<u>SYLLABUS FOR THE POST OF LECTURER (10+2)</u> <u>Geography</u>

Section A- Physical Geography

Unit I - Geomorphology

Origin and evolution of the earth, Geological Time Scale, Earth's Interior, Factors controlling landform development, Endogenetic and exogenetic forces, Continental Drift Theory, Sea Floor Spreading, Plate Tectonics, Geosynclines, Isostacy and Crustal Equilibrium in major relief features of the Earth, Geomorphic Agents- Water, Glacier and Wind, Models of landscape development-Davis, Penck and King, Recent views on Mountain Building, Earth movements-Diastrophic and Sudden, Slope Evolution Models; King, Strahler and Wood, Application of Geomorphology in Groundwater and Mineral exploration.

Unit II – Climatology

Composition and Structure of Atmosphere: Insolation, Heat Budget and Latitudinal Heat Balance, Atmospheric Stability and Instability, Pressure Belts , Wind Systems and Upper Air circulation, Monsoons, Western Disturbances and Jet Streams, Air masses and Fronts, Cyclones and Anticyclones, Moisture in the Atmosphere-Humidity, Clouds, Types and Distribution of precipitation, Climatic Classification - Koppen and Thornwaite, ENSO Events- El Nino, La Nina and Southern Oscillation, Climate Change Evidences and Related Theories - (Karoll Milankovitch Theory, Carbon Dioxide Hypothesis and Tectonic Hypothesis), Impact of climate Change and Adaptation Strategies.

Unit III – Oceanography

Ocean Profile, Distribution of Ocean Temperature, Density and Salinity, Ocean Deposits, Bottom topography of the Atlantic, Pacific and Indian Ocean, Ocean Currents, Waves and Tides, Marine Resources- Biotic, Mineral and Energy resources, Coral Reefs, Sea-level changes, Law of the sea, Marine Pollution and Exclusive Economic Zones.

Unit IV - Biogeography

Soil Formation, Classification and Distribution of Soils, Soil Erosion, Salinization desertification, Deforestation, Tourism as an agent of Environment change, Soil conservation Measures, Social Forestry, Agro-forestry, Wildlife; Major gene pool centres.

Components of Biosphere, Ecosystem and Ecology, Properties of ecosystem, Ecological Terms, Tropic Levels, Food Chains, Biodiversity- Types, Threats and hotspots, Environmental Degradation-Management and Conservation, Sustainable Development, Events in Sustainability (Agenda 21), Role of International organisations in Sustainable Development, Limits to Growth, Global Environment issues- Industrialization, urbanization and pollution, Millennium Development Goals and Sustainable Development Goals.

Unit V: Natural Hazards and Disasters

Hazards and Disasters, characteristics and classification. Hazards and disasters affecting India: Earthquakes, volcanoes, landslides, tsunamis, flood, drought, cyclones and snow avalanches, forest fires and accidents. Global scenario of Natural disasters, Disaster profile of Jammu and Kashmir and Ladakh, Disaster management policy of India and J & K.

Section B- Human Geography

Unit VI- Population and Settlement Geography

Population Geography

Sources of population data (census, sample surveys and vital statistics), World Population Distribution (measures, patterns and determinants), Theories of Population Growth (Malthus, Sadler, and Ricardo), Fertility and Mortality Analysis-Determinants and world patterns, Migration, Concept of Social Wellbeing and quality of life, Human Development index-Concept and its Components, Population Problems of Developed and Developing Countries.

Settlement Geography

Types and Patterns of Rural Settlements, Urban Settlements –Emerging Issues and Challenges, Theories of Origin of Towns (G. Childe, H Pirenne and Lewis Mumford), Theories of the Morphological Structure of cities (Concentric Zone theory Sector theory and Multi-Nuclei theory), Social Area Analysis and Exploitative Model, Models of Urban Land Use (Burgess, Harris and Ulmann and Hyot), Concept of Primate city and Rank Size Rule, Central Place Theory of Christaller and Losch, Central Business District: Delimitation and Characteristics, Functional Classification of Towns, Rural-Urban Fringe, Satellite Towns, Concepts of Mega Cities, Global Cities, Green Belts, Smart Cities and Edge Cities, Problems and Remedies of Urbanization, Manifestation of Poverty in the city (Slums, Informal Sector Growth, Crime and Social Exclusion).

Unit VII- Economic, Agricultural, Industrial and Transport Geography

Economic Geography

Economic Activities (Primary, Secondary, Tertiary and Quaternary), Factors affecting spatial organisation of economic activities, World Resources and Their Distribution, Natural Resource Management Systems, World Energy Crisis in Developed and Developing Countries. Global Economic Blocs: G8, BRICS and SAARC- Role and Mandate, Market Linkages: Market Centers, Retailing and Whole Selling, E- Commerce.

