Upto Graduation Level Subjects

(a) History:

I. Ancient History (upto 1206 AD)

- Prehistory; Palaeolithic cultures; Mesolithic cultures-chronological order and geographical distribution; Advent of Chalcolithic culture: Harappan civilization, origin, extent, town planning, nature of political and economic organization and decline.
- Rise of the territorial states: Emergence of Iron Age culture; Magaliths in the Deccan and South; The Mauryan Empire: State, administration and economy, Ashoka's Dhamma and Architecture; Post-Mauryan period: Sungas, Saka, Satvahanas, Kushanas, Chera-Chola-Pandya struggle in South India.
- The age of the Guptas: State, administration and economy, decline of Gupta Empire, Harshavardhan and administration, Chalukyas; Tripartite struggle: Gurjara, Pratiharas, Palas and Rashtrakutas; South India: Pallavas, Cholas; Invasion of the Arabs, Mahmud Ghazni, Mohammad Ghori and their impact.

II. MEDIEVAL INDIA (1206-1707).

- Foundation and consolidation of the Delhi Sultanate, Turkish rulers; Khilji Administration, military system, Economic reformations, Experiments of Mohammad-Bin Tughluq and Feroz Tughlaq; Religious life: Bhakti and Sufi movement; Architecture structure and Decline of sultanate.
- India in 1526 and the Mughal-Afghan Struggle: Babur's campaigns; Humayun and his difficulties, Sher Shah Suri and his administration; Consolidation of Mughal rule under Akbar: Political expansion, Rajput and religious policies of Akbar sulh- i-kul.
- Jahangir, nobility and Court politics; Expansion in the Deccan under Shahjahan and Aurangzeb; Aurangzeb: The war of succession (1658-59), religious policy; Rise of Maratha power under Shivaji and his immediate successors.
- Architecture of Mughals and Administrative structure Mansabdari, Jagirdari, central and provincial administration; Land revenue system: Sher Shah to Aurangzeb; Decline of Mughal empire; Regional successor states: Hyderabad, Bengal and Awadh; Rise of European trade in India.

III. MODERN INDIA (1707-1950 A.D)

- Regional successor states: Maratha, Hyderabad, Bengal and Awadh; Rise of European companies in India; Expansion and Consolidation of British Empire; Tools of Expansion: War and Diplomacy; Growth

of Colonial Administrative Apparatus.

- Economic and Social Change; Land Revenue Settlement; Socio-Religious Movements (Status of Women); Popular Resistance to Company Rule.
- Pre-1857 Peasant and Tribal Movements; The Revolt of 1857-Causes, Nature and Results; The Peasants and Workers Movements; Rise of Indian Nationalism and 'Economic Nationalism.
- Formation of the Indian National Congress, The Moderates and Extremists; Partition of Bengal, Swadeshi Movement and formation of the Muslim League;

  Emerging Communal Trend and Constitutional Development Upto 1919, Rowlatt Satyagrah and Jallianwala Bagh; Rise of Gandhi and Nature of Gandhian Movements; Khilafat and Non-Cooperation Movements, Civil Disobedience Movement.
- Act of 1935, Quit India Movement; Constitutional negotiations: Cabinet Mission, Mountbatten Plan; Independence and Partition, Integration of Princely States; Making of the Constitution.

IV. European History:

French Revolution, Industrial Revolution, Unification of Germany, Unification of Italy, First World War, League of Nations, Russian revolution and Socialism, Fascism in Italy, Nazism in Germany, Second world War, United Nations Organization.

(b) Geography:

I. **Origin of the Earth:** The solar system & theories regarding the origin of the earth; **Earth Movements:** Rotation, Revolution, Occurrence of Day and Night; change of seasons; Latitudes and Longitudes; **Earth's Interior:** Origin of continents and ocean basins; Wegener's Continental drift theory, Theory of Plate Tectonics, Earthquakes and Volcanoes, Folding and faulting; **Rocks:** Types of rocks and their characteristics.

II. **Agents of Gradation:** Weathering, mass wasting, running water, wind, glaciers, sea waves and karst topography.

III. **Atmosphere:** Composition and structure, elements of weather and climate, Climatic zones, greenhouse effect, global warming, climate change; **Insolation and Heat Budget:** Heating and cooling of atmosphere, Temperature, Factors controlling temperature; **Air Pressure and Atmospheric circulation:** Pressure belts, permanents, Seasonal winds, El- Nino and La-Nina, cyclones and anti- cyclone; **Humidity and Precipitation:** Evaporation, condensation and precipitation, Humidity, rainfall and its types, clouds and types of clouds.

IV. **Hydrosphere:** Major Oceans**,** water cycle, distribution of

temperature and salinity, Ocean tides and ocean currents of Atlantic, Pacific and Indian Ocean, coral reefs; **Biosphere:** Ecosystem and Ecology, structure and functions of Ecosystem, Food Chain, Food Web, Biodiversity and its conservation.

V. **Maps** and their classification, elements of maps, globe, Isopleths lines, line and bar graphs.

VI. **Geography of India-Physical Setting:** Location and its neighbours, Major physiographic regions of India i.e. the Himalayas, North Plain of India, Peninsular plateau, Coastal Plains and Islands;

VII. **Climate of India**: Factors, Characteristics, the monsoon and western disturbances, local winds; **Soils of India:** factors and classification, soil erosion, conservation and problems**; Drainage systems:** Himalayan rivers**,** Peninsular rivers**,** Interlinking of rivers.

VIII. **India's Flora and Fauna**.

IX. **Population and its Characteristics:** Population Distribution, density, growth, Literacy rate, Sex ratio, major religions, languages, cultural realms and tribes.

X. **Settlement System:** Rural Settlements, Types and Patterns, Urban Settlements.

XI. **Resource Base:** Source of Energy**,** renewable and non renewable.

XII. **Minerals:** metallic and non metallic.

XIII. **Agriculture practices and seasons:** types of agricultural practices, green revolution and its impacts, crops their types and distribution, sources of irrigation
.

XIV. **Major Industries and industrial zones:** Cotton Textile, Iron-Steel, Jute, Sugar.

XV. **Means of Transportation**: Roads, Railways, waterways and airways.

XVI. **World Geography**-Continents and oceans, rivers, lakes. Deserts, climate, natural vegetation, major biomes, types of economic activities. Population distribution, density and growth, Human Races, Tribes, major languages and religions.

XVII. **Disasters and Hazards-Type of Disasters/hazards:** Natural & Manmade, causes and preventive measures and mitigation strategies, NDMA, SDMA and NIDM; **Disaster Management:** Pre-disasters, during disasters and after disasters and Community based Disaster management.

XVIII. **Modern Trends and Techniques in Geography**-Remote Sensing, GPS, Geographic Information System, Georeferencing

(c) Economics:

I. **Basic Concepts of Economics** : Definition, scope and importance of economics; Positive vs normative economics; Microeconomics and

macroeconomics; Human wants – types and characteristics; Goods and services – classification; Economic problems: scarcity and choice; Opportunity cost and Production Possibility Curve; Central problems of an economy; Types of economic systems.

II. **Consumer Behaviour and Demand:** Demand: meaning, determinants, law of demand, exceptions; Movements vs shifts in demand curve; Utility: cardinal and ordinal approaches; Law of diminishing marginal utility; Equi-marginal utility principle; Indifference curve analysis: properties, consumer's equilibrium; Elasticity of demand: Price elasticity, Income elasticity, Cross elasticity and measurement; Factors influencing elasticity of demand; Consumer surplus – concept and measurement.

III. **Producer Behaviour and Supply**: Law of supply and its exceptions; Determinants of supply; Movements and shifts in supply curve; Elasticity of supply; Production function: short-run and long-run; Laws of Production; Producer Equilibrium.

IV. **Costs and Revenue**: Cost concepts: fixed, variable, total, average, marginal; Short- run and long-run cost curves; Economies and diseconomies of scale; Revenue concepts: total, average, marginal; Relationship between AR and MR under different market conditions; Break-even analysis.

V. **Forms of Market and Price Determination**: Market forms: perfect competition, monopoly, monopolistic competition, oligopoly; Price determination under perfect competition; Price and output under monopoly; Price discrimination – meaning and types; Features and price determination under monopolistic competition; Oligopoly – features, kinked demand curve, collusive and non-collusive models; Factor pricing: rent, wages, interest, and profit – basic theories.

VI. **National Income and Related Aggregates**; Concepts: GDP, GNP, NDP, NNP, personal income, disposable income, per capita income; Real and nominal GDP, GDP deflator; Methods of measuring national income: product, income, expenditure; Difficulties in measurement of national income; Circular flow of income- two sector and three-sector models; Importance and limitations of national income statistics.

VII. **Money and Banking :** Money: meaning, function, types and role in economy; Inflation and deflation: meaning, causes, effects, control measures; Banking system: function and types of bank; Central Bank: RBI function, credit control methods (quantitative & qualitative); Commercial banks: credit creation, functions; Money market and capital market-structure and function; Financial inclusion and digital banking.

VIII. **Determination of Income and Employment:** Classical theory of

employment; Keynesian theory: effective demand, aggregate demand, and supply; Consumption function and investment function; Multiplier and accelerator concepts; Equilibrium level of income and employment; Role of fiscal and monetary policies to stabilize economy.

IX. **Government Budget and the Economy**:Meaning and components of government budget; Public revenue: sources, classification, canons of taxation; Revenue and capital expenditure; Revenue and capital receipts; Fiscal deficit, primary deficit; Types of taxes: direct and indirect; Fiscal federalism; Fiscal policy: objectives, tools, and limitations.

X. **Indian Economy**

(a) Structure and Features: Characteristics of the Indian economy; Demographic profile: population trends and challenges; Natural resources and economic development.

(b) Agriculture; Role of agriculture in Indian economy; Land reforms and Green Revolution; Modern agricultural techniques; Problems of Indian agriculture; Government schemes and subsidies.

(c) Industry: Industrial growth and structure; Public sector and private sector; Industrial policies in India; MSMEs and Make in India initiative.

(d) Services Sector: Growth and contribution to GDP; IT, communication, tourism, banking.

