology is baed on the principles of scientific inquiry, experimentation and observation. Students learn to think critically and scientificially in order to understand how biotechnology works and how it can be applied to real-world problems.	Innovation : Biotechnology is a rapidly evolving field that is constantly pushing the boundaries of what is possible. This chapter highlights the importance of innovation and creativity in biotechnology research, as well as the need to stay up-to-date with the latest scientific and technological advances.	Make a project of about 15 pages handwritten to board practice exams.

	2. Ethical	<u>5. Global</u>	
	considerations:	<u>awarness :</u>	
	Biotechnology	Biotechnology	
	has enormous	has global	
	potential for	implications,	
	improving	with many of	
	human health	its	
	and the	applications	
	environment,	having the	
	but it also	potential to	
	poses ethical	impact people	
	challenges.	and the	
	Students are	environment	
	encourage to	around the	
	think about the	world. This	
	ethical	chapter	
	implications	encourages	
	of	students to	
	biotechnology	think about the	
	and to	global	
	consider the	implications	
	potential risks	of	
	and benefits of	biotechnology	
	its	and to	
	applications.	consider how	
	<u>3.</u>	its	
	Collaboration:	applications	
	Biotechnology	can be used to	
	is a highly	address global	
	interdisciplinary	challenges.	
	field,		
	requiring		
	collaboration		
	among		
	scientists,		
	engineers, and		
	other		
	professionals		
	from different		
	backgrounds.		
	This chapter		
	emphasizes		
	the importance		
	of		
	collaboration		

			and teamwork in biotechnology research and development.			
Ch-11 Organisms and Populations	Population interactions : mutualism, competition, predation, parasitism : population attributes - growth, birth rate and death rate, age distribution. (Topics excluded : Organism and its Environment. Major Abiotic Factors Responses to Abiotic Factors, Adaptations)	 Introduction to the concept of ecology Habitat and niche, adaptations and organisms Population and community Population growth Growth curves and population growth models Life history patterns and population growth rate Biotic potential and environmental resistance Population interactions : Interspecific interactions (competition, predation, mutualism, commensalism, etc.) Intraspecific interactions (cooperation, conflict, territoriality, etc.) 	 Appre- ciation for biodiversity; Studying organisms and population can help students appreciate the diversity of life forms and their inter- relatoinships. This can promote a deeper understanding and respect for nature and its intricate balance. 2. Environmental awareness : Learning about organisms and population can help students understand the impact of human activities on the environment and the importance of conservation and sustainable 	 Inter- disciplinary approach : Organisms and population involved an inter- disciplinary approach, drawing from biology, ecology, environmental science, and social sciences. This can help students develop a more holistic and integrated approach to problem- solving and decision- making. Scientific inquiry and critical thinking : Studying organisms and population can develop students' scientific inquiry and critical thinking skills, 	 Study the plant population density by quadrant method. Study the plant population frequency by quadrant method. 	Make a table explaining the different kind of interactions amongst various organisms, giving an example of each.

		 Adaptations for survival in inter and intraspecific interactions. Organisms and its Environment Habitat and Niche Population and ecological adaptations Population growth Population interactions Biotic potential and environmental resistance Ecological succession Ecosystem - components and types Energy flow, Ecological pyramids 	development. This can foster environmental awareness and a sense of responsibility towards protecting the environment. 3. Ethical and responsible behaviour. Studying the impact of human population growth on the environment and the need for sustainable development can encourage students to adopt ethical and responsible behaviour in their personal and professional lives	as they learn to analyze complex data, develop hypotheses, and test theories. 3. Life Skills : Studying organisms and population can help develop students' life skills, such as teamwork, communication, and leadership, as they collaborate on group projects and participate in disussions and debates.		
Ch-12 Ecosystem	Ecosystems : Patterns, components; productivity and decomposition; energy flow; pyramids of number, biomass, energy (Topic excluded : Ecological	 Introduction to Ecosystem Structure and Function of an Ecosystem Productivity of Ecosystem Decompo- sition Energy Flow Ecological Pyramids 	1. Ecological value : Ecosystems provide habitat and food for various species of flora and fauna. They also regulate the climatic conditions,	 Understand the concept of an ecosystem and its components. Explain the structure and function of an ecosystem. Describe the processes of nutrient cycling in an 	 Comment upon the morphological adapations of plants found in xerophytic conditions. To study the specimens of hydrphytic and xerophytic plants and animals. 	Make a project of about 15 pages handwritten to board practical exams.