Agriculture Geography

Factors Affecting Agriculture: Physical, Socio-economic, Environmental, Technological and

Institutional; Land capability classification and Land Use Planning, Cropping Pattern, Diversification, Specialisation and Commercialisation of Crops, Methods of delineating crop combination regions (Weaver, Doi and Rafiullah), Measurement and Determinants of Agricultural Productivity, Regional Variation in Agricultural Productivity, Agricultural Systems of the World: Whittlesey's Classification, Agricultural Land Use Model: Von Thuenen, Modification and Relevance, Food Security.

Industrial Geography

Classification of Industries, World Industrial Regions: Spatial Distribution, Factors of Industrial Location; Theories of Industrial Location (A. Weber, E. M. Hoover, August Losch, A. Pred and D. M. Smith), 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 and D) Industries, Role of Industries in Regional Development.

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, Models of Transport Development: Taaffe, Morrill and Gould (TMG) Model (1963), Lanchene Model (1965) Gould's Spatial Exploration Model (1966), The Vance Model (1970), The Rimmer Model (1977), World Trade Organisation

Unit VIII- Regional Planning and Development

Typology of Regions, Formal and Functional Regions, World Regional Disparities, Theories of Regional Development (Rostow's Stage Theory of Growth, Growth Pole Theory, Regional Income Inequality Model, Core Periphery Model), Planning Processes: Sectoral and Spatial, Short Term and Long Term, Concept of Multi-Level Planning and Decentralized Planning, Regional Development and Social Movements in India, Levels of Regional Development and Disparities in India, Planning Initiatives for Balanced Regional Development in India.

Unit IX- Socio-Cultural and Political Geography

Concept of Space and Place, Process and Pattern and their Social Significance, Evolution of Culture, Cultural Convergence and Divergence Processes, Major Cultural Realms of the World, Culture Diffusion: Acculturation and Assimilation, Cultural Hearth: Classification and Distribution, Races: Types and Global Distribution, Tribes: Habitat, Economy and Society, Gender Discrimination and Empowerment, Role of Language, Religion and Tradition in the Formation of Cultural Regions.

Major Schools of Thought in Political Geography: German, British and American, Global Strategic Views of Heartland and Rim Land Theories; State and its Elements: Physical, Social and Economic; Concept of Frontiers, Boundaries and Buffer State; Geopolitical Significance of Indian Ocean, Geopolitics of Climate Change, Geopolitics of World Resources, International Boundary of India and Related Issues, China-Pakistan Economic Corridor (CPEC): Issues and Concerns, Regional Groupings and Organization: SAARC, ASEAN, EU, BRICS.

Unit X- Geographical Thought

Contributions of Greek, Roman, Arab, Chinese and Indian Scholars, Contributions of Geographers (Bernhardus Varenius, Immanuel Kant, Huntington, Vidal de La Blache, Semple, Alexander von Humboldt, Carl Ritter, Scheafer and Hartshorne), Darwin's Impact on Geography, Recent Concepts: Areal Differentiation, Spatial Organization, Spatial Diffusion, Social Wellbeing, Perspectives in Geography: Positivism, Pragmatism, Idealism, Realism, Recent Approaches: Radical, Humanistic and Behavioural, Paradigm Shift in Geography: Modern and Postmodernism.

Unit XI- Geographical Techniques

Sources of Geographic Information and Data (spatial and non-spatial), Types of Maps, Techniques of Map Making (Choropleth, Isopleth, Chorochromatic and Flow Maps), Data Representation on Maps (Pie diagrams, Bar diagrams and Line Graph), Scales, Projections and Datums, Sampling: Types and Tests, Correlation, Regression Analysis, Multivariate Analysis: 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. Measures of Inequality: Lorenz Curve, Gini's Coefficient and Location Quotient, Goodness of Fit Tests: T -Test, Chi -Square Test, Anderson Darling and ANOVA Test, Mann Kendall Test, 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), **Fundamentals** of Remote Sensing: (Electromagnetic Radiation and Electromagnetic Spectrum, Sensors and Platforms, Resolution and Types, Elements of Air Photo and Satellite Image Interpretation and Photogrammetry), Aerial Photographs and their Types, Digital Image Processing, Image Enhancement Techniques: Contrast Enhancement, Histogram Equalisation and Band Combinations, GPS Components (space, ground control and receiver segments) and Applications, Applications of Measures of Central Tendency, Sampling Procedures.

Unit XII: 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. 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,

Geography of Jammu and Kashmir and Ladakh UTs.

Jammu and Kashmir and Ladakh UTs-Physiography, Climate, Drainage, Soil and Natural Vegetation. Population-distribution, density and composition, population growth, Agriculture and Horticulture, Tourism industry, Energy resources, Key provisions of Jammu and Kashmir Reorganization Act 2019.