(e) Economic Reforms since 1991: Liberalization, privatization, globalization; FDI and its impact.

XI. **Poverty, Unemployment & Inequality**: Definitions, types and causes; Trends in poverty and unemployment in India; Government schemes for poverty alleviation and employment; Human Development Index.

XII. **Development Economics**.

Meaning & scope of development economics; economic growth vs economic development; indicators of economic development; theories of economic growth and development ; problems of developing economies; role of capital formation, human resources and technology in development.

XIII. **Development and Planning in India**: Objectives and achievements of Five-Year Plans in India; NITI Aayog – role and functions; Rural development: objectives, policies, and programs; Inclusive growth and sustainable development; Regional imbalance and remedial measures.

XIV. **International Trade and Institutions**: Basis of international trade: absolute and comparative advantage; Gains from trade and terms of trade; Free trade vs protection – arguments for and against; Importance of foreign trade for India; Balance of Payments and trade balance; Foreign exchange rate: fixed vs flexible; Role of international institutions: WTO, IMF, World Bank etc; India's trade policy and

major trade partners.

XV. **Current Economic Issues:** GST and its impact; Inflation: types, causes, effects, WPI/CPI; Unemployment: types and trends; Climate change and economy; Recent government schemes; Sustainable Development Goals.

XVI. **Economy of Himachal Pradesh**:Features of the Himachal economy – geography and development constraints; Sectoral composition: primary, secondary and tertiary sector; Role of tourism and hydropower in state development; Rural development and Panchayati Raj in Himachal Pradesh; Employment and migration trends; Government schemes and welfare programs; Industrial policy and small- scale industries in Himachal Pradesh

(d) Political Science:

I. **Political Theory:** Politics; Political Theory; State; Liberty; Equality; Justice; Rights; Protective Discrimination; Democracy; Socialism; Secularism; Marxism; Gandhian approach.

II. **Indian Government and Politics (Indian Constitution)** ; Constituent assembly; Preamble; Fundamental Rights; Directive Principles of state policy; Parliament; Prime Minister; Judiciary; President; Budget; Election commission; Local self governments; Political parties; Caste; Patriarchy; Planned Economy; Social Movements; Citizenship; Centre state relations; Emergency provisions; Finance Commission; Comptroller and Auditor General of India; Attorney General of India ; Anti- defection Law; Official language; Central Bureau of Investigation (CBI).

III. **Comparative Govt. and Politics**: Classification of Political System; Electoral System; Party System.

IV. **International Relations**: Approaches to study international Relations; Cold war; United Nations; WTO; ASEAN; SAARC; India's Foreign Policy.

(e) Public Administration:

I. **Public Administration**, Organization, Decision making, Leadership, Communication, Coordination.

II. **Indian Administration**, **Civil Services** in India, Union Public Service Commission, State Public Service Commission.

III. **Constitutional Authorities**: FCI, ECI, CAG.

IV. **Non -Constitutional Bodies: Lok Pal and Lokayukta**, Citizen's Charter, **RTI Act- 2005**.

V. **Administrative Thinkers**: Kautilya, Mahatma Gandhi, F.W. Taylor, Elton Mayo, Max Weber, Herbert Simon, Abraham Maslow, Frederick Herzberg.

VI. **Development Administration**, Machinery for Planning in India and States.

VII. Political Parties, NGO's, Self Help Groups (SHGs), Bureaucracy.

VIII. **Local Self government.**

IX. Globalization, Public-Private-People Partnerships, Corporate Social Responsibility, Citizen- Centric Administration, **Human Rights**, National Human Rights Commission (NHRC).

X. **Good Governance**, Consumer Protection Act 1986.

XI. Women Empowerment, Welfare of Weaker Sections: SC/ST and OBC's, Children and Aged.

XII. **Environmental Administration**, Environmental Protection Act 1986, National Green Tribunal, Centre Pollution Control Board and State Pollution Control Board.

XIII. **Public Policy**, Public Policy Making Organs in India.

XIV. **Social Welfare Administration** and Social Welfare Policies.

XV. Public Service Delivery and Redressal of Public Grievances.

XVI. **Public Finance**, Financial Administration, Fiscal Federalism, Centre-state- Financial Relations, Finance Commission, Tax Administration, CBDT, CBIC, GST, Budget,CAG and RBI.

XVII. Parliamentary Control over Finance, Parliamentary Committees.

XVIII. **E-Governance**, E-learning, E-commerce, E-health.

XIX. **Disaster Management**, NDMA Act 2005, NDMA, NDRF, SDRF.

XX. Emergence, Administrative History, **Administrative Set up of HP**

(f) Sociology

I. **Meaning;** History of Sociology (Origin and Development); Nature and Significance.

II. **Scope and Subject Matter:** Relationship of Sociology with Anthropology, History and Psychology.

III. **Basic Concepts**: Society; Community; Institutions and Associations; Status and Role.

IV. **Sociological Concepts:** Socialization; Culture; Social Change & factors of social change; Social Groups.

V. **Society in India; India as a Plural Society:** Meaning and Characteristics of Plural Society; Traditional Basis of Indian Society; Unity and Diversity.

VI. **Social Institutions:** Caste; Class; Tribe; Family; Marriage and Kinship.

VII. **Identities and Change:** Dalit's Movement; Women's Movement; Policies and Programmes for the upliftment of Dalits and Women.

VIII. **Challenges to State and Society:** Communalism; Secularism and Casteism.

IX. **Sociological Theories of August Comte; Karl Marx; Max Weber; Emile Durkheim**

X. **Methods of Sociological Enquiry; Logic of Social Research; Methodological Perspectives & Modes of Enquiry.**

XI. **Techniques of Social Research: Research Design; Data Collection; Data Analysis; Statistical Analysis**

XII. **Concept, Meaning, Need & Importance of Sociology of Environment.**

XIII. **Environment and Resources:** Environment and Natural Resources; Ecology, Ecosystem and Society

XIV. **Development and Environment:** Industrialization, Urbanization and Environmental Degradation; Depletion of Natural Resources and Pollution - Air, Water and Soil.

XV. **Contemporary Environmental Concerns:** Deforestation and Ecological Crises; Global Warming and Climate Change; Construction of Dams and its Impacts

XVI. **Social Demography:** Meaning, Nature and Development of Social Demography; Scope and Importance of Social Demography

XVII. **Demographic Processes:** Fertility ; Mortality; Migration

XVIII. **Population Theories:** Malthusian Theory of Population; Theory of Demographic Transition; Theory of Optimum Population

XIX. **Population Growth and its Impact:** Economic and Social :Consequences; Environment (Pollution and Depletion of Resources); Population Policy in India

XX. **Theory and Practice of Development:** Meaning, Characteristics and Dimensions of Development (ii) Social Change and Social Progress;

XXI. **Recent Trends in Development:** Global Inequalities in Development; Human Development Theory: Growth vs Development.

XXII. **Post Development Theory:** Gender and Development(GAD); Public Private Partnership (PPP); Participatory Development and Role of PRIs

XXIII. **Sustainable Development:** Meaning, Characteristics and Strategies of Sustainable Development; Environmental Discourse; UN Earth Charter 1992

XXIV. **Religion and Society:** Sociology of Religion: Meaning, Nature and Scope; Sacred and Profane; Functions of Religion

XXV. **Religion in India-I**: Hinduism: Islam

XXVI. **Religion in India-II**: Christianity; Buddhism and Sikhism

XXVII. **Secularism and Communalism:** Secularism: Meaning, Characteristics and Factors of Secularism; Communalism: Meaning, Characteristics and Factors of Communalism.

XXVIII. **Marriage, Family and Kinship: Marriage:** Meaning, characteristic, & significance of marriage; **Family & Household**: Meaning, Characteristics & types of family & household; reimagining family; **Kinship**: Meaning, degree & types of kinship; **Contemporary Issues in Marriage, Family and Kinship**

XXIX. **Social Stratification:** Meaning, Characteristics and Basis of Social Stratification; Social Differentiation, Social Inequality and Hierarchy

XXX. **Forms of Social Stratification:** Race and Ethnicity; Caste, Class and Gender

XXXI. **Approaches of Social Stratification:** Karl Marx; Max Weber; Talcott Parsons; Kingsley Davis & Wilbert E. Moore

XXXII. **Social Mobility:** Meaning, Characteristics and Factors of Social

Mobility; Types of Social Mobility

XXXIII. **Gender and Sexuality:** Sociology of Gender; Gender as a Social Construct; Gender and Sex; Gender Roles

XXXIV. **Gender Differences and Inequalities**: Concept of Gender Inequality; Gender based Division of Labour; Gender and Caste; Gender and Class

XXXV. **Gender Discrimination:** Meaning, Causes and Consequences; Remedial Measures for Removing Gender Discrimination

XXXVI. **Gender Equality:** Constitutional Provisions for Women; Quest for Gender Equality; Women Empowerment: Meaning, Policies and Programmes for Women Empowerment; Women Movements

XXXVII. **Polity and Society in India:** Meaning, Nature and Characteristics of Political Sociology; Scope and Significance of Political Sociology

XXXVIII. **Political Identities:** Caste as a Factor of Political Identity; Religion and Ethnicity as Factors of Political Identity

XXXIX. **Political Processes:** Democracy and Bureaucracy; Power and Authority

XL. **Protest and Resistance in Indian Politics:** Pressure and Interest Groups; Farmers, Women and Dalit Movements

XLI. **Economy and Society**: Sociology of Economic Life; Sociological Aspects of Economic Processes

XLII. **Modes of Production:** Domestic and Peasants; Capitalist and Socialist

XLIII. **Contemporary Issues:** Globalization: Meaning, Characteristics and its Impact on Society; Development: Meaning and Indicators of Development; Global Trends of Development

XLIV. **New Economic Sociology:** Post Industrial Society; Information, Communication,
Technology and Society; Social Security and Alienation

(g) <u>Subjects of B.Ed Course</u>

Childhood and Development Years; Contemporary India and Education; Language Across the Curriculum; Understanding Disciplines and Subjects; Text Reading and Reflections; Learning and Teaching; Assessment for Learning, Drama and Art in Education; Teaching of Social Science, English, Hindi and Sanskrit; Knowledge and Curriculum; Gender, School and Society; Inclusive School; ICT in Teaching-Learning Process; Understanding the Self, Health and Physical Education; Vocational and Work Education; Education for Peace, Guidance and Counseling**.**

Syllabus for exam to the post of TGT (Medical)

A. Subjects of B.Sc (Medical)

- **CHEMISTRY:**

(I) **Physical Chemistry**-Atomic and Molecular Structure; States of Matter; Gaseous State; Liquid State; Solid State. Chemical Thermodynamics; Chemical and Phase Equilibria; Solutions and Colligative Properties; Electrochemistry and Electrochemical Cells; Chemical Kinetics and Enzyme Catalysis; Adsorption and Colloidal Solutions; Molecular Spectroscopy.

