

**DEPARTMENT OF GEOGRAPHY**  
**FACULTY OF SCIENCE**  
**A.M.U., ALIGARH**  
**Syllabus for Ph.D Admissions Test 2022-23 onwards**

**SECTION-B**

Origin of solar system, origin of earth and its related theories, interior of the earth, the concept of Isostasy Theories of Continental Drift and Plate Tectonics. Weathering; denudation, erosion. Geomorphic process and their resultant landforms; (running water, glacier wind, Krast, coastal), concept of geosynclines, theories of mountain buildings.

Atmosphere: Structure and composition, insolation, heat-budget of the earth, distribution of temperature, pressure, types of clouds, precipitation, rainfall, stability and instability, air masses and fronts. Origin of tropical and temperate cyclone and their related theories. Climatic Classifications: Koppen's and Thornthwaites. Climate change: Global warming and their impact on biosphere.

Ocean bottom topography, hypsographic curve, ocean currents, waves, tides, coral reef and their related theories, ocean deposits, ocean as marine resources.

Stratigraphy of India: Physiographic Divisions of India, structure, relief, Extra-Peninsula, Indo-Gangetic Plain, Dharwar system, Gondwana system, Cudappa system, Deccan trap, System and Pattern of drainage. Origin of peninsular, Extra-peninsular drainage, concept of Indo-Brahm Theory, natural vegetation, forest, wild life, soil, climate. Origin and mechanisms of Indian Monsoon; El-Nino, La Nena and ENSO events. Indian Agriculture; agricultural regions, agricultural resource, mineral, power and water resources. Development of industries; industrial regions, means of transport and communication.

Population of India: distribution, composition, age-sex structure, demographic transition, race, caste, religion, language, migration theories, population as a resource, population policies.

Development of geographical thought during ancient, medieval, modern and post modern period. Contributions of Thales, Anaximander, Hecataeus, Herodotus, Aristotle, Plato, Eratosthenes, Strabo and Ptolemy. Al Khwarizmi, Al Masudi, Al Biruni and Ibn Khaldun, Humboldt, Ritter, Ratzel, Vidal-De-La Blache and Meckinder. Concepts and approaches in geography, Environmental determinism, Possibilism and Neo-determinism, Possitivism, Quantitative revolution, Behaviourial, Welfare, Radical, Idealism, Realism and Structuralism, feminism, gender, nomothetic and ideographic, deductive and inductive, ecology, human ecology.

Concept of human geography; origin and types of settlement, relationship of site situation and topography, distribution and growth of population, major cultural realms of the World, race, religion and language.

Major economic activities and their related theories, Agriculture system of the World, Food problems and food security, Green, Blue, White, Yellow, Silver revolutions. Industrial regions of the world, World Trade System; World trade Organization (WTO), major economic policies. Major biomes and biosphere region of the World. Flora and fauna.

Natural and man made disaster; disaster, hazards, risk and vulnerability. Disaster management programme and policies.

Markets: Classification, structure and hierarchy, Theoretical Framework for Study of Market Centres: Christaller and Losch Model of Market Locations; Markets participants, Market Channel and Trade Area, B.J. Berry's Model and Reilly's Models of interaction and trade area delimitation. International Trade, World Trade Organization, World Trading Zone: SAFTA (South Asian Free Trade Association), NAFTA (North Atlantic Free Trade Association).

Tourism products; pilgrimages; leisure, recreation; Elements of tourism, Tourism as an industry. Tourism types.

Concept and Nature of Regional Planning, Types of Regions; process of regionalization, formal and functional, regional hierarchy, Planning Regions in India, Regional disparities in India.

Ecosystems; Environmental Degradation and Pollution (Air, water, land, noise) effects on human health. Environmental impact Assessment, programme and policies.

Approaches to the Study of Political Geography; Hirschhorn's Functional, Whittesey's Landscape and Joni's Unified Field theory, Meckinder's Geographical Pivot and Heartland Model, Spykman's Rim Land Model, Neo Imperialism: Political, Economic and Cultural Mechanism, India under colonial rules, India as a Federal country, Electoral Geography.

Rural settlement; house types, spacing of rural settlement, concept of rural development, programme and policies for rural development.

Determination of urban areas: problem of urban growth, growth pole theory, internal Structure of Cities: Burgess's Concentric Zone Theory, CBD its present day relevance, Hoyt's Sectoral Model; Harris and Ullman's Multiple Nuclei Model, the city's spheres of influence (Umland) – methods of its determination; rural – urban fringe, Walter Christaller's Central Place Theory and August's Losh, Rank-Size Rule and Law of Primate City, Policies and programme of urban development.

Social Well-Being: Gender Issues and Social Change, rural-urban interaction and social change, Social Differentiation and Region Formation, Spatial distribution of tribes, castes and linguistic groups, relationship between social identity and economic conditions.

Nature and sources of Geographic data. Methods of Field work. Types of data: Primary and secondary, problems and prospects of their use in the geographical research. Sampling techniques: use in generation of data, their merits and demerits. Preparation of questionnaire; scheduled and hypotheses. Measures of statistical data: measures of central tendency (mean, median, mode), Mean deviation; quartile deviation, standard deviation and co-efficient of variation. Simple and multiple correlation, regressions, nearest neighbour analysis, spacing of settlement. Test of significance: Chi square test, 't' - test, F-test. Basic principles of remote sensing, spatial resolution, radio metric resolution, spectral resolution. Types of remote sensing: active and passive, microwaves, digital image processing; techniques of image interpretation, image rectification and image enhancement. Development of cartography, map projection their uses and application.

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