

# GEOGRAPHY (853)

## CLASS XI

There will be **two** papers in the subject:

**Paper I** – Theory (3 hours) .....70 marks

**Paper II** – Practical and Project Work ...30 marks

### PAPER I: THEORY (70 Marks)

#### GEOGRAPHY AS A DISCIPLINE

#### 1. Geography - its interdisciplinary approach and future prospects (not to be tested).

Geography as an integrating discipline. Physical Geography and Natural Sciences; Geography and Social Sciences.

*Branches of Geography:*

(i) *Systematic approach: Physical Geography (Geomorphology, Climatology, Hydrology); Human Geography (Historical, Social, Population and Settlement, Economic, Political).*

– *The conceptual and intellectual ideas of a number of new approaches to contemporary human geography should be examined to understand the strengths and limitations of each approach within the context of Human Geography and Social Sciences.*

(ii) *Regional approach: Regional/ Area Studies, Regional Planning, Regional Development.*

*Future prospects of Geography to be discussed:*

- *In the area of GPS, GIS, Remote Sensing for resource identification.*
- *Applied geography in town and country planning, environment management and law, cartography and mapping, geography education, map analysis, travel and tourism (to be taught only for the sake of awareness, not for testing).*

#### PRINCIPLES OF PHYSICAL GEOGRAPHY

#### 2. Formation of the Earth

Theories of formation; Methods of measuring age of the earth; Structure and Composition; Rocks.

(i) *Theories of formation of the earth: the Big Bang theory; Planesimal and Nebular hypothesis.*

(ii) *Methods of measuring age of the earth: Radioactivity – a brief understanding.*

(iii) *Structure and composition of the earth's interior: crust, mantle, core; their properties - temperature, pressure, thickness. Sources of information – direct and indirect; seismic waves, their behaviour and inferences, the causes of earthquakes and distribution: effects; isoseismal and homoseismal lines, measuring earthquakes and their intensity.*

*Case study of earthquakes on a country like Nepal.*

*Vulcanicity-materials and processes; major volcanic forms.*

*Explanation of how volcanoes are formed; identification of the type of volcano; recognition of the properties of volcanic materials; explanation of why volcanoes are more in the areas of converging plates.*

(iv) *Rocks: The mineral groups responsible for different rocks formed on the earth: silicates, carbonates, sulphides, metals.*

*Classification of rocks by origin: igneous, metamorphic and sedimentary rocks – their distribution in India; characteristics, types, economic importance.*

*The rock cycle.*

#### 3. Changing Face of the Earth

Landforms and Processes of Gradation

(i) *Endogenous processes: theory of plate tectonics and the process of drifting continents, theory of Isostasy by Pratt and A. Holmes.*

*Definition of endogenetic force, difference between slow and sudden forces, vertical and horizontal forces and their effects. Folding and Faulting – types, Sea floor spreading, continental drifting and isostasy.*

- (ii) Landforms – mountains, plateaus and plains and their types.

*Meaning and differentiation between the three main landforms of the earth.*

*Classification of mountains on the basis of their origin or mode of formation: fold, block, volcanic and residual with examples from the world.*

*Classification of plateaus on the basis of their situation: intermontane, piedmont and continental with examples from the world.*

*Classification of Plains on the basis of formation: depositional with examples from the world.*

- (iii) Exogenetic process and associated landforms.

*Weathering and gradation – difference between the two. Role of weathering in gradation. Different types of weathering.*

- (iv) Soil.

*The factors affecting soil formation; soil profile; physical and chemical properties, distribution and characteristics of soils.*

*Distribution of Alluvial, red, yellow, black and laterite soils in India and the problems related to their management.*

- (v) Fluvial processes and associated landforms.

*Work of rivers - concept of baselevel; processes of erosion, transportation and deposition. Types of erosion - headward, vertical, lateral; transportation mode and deposition.*

*Landforms made by the river - V shaped valley, gorges, waterfalls, levees, floodplains, meanders; braided channels, oxbow lakes, deltas – delta plains.*

***Diagrams and examples from India with photographs.***

- (vi) Aeolian processes and associated landforms.

*Process of wind erosion – abrasion, attrition, deflation. Ideal conditions for erosion in hot deserts; landforms resulting from erosion - deflation hollows, pedestal rocks, yardangs, desert pavement; landforms resulting from deposition - sand dunes and their types, loess. Diagrams and examples from India with photographs.*

- (vii) Glacial processes and associated landforms.

*Continental and mountain or valley glaciers, processes of glacial erosion – plucking, abrasion, attrition; erosional features, e.g. cirque, depositional formations, moraines of various types. Diagrams and examples from India with photographs.*

- (viii) Work of ground water and associated landforms.

*Process of erosion by groundwater solution, corrosion. Features formed by underground water (karst topography), depositional features – stalactites, stalagmites. Diagrams and examples from India with photographs.*

- (ix) Marine processes and associated landforms.

*Erosional features; sea cliffs, sea caves, sea arch, headland inlet, stacks and depositional landforms, e.g. - bays, bars and lagoons. Diagrams and examples from India.*

#### 4. Atmosphere

- (i) Composition and structure of atmosphere.

*Layers of the atmosphere: troposphere, stratosphere, ozonosphere, mesosphere, ionosphere; their height; composition; special characteristics of each layer; ozone depletion.*

- (ii) Atmospheric temperature.

