Deen Dayal Upadhyaya Gorakhpur University, Gorakhpur

Department of Geography

Syllabus for RET-2023-24

Part A: Research methodology

Research Methodology

Concept of Research, Types of Research; Research Approaches; Need of Research Design; Types and Sources of Data: Census, NSS, Aerial Photographs and Satellite Imageries Techniques of Data Collection: Observation, Questionnaire, Interview, & Schedule; Case Study; Sampling: Design, Methods, & Error; Defining Research Problem: Identification of Problems, Specification of Objectives, and Review of Literature, Research Questions and Hypotheses. Research Plan. Collecting Data, Tabulation and Compilation of Data, Content Analysis Layout of the Research Report: Steps of Report Writing Mechanics of the Research Report: Citation, References, Bibliography, Precautions for writing Research Reports, Research Ethics.

Statistical Methods in Geography

Random Variables; Normal Probability Distribution; Binomial and Poisson Distributions; Standard Error and Sample Size; Hypothesis Concept and Testing: Goodness of Fit; Significance and Confidence Levels; Testing Errors; One and Two Tailed Tests; Chi-square Test, t Test; Correlation Matrix, Partial and Multiple Correlation; Regression Analysis: Linear& Multiple Regression; Principal Component Analysis; Factor Analysis; ANOVA (One-way).

Geographical Information & Positioning System

Definition, scope and specific characteristics; its development in the world and in India; Relation of GIS with other collateral subjects like Cartography and Remote Sensing; Basic concepts and essential elements of GIS – Map concepts; geo-referencing; types of data involved in GIS; types of data structures, their characteristics, and merits-demerits; Components of GIS; Methods of inputting data in GIS; Spatial Hardware and Software components of GIS; Integration of remote sensing data with GIS; Digital terrain modeling (DTM) and its application in GIS; Spatial analysis in GIS - map overlay; Global Positioning System (GPS) – basic concepts and applications; Segments of GPS; Errors in GPS; GPS operations and methods; Differential Global Positioning System (DGPS), GNSS and IRNSS.

Remote Sensing

Definitions, Scope, potentials and limitations of Remote Sensing; Development in the world and in India, Stages of Remote Sensing, Principles and concept of Remote Sensing: Radiation and Resolution concepts; Types of Remote Sensing, Platforms and Sensors, LANDSAT And IRS Satellite System: Sensors, Characteristics; Principle of Electromagnetic Radiation, Interaction of EMR With water, soil, vegetation and Atmosphere; Introduction to Elements of Photographic System: Camera System, Film. Basic Geometry & Characteristics of Aerial Photograph, Scale, Image Parallax, Ortho Photo.

Part B: Geography

Geographical Thought: Concepts and Issues

Changing Paradigm of Geography; Development of Dualism in Geography, Positivism in Geography; Quantitative Revolution and its Impact; Systems and Models in Geography; Theories and Laws in Geography; Concept of Earth Surface; Concept of landscape; Concept of Region; Typology and Regionalization; Concept of Spatial Organization; Radical Geography: Geography as a Science of Human Welfare; Behavioralism & Phenomenology in Geography; Concept of Post-modernism in Geography; Feminist & Gender Geography.

Geography of Tourism

Concept, Nature, Scope & Approaches, Elements of Tourism; Evolution of Tourism Studies; Types of Tourism, Cultural, Environmental, Socio-cultural & Economic Impact of Tourism; Role of Infrastructure in Promotion of Tourism – Transport & Communication, and Markets; Information Technology; Travel Agents & Tour Operators; Major Tourist Circuits of the World; Evolution & Growth of Tourism in India;
Trend of Tourism in India; Major Tourist Circuits (India) & their Salient Features; Tourist Organizations: Domestic and International; Problems & Prospects of Tourism in India; Planning & Management of Tourism.

Title: Geography of Heritage

History of Heritage studies and Geography; definition; Concepts, Relevance and Scope; Sacredscapes, Heritagescapes, Ritualscapes; Pilgrimage and holy-heritage cities; Cultural Landscape, Historic Urban Landscape; Major approaches; UNESCO's classifications, problems and limitations; Tangible and Intangible heritages; Spatial tradition, management, planning and conservation; India'sheritage: spatial tradition, management, planning and conservation, case studies from India; Distribution and characteristics of heritage sites, religious and pilgrimage contexts of sites. Role of UNESCO, World Bank Programme, and other Institutions; Indian context: history, functions and role of institutions; Heritage and Cultural tourism; Heritage Contestation, Heritage at Risk and World Heritage Sites: Politics, Management, and Sustainable Development Goals (SDGs); Heritage Laws; Holy-heritage Cities of India with case studies; Inclusive Heritage Development.

