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SYLLABUS

At a glance..

School Service Commission (Latest)

[IX-X]

A. Geo-Tectonics:

Earth's Crust (Composition and Layering); Rocks (Origin, Types and Characteristics); Folds and Faults (Types and Landforms); Mountain Building and Plate Tectonics, Earthquakes (Causes and Effects) and Volcanoes.

B. Geomorphology:

Weathering; Mass Wasting; Landform and Process (Fluvial, Glacial, Wind, Karsts and Marines); Normal Cycle of Erosion; Rejuvenation.

C. Oceanography:

Continental Shelf and Slope; Ocean Current; Topography of Ocean Floor; Ocean Deposits; Resources of the Oceans; Salinity and Temperature of ocean water.

D. Climatology:

Composition of the Atmosphere; Elements and Factors of Climate; Insolation; Heat Belts; Pressure Belts; Planetary Wind System; Cyclones; Monsoon.

E. Biogeography:

Soils (Factors and Processes of Formation, Soil Profile, Physical and Chemical Properties) World Soil Groups (Zonal, Azonal and Intra-Zonal); soil Erosion and Conservation; Plants (Factors of Plant Growth, Major types of Natural Vegetation; Forest conservation.

F. Environmental Geography:

Ecosystem (Principles and Components, Energy Flow, Food Chain, Food Web and Bio-geochemical Cycles); Environmental Degradation and Conservation; Meaning of Natural Environment; Man-Environment Relationship; Natural Regions and Environmental Adaptation of Human Life, Economy and Society.

G. Economic Resources:

Classification and Significance; Activity Components of Resource Utilization (Lumbering, Dairy Farming, Fishing, Mining, power generation, Agriculture and Industry).

H. Human Resource:

Population – (Growth, Distribution, Age-Sex Composition, Migration Occupational composition – Comparison between developed and developing nations).

I. Regional Geography of India:

Relief; Drainage; Climate; Soil; Forest resources, Power resources, Mineral Resources: Irrigation, Agriculture, Industry, Population; Trade and Transport, Basis of Regional divisions of India (Physical and Economic).

J. Statistical and Cartographic Techniques:

Scale: Cartographic Techniques of Representation; Topographical Map; Map Projection; Statistical Techniques.

[XI-XII]

1. Geo-Tectonics :

Earth's Crust (Composition and Layering); Rocks (Origin, Types and Characteristics); Folds and Faults: (Type, and Landforms); Mountain Building and Plate Tectonics, Continental Drift, Isostasy, Earthquakes (Causes and Effects) and Volcanoes.

2. Geomorphology :

Lithology and Landform; Weathering; Mass Wasting, Evolution of Slope; Hydrological : Cycle ; Run-off; Landform and Process (Fluvial, Glacial Wind, Karst and Marine); Cyclic and Non-Cyclic concepts; Landscape Evolution, Geomorphic hazards.

3. Geographical Thoughts :

Approaches to Geographical Studies (Deterministic, Possibilities, Quantitative Revolution, Welfare, Societal, Behavioural; Radical Schools, Functional, Structural, Materialistic, Ecological, Regional and Systematic); Concept of Space (Points, Distances, Interactions, Organization, Regions), Emergence of welfare geography.

4. Climatology :

Composition of the Atmosphere; Global Warming and possible consequences; Green House Effect, Elements and Factors of Climate; Insolation, Heat Belts, Pressure: Belts; Planetary Wind System; Jet Stream; Humidity and Precipitation; Cyclones and Anticyclones; Airmass; Monsoon; Thunderstorms; Climatic hazards, Climatic Classification-Koppen's and Thornthwaite's schemes.

5. Biogeography :

Soils (Factors and Processes of Formation, Soil Profiles, Physical and Chemical Properties); World Soil Groups (Zonal, Azonal and Intra-Zonal); Soil: Erosion and Conservation; Plants

(Factors of Plant Growth, Major Types of Natural Vegetation and Environmental Relations); -Forest Conservation, Social forestry, Biodiversity, Animal Communities.

6. Environmental Geography:

Ecosystem (Principles and Components, Energy Flow, Food Chain, Food Web and Bio-geo Chemical Cycles). Biomes (Concepts, Types and Ecological Adaptation); Environmental Degradation and Hazard, Management and Conservation; Meaning of Natural Environment; Man-Environment Relationship; Natural Regions and Environmental Adaptation of Human Life; Economy and Society.