(II) **Organic Chemistry-** Basic Concepts in Organic Chemistry,Stereochemistry & Conformational Analysis; Organic Reaction Mechanism and its application to synthetic chemistry; Nucleophilic Substitution Reactions; Nucleophilic Addition Reactions; Electrophilic Addition Reactions; Elimination Reactions; Name Reactions and Rearrangements; Qualitative Organic Analysis; Organic Spectroscopy (UV-Visible; IR; NMR); Basics of Natural Products and Biochemistry; Aromatic Nucleophilic and Aromatic Electrophilic Substitution Reactions; Free Radical Reactions; Heterocyclic Chemistry; Polymer chemistry.

(III) **Inorganic Chemistry-** Periodic Table and Periodic Properties; Extractions of Metals and Metallurgy; Structure of Atom; Chemical and Ionic Bonding and Geometry, Shape and Hybridization of Molecules; VSEPR and Molecular Orbital Theory; Main Group Elements (s and p-blocks), Transition Metals (d-block) and Inner-transition Elements (f- block) and their Chemistry. Bioinorganic Chemistry; Nuclear Chemistry; Analytical Chemistry; Coordination Chemistry

- **BOTANY**:

I. **Biodiversity**- Microbes; Algae, Fungi and Archegoniates (Bryophytes, Pterdophytes and Gymnosperms).

II. **Plant Ecology and Taxonomy**- Introduction to Ecology; Ecological factors; Biogeochemical cycles; Adaptation of plants to water; Ecological succession; Ecosystem ecology; Phytogeography; Environmental pollution; Biodiversity and wildlife conservation; Introduction to Taxonomy; Principles and rules of ICN; Classification system; Floral diversity.

III. **Plant Anatomy and Embryology**- Tissue system; The shoot system; Leaf; The root system; Embryology of Angiosperrms.

IV. **Plant Physiology and Metabolism**- Plants water relations; Mineral nutrition; Photosynthesis; Respiration; Nitrogen metabolism; Basics of Enzymology; Transport of organic solutes; Plants growth regulators; Photomorphogenesis; Seed germination & dormancy; Plants movements.

V. **Economic Botany and Biotechnology**- Cultivated plants; Botanical description & brief idea of cultivation, processing and uses of wheat, maize, rice, potato, cotton, mustard, tea, coffee & sugarcane; Medicinal plants (*Papaver somniferum, Rauvolfia serpentina, Cinchona succirubra, Ocimum sanctum*); Spices and condiments; Introduction to Biotechnology; Biotechnological techniques & Plant biotechnology.

VI. **Cell and Molecular Biology**- Overview and Chemistry of cell; Basic techniques used in Cell Biology; Plasma membrane as Ectomembrane; Endomembrane system of Eukaryotic cell; Chromosomes and cell division; Basic Molecular genetic mechanisms.

VII. **Genetics and Plant Breeding**- Mendelian genetics; Chromosomal alterations/ mutations; Genetic material; Gene expression and regulation; Extra nuclear inheritance; Evolutionary and population genetics; Nature and scope of plant breeding; Methods of crop improvement; Inbreeding depression and heterosis.

- **ZOOLOGY**:

I. Kingdom Protista – General Characters and classification upto classes.

II. Phylum Porifera- General Characters and classification upto classes. Canal system in Sycon.

III. Phylum Cnidaria- General Characters and classification upto classes.

IV. Phylum Platyhelminthes- General Characters and classification upto classes. Life history of *Taenia solium.*

V. Phylum Nemathelminthes- General Characters and classification upto classes. Life history of *Ascaris lumbricoides* and its parasitic adaptations.

VI. Phylum Annelids- General Characters and classification upto classes. Life history of *Pheretima posthuma*.

VII. Phylum Arthropoda- General Characters and classification upto classes. Metamorphosis in insects.

VIII. Phylum Mollusca- General Characters and classification upto classes. An introduction to the Pearl culture.

IX. Phylum Echinodermata - General Characters and classification upto classes.

X. Pisces- Classification upto orders. An introduction to the Indian Major Carps and Trouts.

XI. Amphibia- General features and classification upto orders.

XII. Reptilia - General features and classification upto orders. Examples of Poisonous and Non-poisonous snakes. Biting mechanism in snakes.

XIII. Aves - General features and classification upto orders. Flight adaptation in birds.

XIV. Mammals- General features and classification upto orders.

XV. Comparative anatomy of following systems of vertebrates.

XVI. Integumentary system, Skeletal system, Digestive system, Respiratory system, Circulatory system, Urinogenital system, nervous system, sense organs.

XVII. Developmental Biology of Mammals- Gametogenesis, Fertilization, cleavage, Implantation, Placentation, Parturition.

XVIII. Structure of neuron, Muscle contraction, origin and propagation of nerve impulse, resting membrane potential.

XIX. Digestion in alimentary canal, Transport of oxygen and carbon dioxide in blood. Structure of nephron, urine formation. Composition of blood, Structure of heart, cardiac cycle, structure of male reproductive system and female reproductive system of human being, menstrual cycle, structure and functions of pituitary gland. Glycolysis, Kreb's cycle, glycogenesis, gluconeogenesis, Transamination, deamination, urea cycle, Introduction to the enzymes and their functions.

XX. Mendel' s work on transmission of traits, Principles of inheritance, sex linked inheritance, pleiotropy, incomplete dominance, linkage crossing over, sex determination, Chromosomal Mutations – duplications ,inversion, deletions, translocation , Lamarckism, Darwinism, Natural selection, Concept and scope of biotechnology, Uses of DNA fingerprinting, introduction to the Southern blotting, Northern blotting and western blotting, concept of tissue culture.

XXI. Parasitism, symbiosis, commensalism, Pathogenecity of *Wuchereria bancrofti, Ancylostoma duodenale*, Economic importance of *Helicoverpa armigera, Sitophilus oryzae, Tribolium castaneum*.

XXII. Medical importance and control of *Anopheles, Culex and Xenopsylla cheopis*.

XXIII. Preservation and artificial insemination in cattle, poultry farming, induced breeding and transportation of fishes, hill stream fishes and adaptations in hill stream fishes.

XXIV. Freshwater ecosystems (lakes, streams, wetland and rivers).

XXV. Introduction to antigens, antibodies and vaccines, infertility in male, female and diagnosis and management.

XXVI. Diabetes type I and II, Hypertension

XXVII. PET, MRI, CT Scanning in medical diagnostics, Apiculture, sericulture, Life history of mulberry silk moth (Bombyx mori) and Lac culture, aquarium fishes

B. <u>Subjects of 01 year B.Ed</u>

- Childhood and Development Years, Contemporary India and Education, Language Across the Curriculum, Understanding Disciplines and Text Reading and Reflections, Learning and Teaching, Assessment for Learning, Drama and Art in Education, Teaching of Physical & Life Sciences, Knowledge and Curriculum, Gender, School and Society, Inclusive School, ICT in Teaching-Learning Process, Understanding the Self, Health and Physical Education, Vocational and Work Education, Education for Peace, Guidance and Counseling**.**

Syllabus for exam to the post of TGT (Non-Medical)

A. <u>Subjects of B.Sc (Non-Medical)</u>

- **CHEMISTRY** : Basic concepts of Chemistry, Structure of Atom, Classification of Elements & Periodicity in Properties, Chemical boding and Molecular structure, Chemical thermodynamics, Equilibrium, Redox reaction, Hydrocarbons, Solution, Electrochemistry Chemical Kinetics, d- and f- Block elements, coordination compounds, Haloalkanes and Haloarenes, Alcohols, Phenols and ethers, Aldehydes and carboxylic acids, Amines & Biomolecules.

(I) **Physical Chemistry**-Atomic and Molecular Structure; States of Matter; Gaseous State; Liquid State; Solid State. Chemical Thermodynamics; Chemical and Phase Equilibria; Solutions and Colligative Properties; Electrochemistry and Electrochemical Cells; Chemical Kinetics and Enzyme Catalysis; Adsorption and Colloidal Solutions; Molecular Spectroscopy.

(II) **Organic Chemistry-** Basic Concepts in Organic Chemistry,Stereochemistry & Conformational Analysis; Organic Reaction Mechanism and its application to synthetic chemistry; Nucleophilic Substitution Reactions; Nucleophilic Addition Reactions; Electrophilic Addition Reactions; Elimination Reactions; Name Reactions and Rearrangements; Qualitative Organic Analysis; Organic Spectroscopy (UV-Visible; IR; NMR); Basics of Natural Products and Biochemistry; Aromatic Nucleophilic and Aromatic Electrophilic Substitution Reactions; Free Radical Reactions; Heterocyclic Chemistry; Polymer chemistry.

(III) **Inorganic Chemistry-** Periodic Table and Periodic Properties; Extractions of Metals and Metallurgy; Structure of Atom; Chemical and Ionic Bonding and Geometry, Shape and Hybridization of Molecules; VSEPR and Molecular Orbital Theory; Main Group Elements (s and p-blocks), Transition Metals (d-block) and Inner-transition Elements (f- block) and their Chemistry. Bioinorganic Chemistry; Nuclear Chemistry; Analytical Chemistry; Coordination Chemistry.

