KARNATAKA STATE OPEN UNIVERSITY

DEPARTMENT OF STUDIES IN GEOGRAPHY

Ph.D. Entrance test syllabus for Geography

Core subject: Geography (COGNATE SUBJECT)

Unit – I

Geomorphology: Fundamental concepts; Factors controlling land form development; Endogenic and Exogenic forces; Denudation process: weathering. and erosion, Geosynclines, mountain building, continental drift and plate tectonics; Concept of Geomorphic Cycle; Landforms associated with fluvial, glacial, arid, coastal and Karst cycles, Slope forms and processes; Environmental and Applied Geomorphology.

Unit – II

Climatology: Composition and structure of the atmosphere; Insulation; Heat budget of the earth; Distribution of temperature, atmospheric pressure and general circulation of winds; Monsoons and jet streams; Stability and instability of the atmosphere; Air-masses; Fronts, temperate and tropical cyclones; Types and distribution of precipitation; Classification of world climates; Koppen's and Thornthwaite's schemes; Hydrological Cycle; Global warming.

Unit – III

Oceanography: Origin of ocean basins; Bottom relief of Indian, Atlantic and Pacific Oceans; Ocean deposits; Coral reefs; Temperature and salinity of the Oceans; Density of sea water; Tides and ocean currents; Sea-level changes.

Bio-Geography: Physical factors influencing world distribution of plants and animals; Forms and functions of ecosystem: Forest, grassland, marine and mountain ecosystem; Bio-diversity and its depletion through natural and man induced causes; Conservation and management of ecosystems; Environmental hazards and problem of pollution; Ozone depletion.

Unit – IV

History of Geographic Thought: General character of Geographic knowledge during the ancient and medieval period; Foundations of Modern Geography: Contribution of German, French, British and American schools; Conceptual and methodological developments during the 20th century; Changing paradigms; Man and Environment, Determinism and Possibilism, areal differentiation and spatial organisation; Quantitative revolution; Impact of positivism, humanism, radicalism and behaviouralism in Geography.

Unit – V

Population Geography: Nature, scope, subject matter and recent trends; Patterns ofworld distribution, growth and density of population; Policy issues; Patterns and processes of migration; Demographic transition; Population-resource regions.

Settlement Geography: Site, situation, types, size, spacing and internal morphology of rural and urban settlements; Ecologicalprocesses of urban growth; Urban fringe; City – region; Settlement systems; Primate city; Rank-Size rule; Settlement hierarchy; Christaller's Central Place theory; August Losch's theory of market centres.

Unit – VI

Economic Geography: Location of economic activities and spatial organization of economies; Classification of economies: Sectors of Economy: primary, secondary, tertiary and quaternary; Natural resources: Renewable and non – renewable; Conservation of resources.

Agricultural Geography: Concept and techniques of delimitation of agricultural regions; Measurement of agricultural productivity and efficiency; Crop combinations and diversification; Von Thunen's Model; Agricultural systems of the world.

Industrial Geography: Classification of industries: Weber's and Losch's approaches; Resource based and footloose industries.

Geography of Transport and Trade: Models of transportation and transport cost; Accessibility and connectivity: Inter-regional and Intra-regional: Comparative cost advantages.

Unit – VII

Political Geography: Definition and scope of Political Geography; Geopolitics; Global strategic views (Heartland and Rimland theories); Concept of nation, state and Nation-State; Boundaries and frontiers; Politics of world resources; Geography and Federalism.

Social Geography: Nature and scope of social geography; Social structure and social processes; Elements of Social Geography—ethnicity, tribe, dialect, language, caste and religion; Concept of Social well – being.

Cultural Geography: Nature and scope of Cultural Geography; Environment and culture; Concept of culture-areas and cultural regions; Theories of tribal groups; Dwelling places as cultural expressions.

Unit – VIII

Regional Planning: Regional concept in Geography; its application to planning; Concept of planning region; Regional hierarchy; Types of regions and methods of regional delineation; Conceptual and theoretical framework of regional planning; Regional planning in India: Concept of development; Indicators of development; Regional imbalances.

Unit – IX

Geography of India: Physiographic divisions; Climate: Its regional variations; Vegetation types and vegetation regions; Major soil types; Coastal and Marine resources; Water resources; Irrigation; Agriculture; Agro-climatic regions; Mineral and power resources; Major industries and industrial regions; Population distribution and growth; Settlement patterns; Regional disparities in social and economic development.

(Chairman BOS)

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for

Research Methodology

Unit-1

Research Methodology in Geography

Research Methodology: Meaning; Need for Scientific research; Type of research; Approaches to geographical research; Defining the Research problem; Research design: Concepts relating to research design, Different type of Research design; Sampling design: Need for Sampling Methods, Size of Sampling; Measurement and Scaling Techniques,

Data Acquisition and Analysis: collection of data- sources of data- primary and secondary- Processing, Editing, Coding, Classification and Tabulation, Analysis- data transformation- SPSS package in data analysis.

Interpretation and report writing: meaning, techniques and significance of report writing- Drafting of the thesis-First, Second and Final- Writing of abstracts, Research papers for seminar and conferences, Journal Publications.

Unit- 2: Statistical Techniques in Geography

Significance of Statistics in Geography; Review of basic statistical measures: Measures of Central tendencies, Measures of variation, Analysis of Variance (ANOVA); Basic Multi Vitiate Analysis: Correlation Analysis - Correlation coefficient for grouped and ungrouped data, Rank Correlation, Regression Analysis – Simple Linear regression, Residual Analysis, Multiple Regression; Theory of Sampling and Testing of Hypotheses: Types of Sampling, Sampling distribution and standard error; Testing of Hypotheses – t

test, f test and Chi-square test; Advanced Multivariate Analysis: Introduction, Factor Analysis and its methods, Centric method, Principal Component Method, Use of SPSS in Statistical Analysis. Nearest neighbor analysis; Rank size Rule; Gravity model; Measures of line distribution; Accessibility of nodes; Route density, Route sinuosity, Detour index, shortest path and shortest distance analysis, Traffic flow, Measure of connectivity- Beta index, Connectivity, Gama index, Cyclomatic number, Alpha index, Eta index, Measures of Area Distribution: Lorenze curve, Gini-coefficient, Index of dissimilarities and Similarities, Location Quotient, Index of concentration, Gibbs Martin index, shift-share analysis; Measures of Disparities – Kendall's method, Bhatia's method; Combinational analysis – Weaver's method, Ternary diagram.

Unit-3

Fundamentals of Remote Sensing and Geographical Information System

Introduction to remote sensing: Principles of remote sensing; Electro-magnetic radiation (EMR);Electro-magnetic spectrum; Energy interactions with atmosphere; Energy interactions with earth surface features; Satellites and sensors: Microwave remote sensing; SAR and SLAR; Imaging interpretation and analysis.

Introduction to GIS: Definition; concepts and components of GIS; Geographical entities; Sources of spatial data: Data encoding-spatial data modeling-raster-vector data models; Data management system: Relational and hierarchical modes; GIS applications.

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