7. Economic Geography :

Resources (Concept and Theories Creating Factors and Processes, Classification, Utilization processes, technology and environmental quality Economic Resources (Classification and Significance); Forms of Economy; Activity Components of Resources Utilization (Lumbering, Dairy Farming, Fishing Mining Power Generation (Agriculture and Industry) Models of Economic System; Theories of Location of Economic Activity, Ranking of World Economics, WTO and International trade, 'Economic disparity and social inequality, Sustainable development and impact of globalisation.

8. Human Geography :

Population (Growth, Distribution. Age-Sex Composition, Occupational Composition Comparison between developed and developing nation's); Population as Resource; Characteristics of World's Human Resource; Theories of population growth; population growth, food-security, unemployment, work participation, gender issues, social well being.

9. Regional Geography of India :

Relief; Drainage, Climate; Soil; Forest Resources; Mineral Resources, Power Resources; Irrigation; Agriculture, Industry; Population; Trade and Commerce, Transport, Basis of Regional Divisions of India (Physical and Economic), Concept; nature, type, scale and dimensions.

10. Cartographic Techniques :

Scale; Techniques of Data Representation; Map-Classification and Interpretation, Thematic Mapping, Principles and Methods of Projection: Elementary Surveying and Leveling (Principles and Methods with Chain Compass, Dumpy Level and Theodolite.); Common Statistical Techniques for Geographical Data Analysis. Aerial Photo and Satellite Imagery interpretation; Remote Sensing and GIS.

WBCS [Mains]

[Paper - I] PRINCIPLES OF GEOGRAPHY (GROUP - A: PHYSICAL GEOGRAPHY)

Geomorphology

Nature and composition of earth's crust; Structure of the earth's interior; Origin, distribution and permanency of Continents and Ocean Basins; Theories of isostasy, continental drift, and plate tectonics; Earth movements- types and effects; Fundamental concepts in geomorphology; Gradational processes- weathering and masswasting; Landforms due to fluvial, glacial, aeolian, coastal and karst processes; Evolution of landscape- cyclic and non-cyclic models; Global hydrological cycle.

Climatology

Atmosphere- nature, composition and structure; Elements and factors of weather and climate; Insolation and Heat-budget; General circulation of winds, Jet Streams and Monsoons; Condensation and Precipitation; Air mass and fronts; Tropical and Extra-tropical cyclones; Thunderstorm and tornado; Climatic classification- principles and application (Köppen, Thornthwaite, Trewartha); Global climatic changes.

Oceanography

Origin of continents and ocean basins; Bottom topography of ocean basins: Indian, Pacific & Atlantic Oceans; Nature, origin and characteristics of continental shelves and slopes, submarine canyons and coral reefs and atolls; Ocean currents: Indian, Pacific and Atlantic oceans; Physical and Chemical properties of ocean water: temperature, salinity and density; TS Diagram and Water mass; Ocean Deposits; Marine Resources.

Environmental Geography

Nature and composition of Biosphere; Concepts relating to Ecosystem- production and decomposition, homeostasis, energy environment, productivity, food chain, food web, trophic structure, ecological niche, ecological pyramids, and ecological crisis; Ecosystem- principles and components; Components, Bio-energy Cycles and Biogeochemical cycles; Major Ecosystems of the world; Environmental degradation and conservation; Environmental pollution- land, water, air and noise; Natural hazards and natural disaster characteristics, mitigation and global efforts.

Cartography

The Earth as a Cartographic Problem- size and shape; co-ordinate system; scale and map projection; Principles and properties of Polar, Zenithal, Conical, Cylindrical and Conventional projections (all normal case); Thematic mapping- types and techniques; Principles of Surveying and Levelling with Chain, Plane Table, Dumpy level and GPS; Remote Sensing nature and principles; Geographical Information System- evolution, components, and functionality.

(GROUP - B: HUMAN GEOGRAPHY)

Economic Geography

Concepts and theories of resources; Locational analysis of agriculture (intensive subsistence in monsoon lands, extensive commercial farming in temperate lands, plantation farming in the tropics and dairy farming in the temperate grasslands), lumbering, fishing, mining (coal, petroleum and iron ore), power production (hydel and nuclear) and manufacturing (iron

& steel, aluminium, and cotton textile); Economic models- landuse (Von Thünen), industry (Weber, Hoover, Pred). Economic systems and economic landscape - characteristics and evolution (Rostow, Myrdal, and Isard). Global economic blocks- patterns and functions.

Population Geography

Factors and measures of population growth; Malthus, Neo-Malthusianism, Optimum, Social and economic, Biological and natural and Demographic transition theories of population growth; Pattern of World population growth; Migration- nature, theories and consequences on society; Population distribution- density and global pattern; Global patterns and trends of population composition (age-sex structure and occupational structure).