- **PHYSICS**:

I. Physical world and Measurement, Kinetics, Law of Motion, Work, Energy and Power, system of Particles and Rotational Motion, Gravitational, Mechanical properties of solids & fluids, Thermal properties of Matters, Thermodynamics, Kinetics theory of Gases, Oscillations & Waves, Electrostatics, Current Elasticity, Magnetic effect of Current & Magnetism, Electromagnetic Induction and Alternating currents, Electromagnetic waves, Ray optics and Optical instruments, Wave optics, Dual nature of Radiation and Matter, Semiconductor Electronics: Materials, Devices and simple circuits.

II. Co-ordinate systems, Solid angle, space time symmeteries and conservation laws, Inertial and Non-inertial frames, Coriolis force and its applications,

Central and non-central forces, Inverse square force, Michelson- Morley experiment, special theory of relativity, Lorentz transformations, Length contraction, Time dilation, Variation of mass with velocity and mass energy equivalence, Relativistic momentum and energy.

III. Electrostatic Field and Electrostatic potential and its applications. Poisson and Laplace equations. Ohm's law, Microscopic form of Ohm's law ($J \alpha E$) and conductivity. Ampere circuital law and its applications. Hall effect, Dielectrics, parallel plate capacitor with a dielectric, dielectric constant, polarization and polarization vector, displacement vector D, Claussius - Mossotti equation, boundary conditions satisfied by E and D at the interface between two homogenous dielectrics. Diamagnetism, paramagnetic and Ferromagnetism. Maxwell's equations and its physical interpretation, Poynting vector, Poynting theorem, EM waves in conducting medium and skin depth. EM waves velocity in a conductor and anomalous dispersion.

IV. Scope of statistical physics, basic ideas about probability, distribution of four distinguishable particles in two compartments of equal sizes. Concept of macro-states, micro-states and thermodynamic probability. M-B, B-E, F-D statistics and their applications. Statistical entropy, law of increase of entropy. Reversible and irreversible processes. Thermodynamic Potentials: Enthalpy, Gibbs, Helmholtz and Internal Energy functions and Maxwell's thermodynamic relations.

V. Simple harmonic oscillator, Damped oscillator, Forced Oscillator, Coupled Oscillators and their applications. Interference: Division of wavefront and division of amplitude. Young's Double Slit experiment. Lloyd's Mirror and Fresnel's Biprism. Phase change on reflection. Interference in Thin Films, Haidinger Fringes, Fizeau Fringes. Newton's Rings and Michelson's Interferometer. Diffraction: Fraunhofer diffraction & Diffraction grating, Fresnel Diffraction: Half-period zones. Zone plate. Polarization: Unpolarized and plane polarized light, production of polarized light, Wire grid polarizer, Polaroid, Malus's law, double refraction, birefringence, Nicol Prism, quarter wave plate and half wave plate, Brewster law. Circular and elliptical polarization, production of elliptically polarized and circularly polarized light.

VI. Photo-electric effect and Compton scattering. De Broglie wavelength and matter waves. Heisenberg uncertainty principle. Wave-particle duality. Time dependent Schrodinger equation and Time independent Schrodinger equation and their applications. Electron Angular Momentum. Space Quantization. Electron Spin and Spin Angular Momentum. Spin Magnetic Moment. Stern-Gerlach Experiment. Zeeman Effect: Normal and Anomalous Zeeman Effect. Pauli's Exclusion Principle. Symmetric and Antisymmetric Wave Functions. Fine structure. Spin orbit coupling. Total angular momentum. Spin- orbit coupling in atoms: L-S and J-J couplings.

VII. Unit Cell. Miller Indices. Reciprocal Lattice. Types of Lattices. Brillouin Zones. Bragg's Law. Atomic and Geometrical Factor. Dulong and Petit's Law, Einstein and Debye theories of specific heat of solids. T^3 law. Fermi gas, density of states, Fermi energy and Fermi velocity, electronic contribution to specific heat of metals. Kronig Penny model, Brillouin zones, effective mass of electrons and holes, metals, insulators, p and n type Semiconductors. **Superconductivity:** Critical Temperature. Critical magnetic field. Meissner effect. Type I and type II Superconductors, London's Equation and Penetration Depth. Isotope effect. cooper pairs, BCS theory.

VIII. **Junction diodes:** pn junctions, V-I characteristics, Zener diode, voltage regulation, tunnel diode, LED and LCD, Solar cell, diode as circuit element, Rectifiers: Half Wave, full wave and bridge rectifier. **Transistors:** Characteristics of a transistor in CB, CE and CC mode, α and β of BJT, common emitter amplifier. Field Effect Transistor, biasing JFET, depletion and enhancement mode, MOSFET, FET amplifier. **Amplifiers:** Small signal amplifiers: General principles of operation, classification, distortion, RC coupled amplifier, gain frequency response, input and output impedance. Feedback in amplifiers; negative feedback and stability.

IX. General Properties of Nuclei, Nuclear Models, Radioactivity decay, Nuclear Reactions, Nuclear Detectors and Accelerators**.** Classification of elementary particles and its families. Conservation Laws: energy and momentum, angular momentum, parity, Baryon number, Lepton number, Isospin, Strangeness, Gell-Mann-Nishijima Scheme, CPT theorem, parity violation in weak interactions. Particle Symmetries. Quarks Model.

- **MATHEMATICS**:
  I. Sets, Relation, Functions, Trigonometric functions, Inverse Trigonometric functions, Co-ordinate geometry, Statistics.
  II. Real and Complex Numbers, Quadratic Equations, Linear Inequalities, Permutations & Combinations, Binomial Theorem.
  III. Arithmetic Progression, Geometric Progression, Arithmetic and Geometric means, relation between A.M. and G.M.
  IV. Matrices, Algebra of Matrices and properties, Determinants, Inverse of a matrix, Applications of matrices and determinants, Solution of system of linear equations.
  V. Groups, Subgroups, Lagrange's theorem, Normal subgroups, Quotient groups, Fundamental theorems on Homomorphism, Rings, Ideals, Integral domain, Fields.
  VI. Vector spaces, Quotient spaces, Linear combination of vectors, Basis and dimension, Linear transformations, Rank and nullity of a linear transformation, Matrix representation of a linear transformation, Eigen

values and Eigen vectors, Characteristic polynomial.

VII. Limit and Continuity, Types of discontinuities, Differentiability of functions, Successive differentiation, Leibnitz's theorem, Indeterminate forms.

VIII. Applications of derivatives, Maxima and minima, Rolle's theorem, Lagrange's Mean Value Theorem, Cauchy Mean Value Theorem, Taylor's theorem with Lagrange's and Cauchy's forms of remainder.

IX. Concavity, Convexity, Points of inflexion, Curvature, Asymptotes, Singular points, Double points, Polar coordinates.

X. Limit and continuity of functions of upto three variables, Partial differentiation, Euler's functions on homogeneous functions, Jacobian (upto three variables).

XI. Limits, Limits involving the point at infinity, continuity, Properties of complex numbers, regions in the complex plane, functions of complex variable, mappings.

XII. Derivatives of complex valued function, Cauchy-Riemann equations, Analytic functions, examples of analytic functions, Exponential function.

XIII. Methods of Integration, Fundamental Theorem of Calculus, Definite integrals. Applications of the Integrals, Area under simple curves.

XIV. Order and degree of Differential Equations, General and particular solutions of differential equation, Homogenous differential Equations, Linear differential Equations, Exact differential Equations.

XV. Wronskian, Equations of first order and higher degree solvable for x, y, p. Clairaut's form, Linear equations with constant and variable coefficients.

XVI. Simultaneous differential equations, Total differential equations, Partial differential equations of first order, Classification of second order partial differential equations into parabolic, Elliptic and hyperbolic.

XVII. Real line, Bounded sets, Sequences and series of real numbers Sequences and series of functions, Power Series.

XVIII. Order of Convergence, Bisection method, False position method, Newton's method, Secant method. Gauss-Jacobi and Gauss-Siedel methods.

XIX. Finite difference operators, Lagrange and Newton interpolation, Numerical differentiation using Newton's forward difference and backward difference method, Trapezoidal rule, Simpson's rule, Euler's method.

XX. Straight Lines, Slope, angle between two lines. Various forms of the equations of a line, Distance of a point from a line, Distance between two parallel line.

XXI. Cone, circles, ellipse, parabola, hyperbola, Coordinate axes and coordinate planes in three dimensions, Direction cosines and Direction

ratios, Equation of lines in space. Angle between two lines, Distance between two points and two lines.

XXII. Vectors, Vector Algebra, Direction ratios, Direction cosines, Types of vector, Vector joining two point, Section formula, Products of upto three vectors (scalars, corss etc.), Gradient, Divergence, Curl.

XXIII. Measures of dispersion, Mean deviation, Variance, Standard deviation.

XXIV. Probability, Multiplication theorem on probability, Conditional probability, Independent events, Total probability, Baye's theorem, Partition of a sample space.

XXV. Linear Programming problems, Objective function, Optimization, Types of linear programming problems, Feasible and infeasible regions, Graphical method to solve the LPP.

B. **Subjects of 01 year B.Ed -**Childhood and Development Years, Contemporary India and Education, Language Across the Curriculum, Understanding Disciplines and Subjects, Text Reading and Reflections, Learning and Teaching, Assessment for Learning, Drama and Art in Education, Teaching of Physical Science & Mahematics, Knowledge and Curriculum, Gender, School and Society, Inclusive School, ICT in Teaching-Learning Process, Understanding the Self, Health and Physical Education, Vocational and Work Education, Education for Peace, Guidance and Counseling**.**

Syllabus for the post of JBT

A. Subjects upto 10+2

I. SOCIAL SCIENCE

1. HISTORY

i. Indian History:-

(a) Ancient Indian History –

The earliest Societies-Hunting & gathering as a way of life, its implications; introduction to stone tools and their use; Prehistory and Human Civilization: Paleolithic Age, Mesolithic Age and Neolithic Age; The Copper age, The Bronze Age and The Iron Age; The Indus Valley Civilization: Principal archaeological sites, urban planning, external and internal trade, artistic achievements, industries and crafts, social stratification. Pre-Vedic and Vedic Culture; Religious Movements; Mauryan Empire; The Shakas, The Kushanas, The Satavahanas; Sangam Age : - The Cholas, The Pandya, The Cheras; The Guptas Age; The Post-Guptas Age : The Harshavardhana.

