

Geography

PAPER - I

General Geography

Unit - I - Geomorphology & Soil Geography :

- Origin of the Universe.
- Internal Structure of the Earth Isostasy.
- Continental Drift, Concept of Plate tectonics.
- Earthquake Volcanism : Concept cause, effect & distribution.
- Weathering and erosion.
- Cycle of Erosion (Davis and Perick).
- Land forms produced by running water,
- Groundwater, Wind, Wave and Glacier.
- Soil forming processes.
- Soil Profile, Structure and Texture.
- Classification of Soils.

Unit - II - Climatology, Oceanography & Biogeography.

- Elements and Factors of Climate.
- Temperature and its vertical and horizontal distribution.
- Pressure and winds.
- Hydrological Cycle, Humidity.
- Types and distribution of Rainfall.
- Atmospheric disturbances: Tropical and temperate Cyclone.
- Classification of World Climate (Koppen and Therntwaite)
- Bottom relief of Pacific, Atlantic and Indian Ocean.
- Temperature and Salinity of the Ocean Water.
- Oceanic Circulation Tides and Currents of Pacific, Atlantic and Indian Ocean.
- Marine resources.
- Global distribution of forests.
- Man's response to the Global environment.

Unit - III - Social Geography and Geographical Thought

- Races of Mankind, Cultural Realms of the World, Man and Environment relation.
- Population: Growth and Distribution of Global Population, Urban Population and Trend of Urbanisation.
- Evolution of Settlement: Types and Pattern of Rural and Urban Settlement.
- Geographical Thought in (Ancient) India.
- Contribution of Humboldt, Karl Ritter, Blache and Peter Hagett to development of Geography.

Unit - IV - Economic Geography and Political Geography

- Resources: Meaning and its Classification, Resource Conservation and Management.
- Agriculture: its types, Agricultural location theory by Vonthunen.
- Industrial location theory by Weber and Smith.
- Concept of Regions, Regionalism, Delimitation of Regions.
- Concept of Nation and State.
- Frontiers, Boundaries & Buffer Zone.
- Political Geography of Middle East and South Asia.

Unit - V - Applied Geography

- Cartography: Cartographic techniques in Geography, Map and its design.
- Surveying: Land use, Socio-Economic and Instrument Survey.
- Use of Statistical Methods in Geography : Measures of Central Tendencies, Measures of Dispersion, Establishing Relationship.
- Geographical Information System : Concept & Components.
- Use of Areal Photography and Remote Sensing techniques in Geography.

PAPER-II

A – India

Unit-I (Physical)

- Physiography and Relief of India.
- River system of India.
- Climate of India, Climatic regions, Mechanism of Indian Monsoon.
- Soils of India : Types and Distribution.
- Natural Vegetation and its Classification and distribution in India.

Unit-II (Human & Economic)

- Population its Structure and Composition, Population growth density and its distribution. Factors affecting Population distribution.
- Settlements: Rural and Urban.
- Resources and its Classification mode of occurrence and distribution of Iron Ore, Bauxite Coal and Petroleum.
- Agriculture and its types, Agricultural Problems and Prospects.
- Growth and development of Iron and Steel Industry, Aluminum and Cotton Textile Industry.
- Transport System in India : Road, Rail, Air and Water transport.

Unit-III (Geographical Regions)

- Geographical account of Lower Ganga Plain, Chhotanagpur Plateau, Kashmir Valley, West Coastal Plain.

B – ODISHA

Unit – IV (Physical)

- Physiography and Relief of Odisha.
- Drainage System of Odisha.
- Climate of Odisha.
- Soils, its types and distribution.
- Natural Vegetation of Odisha.

Unit – V (Human Economic & Regional)

- Population : Factors responsible for the density and distribution of Population, Population growth and distribution.
- Mineral resources of Odisha (Iron Ore, Bauxite and Coal).
- Agriculture : its types and Problems.
- Industries ; Iron, Steel & Aluminum Industries.
- Transport System in Odisha (Road, Railway and Air Transport).
- Geographical account of Mahanadi Valley, Coastal Plain.

Geology

PAPER-I

Unit – I Geomorphology and Remote Sensing

Weathering and erosion, Geological action of River, wind and glacier. Physiography of India, Application of geomorphology.

Principles of aerial photography, photogrammetry and satellite remote sensing – data products, their interpretation and application. Geographic Information System (GIS) – Principles and application.

Unit – II Mineralogy

Physical, chemical and optical characteristics of common rock forming silicate mineral groups. Structural classification of silicates. Minerals of Carbonate, Phosphate and sulphide groups. Atomic substitution, isomorphism, polymorphism. Principles of X-Ray Diffraction.

Unit –III Structural Geology

Concept of stress, strain and rock deformation. Structural analysis of folds, joints and faults, Lineation and foliation. Unconformities and basement cover relation. Superposed deformations.

Unit – IV Igneous and Metamorphic Petrology

Form, texture and structure of igneous rocks. Silicate melt equilibria, binary and ternary phase diagrams, magmatic differentiation, assimilation. Petrology and geotectonic evolution of granites, basalts, anorthosites, ophiolite, kimberlite. Texture and structure of metamorphic rocks, regional and contact metamorphism. Characteristics of different grades and facies of metamorphism. Plate tectonics and metamorphic zones. Metasomatism, granitisation, migmatites and paired metamorphic belts.