Social & Political Geography

The concept of space: absolute & relative; Social structure: stratification and differentiation; Social Processes; segregation, adaptation, assimilation and integration; Heartland and Rimland theories; Principles of boundaries and frontiers.

Settlement Geography

Origin and Growth of Settlements; Function, morphology, types and patterns of Rural settlements; Urban growth and urbanization; Classification, functions, and morphology of towns and cities; Models of urban growth- Burgess, Hoyt, Harris and Ullman, Mann. Urban gradients and densities; Residential areas- patterns and processes; The Central Business District- characteristics, delimitation and changes; The Central Place Theory and the Rank-size rule, The Urban field and inter-urban movement.

Regional Development and Planning

Regions- concepts, types and methods of regionalization; Regional diversity and disparities in development; Regional development- role of resource base, technology and information system, agriculture and industry, transport and communication, trade and commerce; Regional development theory- Perroux and Isard; Regional planning- basic principles and types; Environmental issues in regional planning and planning for sustainable development; Planning regions- concepts and delineation; State as a planning unit and micro-level planning with special reference to India.

[Paper - II] REGIONAL GEOGRAPHY (GROUP - A: GEOGRAPHY OF INDIA)

Physical Geography

Location and space relationship with neighboring countries; structure and Relief; Climate and Drainage; Soil and Natural Vegetation

Resource Base

Distribution, utilization and Conservation of Land (soil), Water (freshwater), Water Disputes interstate and neighboring countries, Mineral (iron ore, manganese, bauxite, mica), Energy (coal, oil, natural gas, and Non-Conventional sources like wind, tidal and solar power) and Biotic Resources

Economy

Indian agriculture- nature and characteristics; Development of Agriculture during the Plan periods; Green Revolution;

Distribution and characteristics of cultivation of rice, wheat, jute cotton, tea, and coffee; Agricultural Regions, Industrial development and industrial policy during the Plan Period; Locational Dynamics, Growth and Development of the Iron & Steel, Aluminum, Engineering, Oil Refining, Cotton Textile, Jute, Sugar, Paper, cement and automobile industries; Growth and Development of Transport and Communication System (Road, Rail, Water and Air); Nature and Development of Trade-national and foreign specially with the SARC and ASEAN countries; Trade Balance.

Population

Population as a Resource; Relation between Population and Socio-economic Development; Population Growth - spatial and temporal variations; Population Distribution and population-resource relationships; Population Composition and social implications age, sex, literacy, religion, and caste; Urban Growth and Urbanization- characteristics and patterns, factors and processes; Population Problems and Population Policy during the Plan periods.

(GROUP - B: GEOGRAPHY OF WEST BENGAL)

Physical Geography

Location with Geographical Personality; Physiographic Divisions- structure and relief; Climate- seasonal weather

conditions; Agro-climatic regions; Drainage systems and problems; Soil - types and fertility, erosion and conservation; Natural Vegetation - types and distribution, deforestation and afforestation.

Resource Base

Distribution, utilization and Conservation of Land, Water, Mineral, Energy (both Conventional and Non-Conventional) and Biotic Resources

Economy

Landuse- characteristics and correlates; Irrigation and Agriculture- development during the Plan periods; Rice, jute, and tea- cultivation, crop ecology, production and problems; Crop Combination Regions; Impact of Green Revolution; Industrial Regions- growth, development and problems; Trade and Transport- nature and status of development; issues of development

Population

Population as a Resource; Relation between Population and Socio-economic Development; Growth and Distribution (absolute, and density- crude, physiological and habitation); Population Composition- age, sex, literacy, occupation, religion, and caste; Urban Growth and Urbanisation- characteristics, patterns and factors; Population Problems and Population Policy during the Plan periods.

UNIVERSITY GRANTS COMMISSION NET BUREAU (UGC-NET)

Unit 1 Geomorphology

Unit 2 Climatology

Unit 3 Oceanography

Unit 4 Geography of Environment

Unit 5 Population and Settlement Geography

Unit 6 Geography of Economic Activities and Regional Development

Unit 7 Cultural, Social and Political Geography

Unit 8 Geographic Thought

Unit 9 Geographical Techniques

Unit 10 Geography of India

UNIT-I • Geomorphology

Continental Drift, Plate Tectonics, Endogenetic and Exogenetic forces. Denudation and Weathering, Geomorphic Cycle (Davis and Penck), Theories and Process of Slope Development, Earth Movements (seismicity, folding, faulting and vulcanicity), Landform Occurrence and Causes of Geomorphic Hazards (earthquakes, volcanoes, landslides and avalanches)

UNIT-II • Climatology

Composition and Structure of Atmosphere; Insolation, Heat Budget of Earth, Temperature, Pressure and Winds, Atmospheric Circulation (air-masses, fronts and upper air circulation, cyclones and anticyclones (tropical and temperate), Climatic Classification of Koppen & Thornthwaite, ENSO Events (El Nino, La Nina and Southern Oscillations), Meteorological Hazards and Disasters (Cyclones, Thunderstorms, Tornadoes, Hailstorms, Heat and Cold waves Drought and Cloudburst, Glacial Lake Outburst (GLOF), Climate Change: Evidences and Causes of Climatic Change in the past, Human impact on Global Climate.