(b) History of Medieval India : -

Turkish invasion in India: -Muhammad bin Qasim, Mahmud of Ghazni, and Muhammad Ghori; The Delhi Sultanate : - The Mamluk (Slave), Khilji, Tughlaq, Sayyad, and Lodi dynasties; Religious Movements: -Sufi movement, Chishti order; The Bhakti Movement: - Shankara, Ramanujacharya, Madhvacharya, Namdev, Gnyaneshwar, Kabir, Guru Nanak, Ravidas, Tulsidas, Surdas, Mirabai and Chaitanya; Mughal Empire; Maratha Empire; Rise of Sikh Empire.

(c) History of Modern India: -

Arrival of European Companies in India**;** Governor Generals of Bengal; Viceroys of India; Provincial Autonomous States of India and their conflicts with European trading companies; Economic impact of British rule in India; Land settlement during British rule; Revolt of 1857; Social and Religious Reform Movements; National Freedom Movement : - Indian National Congress, Partition of Bengal, Swadeshi and Swaraj, Muslim League, Partition in Congress, Lucknow Pact, Home Rule League, Champaran Movement, Montague August Declaration, Kheda Satyagraha, Ahmadabad Satyagraha, Rowlett Act, Jallianwala Bagh Massacre, The Khilafat Movement, Non-Cooperation Movement, Swaraj party, Simon Commission, Nehru Report, Zinna Formula, Bardoli Satyagraha, Congress Lahore Session, Dandi March and eleven Demands of Gandhiji, Civil Disobedience Movement, Round-table Conferences, Gandhi-Irvin Pact, Communal Award, Poona Pact, Revolutionary Nationalist Movements of Bhagat Singh, Chandrashekhar Azad, and Subhas Chandra Bose etc., Provincial elections in British India, August Proposal, Demand for a Separate Pakistan, Kripps Mission, Quit India Movement, C. Rajgopalachari Formula, Wavell Plan, Shimla Conference, Cabinet Mission, Mountbatten Plan; Constitutional Development in India: - Regulating Act 1773, Pitt's India Act 1784, Charter Act of 1793, Charter Act of 1813, Charter Act of 1833, Charter Act of 1853, Government of India Act 1858, Indian Councils Act 1861, Indian Councils Act 1892, Indian Councils Act, 1909 – Morley-Minto Reforms, Government of India Act 1935, Cripps Mission – 1942, Cabinet

Mission – 1946, Indian Independence Act – 1947.

ii. **European History:-**

French Revolution, Industrial Revolution, Unification of Germany, Unification of Italy, First-World War, League of Nations, Russian revolution and Socialism, Fascism in Italy, Nazism in Germany, Second-world War, United Nations Organization.

2. GEOGRAPHY.

India – Size and Location, India & the world, India's neighbours,; Physical Features of India: majors Physiographic divisions- Himalayan, mountains, northern plains, peninsular plateau Indian desert, coastal plains, Islands; Drainage: concept, drainage system in India, The Himalayan Rivers- Ganga & Brahmaputra River system, the Peninsular Rivers- Narmada Basin, Tapti Basin, Godavari Basin, Mahanadi basin, Krishna basin, Kaveri basin; Climate: Concept, Climatic Controls, Factors influencing India's climate – Latitude, Altitude, Pressure and Winds (excluding Jet Streams and Western Cyclonic Disturbances and related figures),The Seasons – Cold Weather Season, Hot Weather Season, advancing Monsoon, Retreating/Post Monsoons, Distribution of Rainfall, Monsoon as a Unifying Bond; Natural Vegetation - Types of Vegetation – Tropical Evergreen Forests, Tropical Deciduous Forests, Thorn Forests and Shrubs, Mountain Forests, Mangrove Forests, and Wildlife; Population- Population Size and Distribution – India's Population Size and Distribution by Numbers, India's Population Distribution by Density, Population Growth and Processes of Population Change. India's physical environment, resources, and economy: Resources and Development, Forest and Wildlife Resources, Water Resources, Agriculture, Minerals and Energy Resources, Manufacturing Industries, Lifelines of the National Economy, multipurpose river projects

Universe and Solar System; Lithosphere and Rocks; Rocks and their types; Volcano; Earthquake; Landforms (Mountains, Plateaus, and Plains); **Agriculture and Food Crops**; cropping pattern; Forests and Types of Forests; Minerals; Sources of Power/Energy; Industries and Occupations; Transport and Communication; rain water harvesting; land use pattern in India; land degradation and conservation measures; Types of farming: primitive, subsistence, intensive subsistence, commercial.

3. ECONOMICS

Development- what development promises; different people, different goals, income & other goals; national development; how to compare different countries or states: income and other criteria, public facilities; sustainability of development.

Sectors of the Indian economy- sectors of economic activities; primary, secondary and tertiary sectors in India; division of sectors as organized and unorganized sectors in terms of ownership: public and private sectors.

Money and Credit-: Money as a medium of exchange; Modern forms of Money; Loan activities of Banks; Two different Credit situations; Terms of Credit; Formal Sector Credit in India, Self Help Groups for the Poor.

Globalization and the Indian Economy: Production across countries; Interlinking production across countries; Foreign Trade and integration of markets; Globalization; Factors that have enabled Globalization; World Trade Organization; Impact of Globalization in India; The Struggle for a fair

Globalization.

Understanding Economic Development: Sectors of the Indian Economy, Money and Credit, Globalization and The Indian Economy, Consumer Rights; food security in India; challenges of poverty.

4. POLITICAL SCIENCE

What is Democracy? Why Democracy? feature & broader meaning; Constitutional Design: democratic constitution in South Africa ; guiding values of the Indian Constitution & its need; Electoral Politics: our system of election, what makes elections in India democratic; Working of Institutions: how major policy decision taken, Parliament, Political executive, the Judiciary

; Democratic Rights: life without rights, rights in a democracy, rights in Indian Constitution, expanding scope of rights.

Constituent assembly; Preamble of Indian Constitution; Fundamental Rights and Duties; Directive Principles of state policy; Parliament and its two houses; Prime Minister and Council of Ministers; Judiciary at National Level, State and local level; President, Appointment and Powers; Vice-President Appointment and Powers; State Legislative Assemblies; Chief Minister; Chief Minister, Council of Ministers and Powers; Governor, Appointment and Powers; Citizenship; Centre state relations; Emergency provisions; Major Constitutional Amendments. (From 1951 onwards); Budget; Election commission of India; Local self-governments:- Panchayats and Municipalities; Political parties ; Finance Commission; Comptroller and Auditor General of India; Attorney General of India; Anti- defection Law; Official language; Central Bureau of Investigation (CBI); Caste; Patriarchy; Planned Economy; Social Movements.

Democratic Politics: Power Sharing-Belgium & Sri Lanka, majoritarianism in Sri Lanka, Accommodation in Belgium, why power sharing is desirable, forms of power sharing , Federalism- what is federalism, what makes India a Federal country, how is federalism practiced, decentralization in India , Gender, Religion and Caste: gender & politics- , Political Parties, Outcomes of Democracy**.**

II. MATHEMATICS

Number Systems / Knowing Our Numbers / Real Numbers: Place value, face value; Indian & International numeration systems; Reading, writing, comparing large numbers; Representation on number line; Estimation and rounding of numbers; Natural numbers, whole numbers, integers: definitions and properties; Prime and composite numbers; factors and multiples; Divisibility tests (2,3,4,5,6,8,9,10,11); HCF and LCM (prime factorization, division method) ; Rational numbers: representation, operations, decimal expansion; Irrational numbers (V2, V3, etc.); classification of real numbers; Laws of exponents (integral & fractional); Fundamental Theorem of Arithmetic; Converting between fractions, decimals, and percentages; Squares and square roots and their properties; Finding cubes, cube roots and related concepts

Whole Numbers, Integers, and Number Operations: Operations on whole numbers and integers; Properties: commutative, associative, distributive; Rules of signs for integers; absolute value; Patterns in whole numbers; Word problems on

integers and operations.

Fractions, Decimals, and Percentages Types of fractions and simplification; Equivalent fractions; conversion between forms; Operations on fractions and decimals; Percentage: percent as fraction/decimal, increase/decrease; Applications: discount, profit & loss, simple interest (intro).

Basic Algebra - **Expressions, Factors, and Identities**: Variables, constants, terms, coefficients, expressions; Writing expressions from statements; Simplifying expressions; Algebraic identities and applications; Factorization methods (common factor, grouping, identities)

Polynomials: Definition, degree, and coefficients; Zero polynomial; zeroes and relationship with coefficients; Remainder and Factor Theorems; Division algorithm for polynomials; Factorization and application problems.

Linear Equations and Linear Equations in Two Variables: One-variable linear equations and word problems; Two-variable equations: general form and solutions; Graphical representation of linear equations; Graphical method of solution of a pair of linear equations; Solving pairs by substitution, elimination method; Consistent/inconsistent/dependent systems; Applications: age, ratio, and mixture problems.

Quadratic Equations: Standard form and meaning of coefficients; Solution by factorization, completing square, quadratic formula; Discriminant and nature of roots; Relation between roots and coefficients.

Arithmetic Progression (AP): Definition and common difference; nth term and sum of n terms formulae; Word problems on sequences.

Ratio, Proportion, and Variation: Ratio and proportion basics; Continued, direct, and inverse proportion; Percentage conversions and mixture problems.

Basic Geometry: **Points, Lines, and Angles:** Point, line, ray, segment, plane, intersection; Types of angles and their measures; Adjacent, vertically opposite, linear pair angles; Parallel lines and transversal: angle relationships and properties; Intersecting and non-intersecting lines ; Line parallel to same line; Euclid's definition, axioms and postulates.