Principles of Geomorphology

Meaning & Scope; Evolution of Geomorphology; Fundamental Concepts of Geomorphology; Earth Movements– Epeirogenesis and Orogenesis; Association of Plate Tectonics - Mountain Building, Vulcanicity, Earthquakes, Palaeomagnetism; Rock Formation; Mass Movement, Types & Resultant Landforms; Denudation-Weathering & Erosion, Geomorphic Cycle & Landforms by Karst, Arid, Coastal, Glacial,& Periglacial; Polycyclic Landforms; Erosional Surfaces, Uniclinal Structures & Landforms.

Advanced Geomorphology

Concept of time: cyclic, graded and steady state; Concept of morphogenetic region; Recent Trends in Geomorphology; Models of Landscape Development: W.M. Davis, W. Penk; Slope Evolution and Classification; Hill Slope Evolution Theories: Davis, Penk and King; Morphometric Analysis and its methods: Hypsometric, Altimetric Frequency & Clinographic Analysis; Methods of Stream Ordering; Frequency and Density of the Drainage; Application of Geomorphology in Mineral Exploration, Disaster Management and Civil Projects: Dams and Road Construction.

Climatology

Definition and Scope of Climatology; Composition and Structure of the Atmosphere; Insolation, Heat Balance of the Earth; Distribution & Inversion of Temperature; Air Pressure, Winds and general circulation models; Humidity; Mechanism of Monsoon – Recent Concepts; Classification and Properties of Air Masses and Fronts; Tropical and Temperate Cyclones; Climatic Regionalisation and classification : Koppen & Thornthwaite; Climate & Landforms, Climate & Vegetation; Agro-climatology; Climate and Human Health; Heat Islands. Weather Forecasting.

Oceanography

Definition, Scope, and Historical development of Oceanography; Major relief features of ocean basins, Relief features of Indian Ocean; Distribution of temperature, salinity, density and .Oceans Currents; Marine Deposits and its Distribution in Ocean; Marine resources; Coral Reefs and Atolls: Theories of their Formation. Marine Ecosystem; Law of the Sea; Exclusive Economic Zone, Geopolitics of Indian Ocean Region, Anthropogenic Pollution, Sea Level Change and Coastal Erosion.

Urban Geography

Meaning & Scope; Development of Urban Geography in India; Urban Growth in Ancient, Medieval, and Modern Period; Megalopolis &Conurbation, Trends of Urbanisation in India; Urban Growth Models: Concentric Zone, Sectoral, and Multi-nuclei Model, Concept of Rank Size Rule and Primate City; Concept of Urban Morphology, Functional Classification of Urban Centres, Concept of Umland; Urban Fringe: Concept & Characteristics; Problems of Cities; Concept of Town Planning: Aims & Principles, Problems and Prospects of Town Planning in India; Urban Policies & Smart Cities.

Population Geography

Nature & Scope of Population Geography; Approaches of Population Geography; Sources of Population Data; Pre Malthusian Views, Malthusian Theory, Neo Malthusianism, Demographic Transition Theory, Optimum Population Theory, Social Theories of Population – Marx; Biological Theories of Population – Herbert Spencer; Distribution & Density of Population; World Patterns of Population Growth and Distribution; Population Explosion; Types of Migration, Causes and Consequences, Migration Theories: Lee and Ravenstein; India's Population Policy, Population Planning with special reference to India.

Cartography: Projections and Cartograms

Projections : Meaning, Classification, and Characteristics of Projections; Construction with mathematical methods: Lambert's Conical, Polyconic, Galls', Equatorial Zenithal Projection: Gnomonic, Stereographic and Orthographic Cases; Mollweide & Sinusoidal: Simple and Interrupted; Cartograms : Climatic Diagrams, Water Budget; Ergo-graph – Climatic and Circular; Multiple Dot & Spherical map

Physical and Economic Geography of India

Geological Evolution– Origin of Himalayas, Origin of River Systems of India; Delimitation & Characteristics of Physiographic Regions; Mechanism and Recent Trends of the Indian Monsoon; Climatic Regions; Agro-Climatic Regions; Population growth and distribution; Population Resource Regions; Role of Green Revolution; Agricultural Regions & New Trends in Indian Agriculture; Mineral Resource Regions; Industrial Policies & Trend of Industrialization; Industrial Regions, Impact of Globalization on Indian Economy; Regional Development and Disparities, Problems & Prospects of Industrially Backward.