	7. Nutrient	maintain the	4. Understand	
	Cycling	soil structure	the different	
	8. Ecosystem	and sustain the	types of	
	Services	nutrient cycle.	ecological	
	9. Terrestrial	2. Economic	pyramids and	
	Ecosystems	value :	their	
	10. Aquatic	Ecosystems	significance.	
	Ecosystems	provide	5. Discuss the	
	11. Global	resources such	importance of	
	Ecological	as timber, fish,	decomposition	
	Issues	and water that	and how it	
		can be utilized	contributes to	
		by humans for	the nutrient	
		economic	cycle.	
		gains.	6. Analyze the	
		3. Re-	factors	
		creational	affecting the	
		value :	productivity of	
		Ecosystems	an ecosystem.	
		provide source	7. Explain the	
		of recreation	different types	
		and tourism	of terrestrial	
		activities such	and aquatic	
		as camping,	ecosystems.	
		hiking, and	8. Understand	
		bird watching.	the ecological	
		4. Aesthetic	services	
		value :	provided by	
		Ecosystems	ecosystems	
		provide	and their	
		natural beauty	importance.	
		and inspire	9. Discuss the	
		artistic and	global	
		cultural	ecological	
		values.	issues and	
		5. Ethical	their impact	
		value :	on	
		Ecosystems	ecosystems.	
		have inherent		
		value, and	Develop an	
		their	appreciation	
		preservation is	for the values	
		necessary for	of ecosystems,	
		the protection	including	
		of biodiversity	ecological,	

			and the balance of natural world.	economic, recreational, aesthetic, and ethical values.		
Ch-13 Biodiversity and Conservation	Biodiversity- Concept, patterns, importance; loss of biodiversity; biodiversity conservation; hotspots, endangered organisms, extinction, Red Data Book, Sacred Groves, biosphere reserves, national parks, wildlife sanctuaries	1. Introduction to the concept of biodiversity 2. Levels of biodiversity (genetic, species, and ecosystem) 3. Threats to biodiversity (habitat loss, pollution, climate change, over exploitation, etc.) 4. Conservation of biodiversity (in situ and ex situ conservation, biosphere reserves, national parts, etc.)	 Ecological value : Biodversity plays a vital role in maintaining the balance of ecosystems. The loss of even a single species can have a ripple effect on the entire ecosystem. Economic value : Biodiversity provides a range of products and services that are essential for human well-being, including food, medicine, timber, and tourism. Social value : Bio- diversity is an intergal part of cultural traditions, and its loss can lead to a loss of cultural heritage. 	 Understand the concept of biodiversity, its types, and its importance in maintaining the balance of ecosystems. Understand the economic, ecological, social, and ethical values of biodversity. Understand the major threats to biodiversity such as habitat loss, climate change, pollution and over exploitation of resources. Understand the different conservation measures such as in-situ and ex-situ conservation, protected areas, and the role of international treaties and conventions in biodiversity conservation. 	1. Group projects : Students may work in groups to research and present on different conservation measures such as in-situ and ex-situ conservation, protected areas, and the role of international treaties and conventions in biodiversity conservation; 2. Data analysis : Students may use data sets to analyze the impact of human activities on biodiversity and evaluate the effectiveness of different conservation strategies. 3. Role-play : Students may participate in role-playing	Presentations: Students may prepare and deliver presentations the importance of biodiversity conservation and the role of individuals and societies in addressing biodiversity loss. Make a project of about 15 pages handwritten in board practical exams.

	4. Ethical value : All species have an inherent right to exist, and it is our moral responsibility to protect them. 5. Conservation measures : The chapter discusses various	5. Develop an appreciation for the importance of preserving biodiversity and the impact of human activities on	activities to understand the perspectives of different stakeholders in biodiversity conservation, such as government agencies, NGOs, and local communities. 4. Debates : Students	
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