Triangles - Congruence, Similarity, and Properties: Types of triangles by sides and angles; Similar figure, similarity of triangles, criteria for similarities of triangles; Congruence criteria: SSS, SAS, ASA, AAS, RHS; Properties of isosceles and equilateral triangles; Triangle inequality theorem; Similarity criteria: AA, SSS, SAS; Areas of similar triangles; Pythagoras theorem and its converse; Medians, altitudes, bisectors, perpendiculars.

Quadrilaterals and Polygons: Types and properties: parallelogram, rectangle, rhombus, square, trapezium; Conditions for a quadrilateral to be a parallelogram; Diagonal properties; Midpoint theorem; Cyclic quadrilaterals; Angle sum and exterior angle of polygon.

Circles and areas related to circles: Circle terminology: chord, arc, sector, segment, tangent; Angle subtended by a chord at the center; Equal chords and perpendiculars from the center; Tangent properties; lengths of tangents from an external point; Cyclic quadrilaterals and their angle properties; Circumference and area of a circle; Sector and segment: area and perimeter.

Constructions (Compass and Straightedge): Bisecting lines and angles; Drawing perpendiculars and parallels; Constructing triangles (SSS, SAS, ASA, RHS); Constructing similar triangles

Measurement (Area and Perimeter of Plane Figures): Perimeter and area of square, rectangle, parallelogram, triangle, trapezium; Area of a triangle by base-height and Heron's formula; Area of rhombus or kite (diagonals method); Area of polygons (regular and irregular) by decomposition; Area of combined plane figures (including circle sectors/segments).

Surface Areas and Volumes (Solids): Concept of surface area and volume; Cube, cuboid: formulas and applications; Cylinder, cone, sphere, hemisphere; Combined solids and conversion (melting/recasting).

Coordinate Geometry: Cartesian plane and coordinates; Plotting points in four quadrants; Distance formula; Section formula (internal division); Area of a triangle by coordinates.

Introduction to Trigonometry: Trigonometric ratios: sin, cos, tan (in right triangles); Reciprocal ratios: cosec, sec, cot; Trigonometric identities; Complementary angle relationships; Trigonometric ratio of angles (0°, 30°, 45°, 60°, 90°); Simple proofs of identities.

Applications of Trigonometry (Heights & Distances): Angle of elevation and depression; Word problems involving right triangles and heights/distances.

Statistics - **Data Handling**: Data collection and representation; Frequency distribution (grouped and ungrouped); Graphical representation: bar graph, histogram, frequency polygon; Mean, median, mode (discrete & grouped data); Cumulative frequency and quartiles; Interpretation of data.

Probability: Experimental and theoretical probability; Probability as ratio of favorable to total outcomes; Simple problems on coins, dice, and cards ; Complementary events.

Work & Time; Mensuration; Exponent of Power; Direct & Inverse proportion; Factorization.

III. SCIENCE

Components of food:-- What do different food items contain? Test for starch, protein and fats. What do various nutrients do for our body? Balanced diet, Deficiency diseases.

Sorting materials into groups:-- Objects around us, Properties of materials (Appearance, Hardness, Soluble, Insoluble) . Objects may float or sink in water,

Transparency.

Separation of substances:-- Methods of separation (Hand picking. Winnowing, sieving, sedimentation, decantation and filtration) ,Evaporation.

Getting to know plants:-- (Herbs, shrubs and trees), Stem, leaves, Root, Flower.

Body movements:-- Human body and its movements, Ball and socket joints, Pivot joints, Hinge joints. Fixed joints, Skeleton, Gait of animals(Earthworm, snail, Cockroach, birds, Fish). How do snakes move?

The living organisms, characteristics, and habitat:--Organisms and the surroundings, where they live, Habitat and adaptation , A journey through different habitats, Some terrestrial habitats ,Some aquatic habitats

,Characteristics of organisms.

Motion and measurement of distances:--Story of transport, How wide is this desk? Some measurements, Standard units of measurements, Correct measurement of length, Measuring the length of a curved line, Moving things around us, Types of motion.

Lights, shadows, and reflections: -- Transparent, Opaque and translucent objects, What exactly are shadows? Pin hole camera, Mirrors and reflections.

Electricity and circuits:-- Electric cell, A bulb connected to an electric cell, An electric circuit, Electric switch., Electric conductors and insulators.

Fun with magnets:--How magnets were discovered?, Magnetic and non magnetic materials, Poles of magnet, Finding directions, Make your own magnet, Attraction and repulsion between magnets, A few cautions.

Air around us:-- Is air present everywhere around us? What is air made up of? How does oxygen become available to animals and plants living in water and soil? How is the oxygen in the atmosphere replaced?

Nutrition in plants:-- Mode of nutrition in plants (Photosynthesis and other modes) , How nutrients are replenished in the soil.

Nutrition in animals:-- Different ways of taking food, Digestion in human , grass eating animals, amoeba.

Heat:-- Hot and cold, Measuring temperature, Transfer of heat, Kinds of clothes we wear in summer and winter.

Acids, Bases and Salts:-- Acids and Bases, Natural indicators around us (litmus, turmeric ,china rose), Neutralization (In everyday life Indigestion, ant bite, soil treatment , factory waste).

Physical and Chemical Changes:-- Physical change, Chemical change, Rusting of iron, Crystallization.

Respiration in Organisms:-- Why do we respire? , Breathing, How do we breathe? , What do we breathe out? , Breathing in other animals (Cockroach, Earthworm), Breathing under water, Do plants also respire?

Reproduction in Plants:--Seed Dispersal

Motion and Time:-- Slow or Fast, Speed, Measurement of time, Measuring speed, Distance- Time Graph

Electric Current and its Effects:-- Symbols of Electric Components, Heating Effect of Electric Current, Magnetic Effect of Electric Current, Electromagnet, Electric Bell.
Light:-- Light travels along a Straight Line, Reflection of Light, Spherical Mirrors , Lenses, Sunlight- White or coloured?

Forests: Our Lifeline, Waste Water Story, Water our lifeline, What is sewage, Water freshens Up- An Eventful Journey, Waste water Treatment Plant, Better Housekeeping Practices, Sanitation and Disease, Alternative Arrangement for Sewage Disposal, Sanitation at public places.

Crop Production and Management:-- Agricultural Practices (Preparation of soil, Sowing, Adding manure and Fertilisers, Irrigation, Protecting from weeds, Harvesting, Storage).

Microorganisms: Friend and Foe:-- Microorganisms, Where do microorganisms live? , Microorganisms and us, Friendly microorganisms, Harmful microorganisms, Food preservation, Nitrogen fixation, Nitrogen cycle.

Coal and Petroleum:-- Natural resources (Exhaustible and Inexhaustible) , Story of Coal, Petroleum, Refining of petroleum, natural gas.
Combustion and Flame:-- What is combustion?, How do we control fire ? , Types of combustion, Flame, Structure of a flame, What is the fuel? , Fuel efficiency, burning of fuel leads to harmful products (Global warming, Acid rain, Incomplete combustion, Deforestation).
Conservation of Plants and Animals:--Deforestation , its causes and consequences, Conservation of forest and wildlife, National Park, Wildlife Sanctuary, Biosphere Reserve, Flora and fauna, Endemic species, Red Data book, Migration, Recycling of paper, Reforestation.

Reproduction in Animals:-- Modes of reproduction, (Sexual and Asexual), Story of Dolly, the clone, Oviparous and viviparous animals, Metamorphosis, IVF

Reaching the age of Adolescence:-- Adolescence and puberty, Changes at puberty, Secondary Sexual characters, Role of hormones, Reproductive phase of life in humans, How is the sex of baby determined? , Reproductive health, Say no to drugs.

Force and Pressure:-- Forces are due to an interaction, Exploring forces, Contact forces (Muscular , friction) ,Non contact forces (Magnetic, electrostatic, gravitational), Pressure exerted by liquids and gasses, Atmospheric pressure.
Friction:-- Factors affecting friction, Friction : A necessary Evil, Increasing and reducing friction, Fluid friction, Static, sliding and rotating friction.
Sound: Production of sound, Sound needs a medium for propagation, Song produced by Humans, Human ear, Amplitude, time period and frequency of a vibration, Loudness and pitch, Audible and inaudible sounds, Noise and music, noise pollution. Harms of noise pollution, Measures to limit noise pollution, Hearing impairment.

Chemical Effects of Electric Current:-- Do liquids conduct electricity? , Electroplating.

Some Natural Phenomena:-- Lightning, The sparks that the Greeks knew about, Charging by rubbing, Types of charges and their interaction, Transfer of charge, The story of Lightning, Lightning safety. Earthquake, Protection against earthquake.

Light:-- What makes things visible?, Laws of reflection, Regular and Diffused

reflection, Reflected light can be reflected again, Multiple images, Kaleidoscope, sunlight, white or coloured , what is inside our eyes , Care of the eyes, Visually impaired persons can read and write, What is the Braille system?.

Matter in Our Surroundings: States and properties of matter; Elements, compounds, mixtures, and solutions; Atoms and Molecules: Laws of chemical combination, chemical formulae, and atomic masses; Structure of the Atom: Subatomic particles, atomic models, and isotopes;

The Fundamental Unit of Life: Cell structure, organelles, and cell division; Tissues: Plant and animal tissues and their functions; Improvement in Food Resources: Crop and animal farming methods for better yield and quality.

Motion: Distance, displacement, speed, velocity, and graphs of motion; Force and Laws of Motion: Newton's laws, inertia, and momentum; Gravitation: Universal Law of Gravitation, mass, weight, and Archimedes' Principle; Work and Energy: Work, kinetic energy, potential energy, and the Law of Conservation of Energy; Sound: Production, propagation, characteristics, and reflection of sound

Chemical Reactions and Equations, Acids, Bases, and Salts, Metals and Non-Metals, Carbon and Its Compounds; Life Processes, Control and Coordination, Reproduction in Organisms, Heredity and Evolution, Light – Reflection and Refraction, The Human Eye and the Colourful World , Electricity, Magnetic Effects of Electric Current, our environment.