UNIT-III • Oceanography

Relief of Oceans, Composition: Temperature, Density and Salinity, Circulation: Warm and Cold Currents, Waves, Tides, Sea Level Changes, Hazards: Tsunami and Cyclone

UNIT-IV • Geography of Environment

Components: Ecosystem (Geographic Classification) and Human Ecology, Functions: Trophic Levels, Energy Flows, Cycles (geo-chemical, carbon, nitrogen and oxygen), Food Chain, Food Web and Ecological Pyramid, Human Interaction and Impacts, Environmental Ethics and Deep Ecology, Environmental Hazards and Disasters (Global Warming, Urban Heat Island, Atmospheric Pollution, Water Pollution, Land

Degradation), National Programmes and Policies: Legal Framework, Environmental Policy, International Treaties, International Programmes and Policies (Brundtland Commission, Kyoto Protocol, Agenda 21, Sustainable Development Goals, Paris Agreement)

UNIT-V • Population and Settlement Geography

Population Geography

Sources of population data (census, sample surveys and vital statistics, data reliability and errors). World Population Distribution (measures, patterns and determinants), World Population Growth (prehistoric to modern period). Demographic Transition, Theories of Population Growth (Malthus, Sadler, and Ricardo). Fertility and Mortality Analysis (indices, determinants and world patterns). Migration (types, causes and consequences and models), Population Composition and Characteristics (age, sex, rural-urban, occupational structure and educational levels), Population Policies in Developed and Developing Countries.

Settlement Geography

Rural Settlements (types, patterns and distribution), Contemporary Problems of Rural Settlements (rural-urban migration; land use changes; land acquisition and transactions), Theories of Origin of Towns (Gordon Childe, Henri Pirenne, Lewis Mumford), Characteristics and Processes of Urbanization in Developed and Developing Countries (factors of urban growth, trends of urbanisation, size, structure and functions of urban areas). Urban Systems (the law of the primate city and rank size rule) Central Place Theories (Christaller and Losch), Internal Structure of the City, Models of Urban Land Use (Burgess, Harris and Ullman, and Hoyt), Concepts of Megacities, Global Cities and Edge Cities, Changing

Urban Forms (peri-urban areas, rural-urban fringe, suburban, ring and satellite towns), Social Segregation in the City, Urban Social Area Analysis, Manifestation of Poverty in the City (slums, informal sector growth, crime and social exclusion).

Unit-VI • Geography of Economic Activities and Regional Development

Economic Geography

Factors affecting spatial organisation of economic activities (primary, secondary, tertiary and quaternary), Natural Resources (classification, distribution and associated problems), Natural Resources Management. World Energy Crises in Developed and Developing Countries.

Agricultural Geography

Land capability classification and Land Use Planning, Cropping Pattern: Methods of delineating crop combination regions (Weaver, Doi and Rafiullah), Crop diversification, Von Thunen's Model of Land Use Planning. Measurement and Determinants of Agricultural Productivity, Regional variations in Agricultural Productivity, Agricultural Systems of the World.

Industrial Geography

Classification of Industries, Factors of Industrial Location; Theories of Industrial Location (A. Weber, E. M. Hoover, August Losch, A. Pred and D. M. Smith). World Industrial Regions, Impact of Globalisation on manufacturing sector in Less Developed Countries, Tourism Industry, World distribution and growth of Information And Communication Technology (ICT) and Knowledge Production (Education and R & D) Industries.

Geography of Transport and Trade

Theories and Models of spatial interaction (Edward Ullman and M. E. Hurst) Measures and Indices of connectivity and accessibility; Spatial Flow Models: Gravity Model and its variants, World Trade Organisation, Globalisation and Liberalisation and World Trade Patterns. Problems and Prospects of Inter and Intra Regional Cooperation and Trade.