Regional Geography of India

Concept of Region and Regional Geography, Types of Region, Methods of Regionalization, Macro, Meso and Micro Regions of India; Attempts of Regionalization with reference to Stamp, Spate, & R.L. Singh; Kashmir Himalaya, North Eastern Region; Tribal Regions: Central India; Middle Ganga Plain; Chhotanagpur Plateau; Malabar Coast; Punjab Plain,; Malwa Plateau; Drought Prone Areas; Flood Prone Areas; Desert Areas; Hill Areas.

Agricultural Geography

Definition, Scope and Approaches of Agricultural Geography, Agriculture in Innovations & Diffusion; Land Capability Classification with Special Reference to India, Land Use Classification with Special Reference to India. Carrying Capacity of Land, Kostrowicki's Classification of World Agriculture; Methods of Agricultural Productivity; Measurement – Kendall's Ranking Coefficient Method, Weighted Ranking Coefficient Method; Regional Imbalances in the levels of Agricultural Productivity in India; Agricultural regions: Cropping Intensity and Diversification; Concept of Agricultural Development, Sustainable Agriculture ,Agricultural revolutions & Recent Policies.

Political Geography

Nature& Scope, Evolution & Development of Political Geography; Contribution of German, British & American Scholars; Approaches to the Study of Political Geography in reference to Functional and Unified Field Theory; The Concept of Nation and State; Spatial Factors and Anatomy of State: Core Areas and Capitals; Frontiers and Boundaries. Evolution of Federalism, Origin and Success of Federalism in India; Global Strategic Views with particular emphasis on the ideas of Mahan, Mackinder, Spykman and Deseveresky, Geopolitical Setting of India, Significance of Indian Ocean; Elements of Electoral Geography; Geopolitical Problems of India in Relation to its Neighbours; Contemporary Problems of India; Regional Co-operations – SAARC, ASEAN, European Union.

Principles of Economic Geography

Nature and scope, Recent Trends in Economic Geography; Fundamental Concepts of Economic Geography; Location Theories-Von-Thunen, Industrial Location Theory- Weber, Hoover and Losch, Central Place Theory; Rostow Stages of Development; Theories of Economic development-Growth Pole Theory, Myrdal's; Cumulative Causation Theory; Changing concept of development; Sustainable development; Factors influencing the international trade, Ricardian Theory of International trade, Emerging Trends of World Trade Pattern, Regional Trade Blocks: SARC and ASEAN.

Resource Appraisal & Management

Concept of Resources, Classification of Resources, Attributes of resources, Natural resources-Definition, Concepts and Approaches of Resource management; Distribution, Utilization and problems of natural resources with special reference to India. Mineral Resources: Iron Ore, Energy Resource: Coal, Petroleum, Wind, Solar and Nuclear; Population explosion and pressure on resources. Population Resource Regions of the World, Development and Environmental Issues, Natural hazards and Risk management with emphasis on Earthquake, Flood & Drought; Meaning, Principles and Approaches to conservation, Resource appraisal and management methods, Emerging issues. Sustainable Resource development; Integrated Resource development –Ecological, Economic and Social aspects.

Geological Maps and Morphometric Analysis

Drainage: Density, Frequency, Dissection index Slope Analysis: Wentsworth Method, Preparation of Hypsometric Curve, Altimetric Frequency Curve, Clinographic Curve through the use of Topographical Sheet of any Hilly and Plateau region; Beds, bedding Plane, Strike lines, Outcrop Drawing of Cross Sections – Inclined, Folded, Faulted Strata and Unconformable Series; Interpretation of Geological History – Nature of Relief and Rock Structure and their Correlation.