IV. ENGLISH

Reading Comprehension Word Power, The Sentence, Subject And Predicates , Articles, Number, Gender, Punctuation, Comprehension, Noun, Pronoun, Verb, Finite and Non-finite Verb, Adverb, Adjective, Preposition, Conjunction, Interjection , Error Correction, Sentence Rearrangement, Vocabulary, Antonym, Synonym, Tenses, Subject-Verb Agreement , Idioms, Modal, Active Voice & , Passive Voice, Change the narration-Direct and Indirect , Phrases and a Clauses , One word substitution, Transformation of Sentences.

v. हिन्दी

भाषा–व्याकरण एवं लिपि का परिचयय वर्ण विचार एवं आक्षरिक खण्डय शब्द विचार ;कद्ध परिभाषा के आधार पर ;तत्सम्, तद्भव, देशज, विदेशीद्धए रचना के आधार पर, प्रयोग के आधार पर, अर्थ के आधार पर।

(ख) विकारी–संज्ञा, सर्वनाम, क्रिया, विशेषणय अविकारी–क्रिया–विशेषण, सम्बन्ध बोधक, समुच्चय बोधक, विस्मयादि बोधकय पद परिचय य शब्द शक्तियांय शब्द रूपान्तर–लिंग, वचन, कारक, काल, वाच्यय संधिय समासय उपसर्गय प्रत्यय य वाक्य विचार , अर्थ विचार ;पर्याय, विलोम, वाक्यों के लिए एक शब्द, समानार्थीद्धय विराम चिन्हय शुद्धिकरण ;शब्द शुद्धि, वाक्य शुद्धिद्धय मुहावरे एवं लोकोक्तियांय अलंकार।

(VI) SYLLABUS OF JBT COURSE /D.EL.ED COURSE

i. Understanding the Psychology of Children:

Perspectives of Psychology in Education, Growth and Development, Family and Adult Child Relationship, Humanistic Psychology and Developmental

Theory, Intelligence, Creativity, Personality, Learning, Memory and Forgetting, Guidance and Counseling.

ii. **Education in Contemporary Indian Society:**

India-Emergence from Freedom Struggle, Constitution of India and Education, Democracy in India, Indian Economy.

iii. **Education, Society, and Curriculum:**

Philosophical Understanding of Education, Sociological Bases of Education: Education for Peace, Human Rights, Child Rights, Knowledge and Curriculum.

iv. **Pedagogy across the Curriculum:**

Knowledge and Methods of Inquiry, ICT: Usage in Developing Capacities, Pedagogic Practice and the Process of Learning, Teaching Proficiency.

v. **Teaching of the English Language:**

Nature of the English language, Language Skills: Listening and Speaking Skills, Reading and Writing Skills, Lesson planning and learner assessment, Issues of Teaching of English at the Elementary Stage, Approaches to the Teaching of English, Planning and Resources in Teaching of English, Learner Assessment.

vi. हिन्दी भाषा शिक्षण

भाषा, भाषा कौशल एवं हिंदी शिक्षण में अधिगम संसाधन, भाषा शिक्षण एवं पाठ योजना, भाषा में मापन एवं मूल्यांकन, चिंतन-कौशल, हिंदी भाषा एवं समसामयिकता, पाठ्यक्रम एवं भाषा शिक्षण, हिंदी भाषा में मूल्यांकन एवं मापन।

vii. **Teaching of Mathematics**

Perspective about Mathematical Knowledge, Pedagogical Content Knowledge, Aspects of teaching mathematics, Assessment. Mathematical Reasoning and Algebra thinking, Mathematical Reasoning and Algebra thinking, Geometric ways of looking at Space and Shapes, Communicating Mathematics and Evaluation.

viii. **Teaching of Environmental Studies**

Concept of Environment Studies, Understanding Children's Ideas, Planning and Classroom Transaction, Assessment.

ix. **Children's Physical and Emotional Health, School Health and Education**

Understanding Health and Well-Being, Understanding Children's Health Needs, Health of Children in the Context of School, Concept and importance of Physical Education. Knowledge and Skills Development for Health Education, Communicable and Non-Communicable Diseases, Understanding Emotional Health Needs, Diversity and Inclusion, Contemporary Lifestyle and Stress Management.

x. **Creative Drama, Fine Arts, and Education**

Understanding Art and Art Education, Visual Arts, Crafts and Performing Arts, Planning and organization of Art Experience, Evaluation in Art Education. Understanding Arts and Arts in Education, Visual Arts, Crafts and Performing Arts, Planning and organization of Art Experience, Evaluation of Art- integrated learning.

xi. **Work Education**

Concept and Importance of Work Education, Work Education Activities and Community, Organization and Management of Work Education, Evaluation in Work Education.

xii. **Teacher Identity, School Culture and Leadership**

Developing a vision of Education, Research Skills and Leadership, School organization and Management, Change facilitation in Education.

xiii. **Diversity, Gender and Inclusive Education**

Inclusive Education, Children with Special Needs, overcoming exclusion and promoting inclusion, Gender, School and Society.

xiv. **Science Education**

Understanding science and children's ideas in science, Learning Resources, Organization and Management, Classroom Transaction & Evaluation.

xv. **Social Science Education**

Nature of Social Sciences, Important Concepts of Social Sciences, Children's Understanding and Teaching-Learning Materials, Lesson planning, Pedagogy and Assessment.

टीजीटी संस्कृत निर्धारित पाठयक्रम

भाग – क – व्याकरण
भाग – ख – वाक्यरचना
भाग – ग – काव्यांश
भाग – घ – गद्यांश

भाग – क – व्याकरण

शब्दरूप – राम, मति, नदी, हरि, गुरु, वधू, मधु, पितृ, मातृ, वारि, गो, भगवत्, जगत् आत्मन्, पथिन्, विद्वस्, सर्व, किम्, तत्, एतत्, इदम्, अस्मद्, युष्मद्
धातुरूप – पठ्, पच्, भू, कृ, अस्, अद्, हन्, दिव्, तन्, तुद्, रुध्, क्री, चुर, सेव्,लभ्
(लट्, लङ्, लृट्, लोट् और विधिलिङ् लकारों में)

कारक– परिचय – षड् कारकाणि, सभी विभक्तियाँ

प्रमुख प्रत्ययः – क्त्वा, तुमुन्, ल्यप्, शतृ, शानच् क्त, क्तवतु, अनीयर्, तव्यत्, त्वय, त्व, तल, ठक्, मतुप्, टाप्, ङीप्

अव्यय – उच्चैः, च, श्व,, ह्यः, अध, अत्र, तत्र, यत्र कुत्र, इदानीम्, अधुना, सम्प्रति, साम्प्रतम्, यदा, तदा, कदा, सहदा, वृथा, शनैः, अपि, कुतः इतस्ततः, यदि, तर्हि, यावत्–तावत्।

सन्धि – स्वर – दीर्घ, गुण, वृद्धि, यण, अयादि

व्यंजन – जशत्व, अनुस्वार, परसवर्ण

विसर्ग – उत्व, रत्व, सत्व, विसर्ग लोप, विसर्ग के स्थान पर स्, ष्, श्

समास – उव्ययीभाव, तत्पुरुष, कर्मधारय, द्विगु, नञ्–तत्पुरुष, बहुव्रीहि, द्वन्द्व ।
उपसर्गः – द्वाविंशतिः (22)

संख्या – शतम् यावत् _(सौ तक)

भाग –ख – वाक्यरचना

भाग – क में निर्धारित व्याकरण बिन्दूओं के प्रयोग पर आधारित शुद्ध–अशुद्ध–निर्णय ।
अपठित–अवबोधन
अपठित अनुच्छेदों का अवबोधन – अनुवाद एवं प्रश्नोत्तर
लघु संस्कृत निबन्ध – संस्कृत भाषा, साहित्य और संस्कृति से सम्बन्धित

भाग – ग – काव्यांश

रघुवंशमहाकाव्यम् – प्रथम सर्ग – 1–25 श्लोक
अभिज्ञान शाकुंतलम् – चतुर्थ अंक:
प्रतिमा नाटकम् –तृतीय अंक :
नीतिशतकम् –सम्पूर्ण

भगवद्गीता – दूसरा – अध्यायः

भाग – घ – गद्यांश

शुकनासोपदेश : – प्रारम्भ से लक्ष्मीवर्णन के प्रसंग स्वल्पसत्वमुन्मतीकरोति' (बाणभट्टकृत कादम्बरी के

अन्तर्गत)

शिवराजविजय : – प्रथम – निः श्वास
कवि परिचय – कालिदास, भास, भवभूति, माघ, शूद्रक, भारवि, श्रीहर्ष, भर्तृहरि
संस्कृत सुभाषित सूक्तियों का ज्ञान, प्रसिद्ध कथन
छन्द – अनुष्टुप, उपजाति, वंशस्थ, वसन्ततिलका, मालिनी, सग्धा एवं शार्दूलविक्रीडित
अलंकार – अनुप्रास, उपमा, रूपक, उत्प्रेक्षा, यमक, श्लेष एवं अर्थान्तरन्यास
वैदिक साहित्य – चारों वेदों का सामान्य परिचयः, ईशावाश्योपनिषद, तैतेरीय उपनिषद

Syllabus for the post of TGT Hindi

स्नातक स्तर पर पढ़े पाठ्यक्रम के अवधारणाओं, की गहन का आकलन किया जाएगा।
गद्य-खंड :
हिंदी साहित्य का इतिहास
हिंदी साहित्य ऊध्व और विकास
गद्य साहित्य की विधाएं
कहानी , उपन्यास, नाटक/एकांकी, निबंध, रेखाचित्र, संस्मरण, जीवनी, आत्मकथा, यात्रा वृतांत, रिपोर्ताज, गद्य

काव्य-खंड:
आदिकालीन कविता
भक्तिकाल (सगुण, निर्गुण, सूफी काव्य)
रीतिकाल की कविता
आधुनिक काल की कविता (भारतेन्दु युग, द्विविदी युग, छायावाद, प्रगतिवाद, प्रयोगवाद, नई कविता, समकालीन कविता)

हिंदी भाषा का विकास एवं व्यवहारिक व्याकरण :-
हिंदी की उप - भाषाएं एवं बोलियां
वर्ण विचार (उच्चारण, वर्तनी)
शब्द विचार और शब्द रचना (विलोम शब्द पर्यायवाची, अनेकार्थ, श्रुतिसम भीनार्थक शब्द इत्यादि)
संधि, समास
विकारी शब्द, अविकारी शब्द
वाक्य रचना: (अर्थ एवं रचना के आधार पर)
पद - परिचय
अलंकार शब्दालंकार, अर्थलंकार (अनुप्रास, यमक, श्लेष, उपमा, रूपक, उत्प्रेक्षा, मानवीकरण, अतिश्योक्ति, अलंकार)

शब्द-शक्तियां
मुहावरे एवं लोकोक्तियां
अपठित गद्यांश, पद्यांश
संविधान में हिन्दी की स्तिथि सम्बन्धी धाराएं, उप धाराएं
हिंदी राजभाषा, संपर्क भाषा, प्रयोजन मूलक हिन्दी, कार्यालयी हिंदी, मानक हिंदी
इ मेल लेखन, लघु कथा लेखन इत्यादि लेखन।

Syllabus for exam to the post of Drawing Master.