Regional Development

Typology of Regions, Formal and Fictional Regions, World Regional Disparities, Theories of Regional Development (Albert O. Hirschman, Gunnar Myrdal, John Friedman, Dependency theory of Underdevelopment, Global Economic Blocks, Regional Development and Social Movements in India

Unit – VII • Cultural, Social and Political Geography

Cultural and Social Geography

Concept of Culture, Cultural Complexes, Areas and Region, Cultural Heritage, Cultural Ecology. Cultural Convergence, Social Structure and Processes, Social Well-being and Quality of Life, Social Exclusion, Spatial distribution of social groups in India (Tribe, Caste, Religion and Language), Environment and Human Health, Diseases Ecology, Nutritional Status (etiological conditions, classification and spatial and seasonal distributional patterns with special reference to India) Health Care Planning and Policies in India, Medical Tourism in India.

Political Geography

Boundaries and Frontiers (with special reference to India), Heartland and Rimland Theories. Trends and Developments in Political Geography, Geography of Federalism, Electoral Reforms in India, Determinants of Electoral Behaviour, Geopolitics of Climate Change, Geopolitics of World Resources, Geo-politics of India Ocean, Regional Organisations of Cooperation (SAARC, ASEAN, OPEC, EU). Neopolitics of World Natural Resources.

Unit VIII • Geographic Thought

Contributions of Greek, Roman, Arab, Chinese and Indian Scholars, Contributions of Geographers (Bernhardus Varenius, Immanuel Kant, Alexander von Humboldt, Carl Ritter, Scheafer & Hartshorne), Impact of Darwinian Theory on Geographical

Thought. Contemporary trends in Indian Geography: Cartography, Thematic and Methodological contributions. Major Geographic Traditions (Earth Science, man-environment relationship, area studies and spatial analysis), Dualisms in Geographic Studies (physical vs. human, regional vs. systematic, qualitative vs. quantitative, ideographic vs. nomothetic), Paradigm Shift, Perspectives in Geography (Positivism, Behaviouralism, Humanism, Structuralism, Feminism and Postmodernism).

Unit IX • Geographical Techniques

Sources of Geographic Information and Data (spatial and non-spatial), Types of Maps, Techniques of Map Making (Choropleth, Isarithmic, Dasymeric, Chorochromatic, Flow Maps) Data Representation on Maps (Pie diagrams, Bar diagrams and Line Graph, GIS Database (raster and vector data formats and attribute data formats). Functions of GIS (conversion, editing and analysis), Digital Elevation Model (DEM), Georeferencing (coordinate system and map projections and Datum), GIS Applications (thematic cartography, spatial decision support system), Basics of Remote Sensing (Electromagnetic Spectrum, Sensors and Platforms, Resolution and Types, Elements of Air Photo and Satellite Image Interpretation and Photogrammetry), Types of Aerial Photographs, Digital Image Processing: Developments in Remote Sensing Technology and Big Data Sharing and its applications in Natural Resources Management in India, GPS Components (space, ground control and receiver segments) and Applications, Applications of Measures of Central Tendency, Dispersion and Inequalities, Sampling, Sampling Procedure and Hypothesis Testing (chi square test, t test, ANOVA), Time Series Analysis, Correlation and Regression Analysis, Measurement of Indices, Making

Indicators Scale Free, Computation of Composite Index, Principal Component Analysis and Cluster Analysis, Morphometric Analysis: Ordering of Streams, Bifurcation Ratio, Drainage Density and Drainage Frequency, Basin Circularity Ratio and Form Factor, Profiles, Slope Analysis, Clinographic Curve, Hypsographic Curve and Altimetric Frequency Graph.

Unit – X • Geography of India

Major Physiographic Regions and their Characteristics; Drainage System (Himalayan and Peninsular), Climate: Seasonal Weather Characteristics, Climatic Divisions, Indian Monsoon (mechanism and characteristics), Jet Streams and Himalayan Cryosphere, Types and Distribution of Natural Resources: Soil, Vegetation, Water, Mineral and Marine Resources. Population Characteristics (spatial patterns of distribution), Growth and Composition (rural-urban, age, sex, occupational, educational, ethnic and religious), Determinants of Population, Population Policies in India, Agriculture (Production, Productivity and Yield of Major Food Crops), Major Crop Regions, Regional Variations in Agricultural Development, Environmental, Technological and Institutional Factors affecting Indian Agriculture; Agro-Climatic Zones, Green Revolution, Food Security and Right to Food. Industrial Development since Independence, Industrial Regions and their characteristics, Industrial Policies in India. Development and Patterns of Transport Networks (railways, roadways, waterways, airways and pipelines), Internal and External Trade (trend, composition and directions), Regional Development Planning in India, Globalisation and its impact on Indian Economy, Natural Disasters in India (Earthquake, Drought, Flood, Cyclone, Tsunami, Himalayan Highland Hazards and Disasters.)