~~Title of the Paper:~~ Cultural Geography

Concept of Culture, Nature Scope and Significance of Cultural Geography, Approaches and Development; Origin & Dispersal of Man, Types & Dispersal of Human Races; Racial Composition of India; Linguistic and Religious Structure of the World; Cultural Diffusion; Domestication of Plants and Animals; Renewal and Dispersal Activities of Crops; Agricultural Practices and Innovations, Industrial and Technological Revolution and its impact on Culture, Globalization and Cultural Development; Concept of Cultural Hearths; Major Cultural Realms and Regions of the World. Cultural Landscape and Cultural Ecology.

Rural Development

Concept of Rural Development, Approach of Rural Development. Need for Rural Development: Sectoral Imbalance in Rural Development; Panchayati Raj: Structure and Role in Rural Development; Rural-Urban Divide and Continuum,Core and Periphery Relations. Backward and Forward Linkages of Rural Economy; Issues and Problems of Rural Areas, Causes & Consequences of Rural Population Migration in India.Transition of Rural Livelihood: Risk and Opportunities; Area Based Approach to Rural Development: DPAP, PMGSY, Target Group Approach to Rural Development: SJSY, MNREGA, Jan Dhan Yojna, IRDP, PURA.

Regional Analysis

Regional Analysis: Concept and Needs, Development: Concepts, Identification of Indicators and Determinants; Sectors of Development: Indicators of different Sectors, Methodology used in Measurement of different Sectors; Regional Pattern of Development in India: Agriculture, Education, Health, and Employment; Quality of life, Basic needs: Objectives and Subjective needs, Human Development Index, Capability Index, Gender Sensitive Index.

Regional Planning

Concept and Scope of Regional Planning, Approaches to regional Planning; Concept and Delimitation of Planning Regions; Central Place Theory, Concept of Growth Centres; Growth Centre Strategy for Regional Planning; Cumulative Causation Theory of Myrdal Core – Periphery Relation; Planning Regions of India: Attempts of their delimitation, Regional Planning for Rural Development with Special Reference to Eastern U.P. Regional Planning with special reference to South East Resource Region; Meaning and Types of Infrastructure and their role in Regional Development: Transport, Market, and Power.

Environmental Hazards and Disaster Risk Reduction

Concepts of Environmental Hazards, Disaster & Risk; Types of Hazards; Concept Disaster Management; Disaster Risk Reduction, Disaster Management Cycle; Risk assessment process; Hazard identification and mapping; Vulnerability Analysis; Characteristics, distribution, impacts and risk reduction measures of: Floods, Earthquakes, Tsunami, & Drought, Major hazards profile of India: Flood, earthquake & cyclones; International Decade of Natural Disaster Reduction (IDNDR) & International Strategy for Disaster Reduction (ISDR); National Disaster Management Authority (NDMA), India; Disaster management system in India.

Industrial Geography

Meaning and Scope of Industrial Geography; Industrial Revolution and its Consequences; Factors of Location of Industries; Trends of Industrialization in India; Theories of Industrial Location – Weber, Hoover, Losch; Distribution and Spatial Pattern of Iron & Steel, Textile; Problems and Prospects of Industrial Sprawl; Centralization and Decentralization of Industries, Linkages of Industries; Major Industrial Regions of World; Impact of Globalization on Industrial Development, Industrial Policies and their Implications in Industrialization in India, Sustainable Industrial Development.

Transport Geography

Definition, Scope & Relevance to the study of Transport Geography, Historical Development of Transport System, Relative Importance of Different Modes of Transport. Concept of Spatial Interaction; Evolution of Transport network with special reference to Taffee , Morrill and Gould 's Model; Network analysis- Concept of accessibility and connectivity; Measures of connectivity-Graph theoretic measures – Cyclomatic, Alpha, Beta ,Gama & Detour Index State of Modes and Means of Transport in India – Rail, Road, Waterways and Air; Transport policy in India, Transport planning.

Environmental Studies

Concept and elements of Environment, Approaches to study the Environment; Ecosystem: concepts and components; Environment and Society; Environment and Development; Energy availability & flow in trophic level, Ecological Pyramids, Bio Geo-Chemical Cycles: Carbon, Nitrogen. Oxygen; Concept of Biodiversity: Depletion and conservation; Forest, grassland and desert Ecosystem; Carrying Capacity of the Earth: Limits to Growth; Environmental Degradation, Environmental Pollution: types, causes and impact; Environmental Impact analysis, Environment Monitoring and Standard, Environmental policies and Legislations; Environmental Management.