DRAWING AND PAINTING

HISTORY OF INDIAN ART
UNIT 1: Art of Indus Valley
(Harappan and Mohenjo-daro) (2500 B.C. to 1500 B.C.)

(1) Introduction

(i) Period and Location.

(ii) Extension: In about 1500 miles

(a) Harappa & Mohenjo-daro

(b) Ropar, Lothal, Rangpur, Alamgirpur, Kali Bangan, Banawali and Dhaula Veera (in India)

(2) Study of following Sculptures and Terracottas:

(i) Dancing girl (Mohenjo-daro) Bronze, 10.5 x 5 x 2.5 cm.
Circa 2500 B.C.

(Collection : National Museum, New Delhi).

(ii) Male Torso (Harappa)

Stone, 9.2 x 5.8 x 3 cms. Circa 2500 B. C.

(Collection : National Museum, New Delhi).

(iii) Mother Goddess (Mohenjo-daro) terracotta, 22 x 8 x 5 cm.Circa 2500 B.C.
(Collection : National Museum, New Delhi).

(3) Study of Following Seal:

(i) Bull (Mohenjo-daro)

Stone, 2.5 x 2.5 x 1.4 cm.
Circa 2500 B.C.

(Collection : National Museum, New Delhi).

(4) Study of following Decoration on earthen wares:

(i) Painted earthen-ware(Jar)Mohenjo-daro)
(Collection : National Museum, New Delhi).

UNIT 2 : Buddishist, Jain and Hindu Art.
(3rd century B.C. to 8th century A.D.)

(1) General Introduction to Art, during Mauryan, Shunga, Kushana & Gupta Period:

(2) Study of following

Sculptures:

(i) Lion Capital from Sarnath (Mauryan period)
Polished sand stone,

Circa 3rd Century B.C.

(Collection: Sarnath Musseum, U.P.)

(ii) Chauri Bearer from Didar Ganj (Mauryan period)
Polished sand – stone

Circa 3rd Century B.C.

(Collection: Patna Museum, Bihar)

(iii) Bodhisattva head from Taxila (Gandhara Period)
Stone, 27.5 x 20 x 15 c.m.

Circa 2nd Century A.D.

(Collection: National Museum, New Delhi)

(iv) Seated Buddha from Katra Tila
Mathura – (Kushan Period)
(Collection: Mathura Museum)

(v) Seated Buddha from Sarnath (Gupta Period)
Stone
Circa 5th Century AD
(Collection: Sarnath Musseum, U.P.)

(vi) Jain Tirathankara (Gupta period)
Stone
Circa 5th Century AD
(Collection at State Museum, Lucknow U.P.)

(3) Introduction to Ajanta

Location, period, No. of caves, Chaitya and Vihara, Paintings and Sculptures subject matters and techniques etc.

(4) Study of following

Painting &

Sculpture:

(i) Padmapani Bodhisattva (Ajanta Cave No. I)
Mural Painting

Circa 5th Century A.D.

(ii) Mara Vijay (Ajanta Cave No.
26) Sculpture in stone

Circa 5th Century A.D.

Unit 3: Temples Sculpture, Bronzes and Indo-

Islamic Architecture Artistic aspects of Indian Temples

(6th Century A.D. to 13th Century A.D.)

(1) Introduction to Temple Sculpture

(6th Century A.D. to 13th Century A.D.)

(2) Study of following Temple-Sculptures;

(i) Descent of Ganga (Pallava period, Mahabalipuram Tamilnadu), Stone Circa7th Century A.D.
(ii) Ravana Shaking Mount Kailash (Rashtrakuta period, Ellora,
(iii) Trimurti (Elephanta, Maharashtra)
Stone
Circa 9th Century A.D.

(iv) Lakshmi Narayana (Kandariya Mahadev Temple)
(Chandela; Period, Khajuraho, M.P.)

Circa 10th Century A.D.

(V) Cymbal Player Sun Temple (Ganga Dynesty, Konark, Orissa)Circa 13th Century A.D.

(vi) Mother & Child (Vim la-Shah Temple, Solanki Dynesty, Dilwara, MountAbu, rajastahn) White marble.Circa 13th Century A.D.

(3) Bronzes

(i) Introduction to Indian Bronzes

(ii) Method of casting (solid and hollow)

(4) Study of following south Indian Bronzes:

(i) Nataraj (Thanjavur Distt., Tamilnadu) Chola period (12th Centry a.D.) (Collection: National Museum, New Delhi)

(ii) Devi (Uma)

Chola Period(12th Centry a.D.) (Collection: National Museum, New Delhi)

(5) Artistic Aspects of the Indo-Islamic Architecture (i)Introduction

(6) Study of following architectures:

(i) Qutab Minar, Delhi

(ii) Taj Mahal, Agra

(iii) Gol Gumbaj of Bijapur

Unit 4: The Rajasthani and Pahari Schools of Miniature painting (16th Century A.D to 19thCentury A.D.)

Introduction to Indian Miniature Schools: Western-Indian, Pala, Rajasthani,Mughal, Central India, Deccan and Pahari.

(A) The Rajasthan; Schools

(1) Origin and Development

(2) Schools-Mewar, Bundi, Jodhpur, Bikaner, Kishangarh andJaipur

(3) Main features of the Rajasthani & Pahari Schools.

(4) Study of the following Rajasthani Paintings:

Title	Painter	School
Maru-Ragini	Sahibdin	Mewar
Raja Ajniruddha Singh Heera	Utkal Ram	Bundi
Chaugan Players	Dana	Jodhpur
Krishna on swing	Nuruddin	Bikaner
Radha (Bani – Thani)	Nihal Chand	Kishangarh
Bharat meets Rama at Chitrakut	Guman	Jaipur

(B) The Pahari Schools:

(1) Origin and development

(2) Schools-Basohli and Kangra

(3) Main features of the Pahari School

(4) Study of the following pahari Paintings

Title	Painter	School
Krishna with Gopies		Basohli
Raga Megha		Kangra

Unit 5 The Mughal and Deccan Schools of Miniature Painting (16th Century AD to 19th Century A.D.)

(A) The Mughal School

(1) Origin and development

(2) Main features of the Mughal School

(3) Study of the following Mughal paintings

Title	Painter	School
Krishna lifting mount	Goverdhan	Miskin Akbar
Babur crossing the river sone	Jaganath	Akbar
Jahangir holding the picture of Madona	Abul Hassan	Jahangir
Falcon on a bird nest	Ustad Mansoor	Jahangir
Kabir and Raidas	Ustad Faquirullah Khan	Shahjahan
Marriage procession of Dara Shikoh	Haji Madni	Provincial Mughal(Oudh)

(B) The Deccan School

(1) Origin and development

(2) Main features of the Deccan School

(3) Study of the following Deccan paintings

Title	Painter	School
Raga Hindola		Ahmednagar
Chand Bibi Playing Polo(Chaugan)		Gol Konda

Unit 6 : The Bengal school and the Modern trends in Indian Art

(A) (1) A. New Era in Indian Art- an introduction

B. Study of the following painting

(i) Rama Vanquishing the pride of the ocean-Raja Ravi Verma

(2) Evolution of the Indian national Flag (First – 1906, Middle – 1921 andFinal 1947 stages): Study of the form and the colour scheme

(B) (1) Introduction to the Bengal School of painting

(i) Origin and development of the Bengal School

(ii) Main Features of the Bengal school

(2) Contribution of Indian artists in the struggle for National Freedom Movement

(3) Study of the follwing paintings of the Bengal School

(i) Jouney's End – Rabindranath Tagore

(ii) Parthasarthi – nandlal Bose

(iii) Radhika – M.a.R. Chughtai

(C) The Modern Trends in Indian Art

Introduction

(1) Study of the following Paintings:

(i) Magician-Gaganendranath Tagore

(ii) Mother and child-Jamini Roy

(iii) Woman face-Rabindranath Tagore

(iv) Tree Girls-Amrita Sher gill

(2) Study of the following pieces of Sculpture:

(i) Triumph of labour- D.P. Roychowdhury

(ii) Santhal Family-Ramkinker Vaij

(3) Study of the following work of contemporary Indian Art'

A Paintings

(i) Mother Teresa-M.F. Hussain.
(ii) Birth of Poetry- K.K. Hebbar
(iii) Gossip- N.S. Bendre
(iv) Diagonal- Tyeb Mehta

(4) Graphic Prints

(i) Whirl Pool-Krishna Reddy
(ii) Children-Somnath Hore
(iii) Devi-Jyoti Bhatt
(iv) Of Walls-Anupam Sud
(v) Man, Woman and Tree K. Laxman Goud

(5) Sculptures

(i) Standing Woman-Dhanraj Bhagat
(ii) Cries Un-heard-Amar nath Sehgal
(iii) Ganesha-P.V. Jankiram
(iv) Figure- sankho Chaudhuri
(v) Chatturmukhi – Aekka Yada Giri Rao

Note: The names of artists and their art work as listed above are only suggestive and in no way exhaustive.