*Heating and cooling of the atmosphere, radiation, conduction, convection. Insolation and factors influencing it – angle of sun's rays, duration of day, transparency of atmosphere. Heat budget i.e. balance between insolation and terrestrial radiation- areas of surplus and deficit heat in different latitudes resulting in latitudinal heat balance.*

*Factors controlling its horizontal and vertical distribution, temperature anomalies and their nature. Isotherms: their characteristics. Reasons for the variations in temperature. **Practical work on temperature measurement and graphs to show variations in temperature of one or more cities of India.***

- (iii) Atmospheric Pressure.

*Its horizontal and vertical distribution, factors affecting the distribution, characteristics of isobars.*

*Pressure belts and winds – types of winds, air masses and atmospheric disturbances, cyclones of temperate and tropical areas; anticyclones.*

(iv) Atmospheric Moisture.

*Processes of evaporation, condensation and precipitation; relative and absolute humidity; forms of condensation - cloud, fog, dew, frost; precipitation – its forms: snow, hail, rain; types of rainfall: orographic, cyclonic, convectional.*

(v) Climate change- causes/factors of climatic changes in the recent past.

*Natural and man-made factors, with special reference to climatic changes in India. Measures taken to adapt to these changes in urban and rural India.*

***Practical work on measuring rainfall and use of bar graphs to show variations in rainfall in one or more cities of India.***

## 5. The Realms of Water

(i) Submarine relief of the Atlantic, Pacific and Indian Oceans.

*The depth and the features, the importance of marine resources. Ocean pollution and ways to overcome them.*

(ii) Ocean water - salinity, temperature, density.

*Composition of seawater and factors that control distribution of salinity, density and temperature.*

(iii) Ocean water movements.

*Direct and indirect tides – origin, time, spring and neap tides. Waves – parts, characteristics, formation. Currents - factors affecting currents, currents of Indian, Pacific and Atlantic oceans. Role of currents in modifying climates of coastal areas. Introduction to El Nino and La Nina as conditions that affect the intensity of the monsoons over India.*

## 6. Biosphere – Life on the Earth

(i) Nature of Biosphere, concept of ecosystems, components of ecosystem.

*Meaning, nature of interaction between the different components of the biosphere. Understanding the concept of biodiversity. To appreciate various reasons for valuing and conserving biodiversity (ethical, moral, economic, aesthetic).*

(ii) Biodiversity for sustenance of mankind.

*The various roles played by biodiversity in sustaining mankind - as a source of food, medicine, pollution control, etc.*

(iii) India as a mega diversity nation.

*A basic understanding that India with its varied climate and landscape is home to a variety of unique ecosystems and endemic species e.g. the largest mangrove forest in the world - the Sundarbans, vast mountain forests in the Himalayas, tropical evergreen forests in the Western Ghats and the North-East region, desert vegetation in Rajasthan, thorn and scrub forests in the plateaus, etc.*

(iv) Strategies for conservation of biodiversity – in-situ and ex-situ.

*Understanding the implications of loss of biodiversity;*

*Looking at various in-situ and ex-situ strategies for their efficacy and viability;*

*In-situ strategies - protected areas (biosphere reserves, national parks, wildlife sanctuaries).*

*Ex-situ strategies - captive breeding, zoo, botanical garden, gene banks and their use.*

## 7. Map Work

A question on map work will be set to identify, label and locate any of the following items studied in topics from **Principles of Physical Geography**.

### MAP LIST

#### **Mountains (To mark and label):**

*Himalayas, Hindukush, Elburz, Zagros, Kirthar, Caucasus, Alps, Pyrenees, Carpathians, Urals, Khingan, Kunlun, Drakensburg, Kjolen, Andes, Rockies, Appalachian, Great Dividing Range.*

**Plateaus (To mark and label):** Tibetan, West Australian, Iranian, Anatolian, Pamirs, Ethiopian, Deccan, Guiana, Brazilian, Arabian.

**Water Bodies (bays, gulfs, straits, sea, oceans) (To mark and label):** Arctic Ocean, Atlantic Ocean, Indian Ocean, Pacific Ocean, Southern Ocean, Hudson bay, Gulf of Mexico, Bering Sea, Sea of Japan, South China Sea, Yellow Sea, Timor Sea, Persian Gulf, Red Sea, Black Sea, Mediterranean Sea, Caspian Sea, Arabian Sea, North Sea, Suez Canal, Strait of Magellan, Bay of Bengal.

**Rivers (To identify):** Mississippi, Amazon, Parana, Orange, Nile, Zaire, Rhine, Danube, Volga, Euphrates, Tigris, Ob, Yenisei, Lena, Hwang Ho, Yangtze Kiang, Irrawaddy, Ganga, Murray, Darling.

**Ocean Currents (To identify):** North Atlantic Drift, Gulf Stream, Labrador current, Peru current, West wind drift, Southwest Monsoon current, West Australian current, KuroShio current, Oyashio current, East Australian current.

**Islands (To identify):** Greenland, Hawaii, West Indies, Tierra del Fuego, Baffin, Newfoundland, Iceland, Madagascar, Sri Lanka, Philippines, Papua New Guinea, Indonesia, Japan, New Zealand.

## PAPER II: PRACTICAL WORK AND PROJECT WORK (30 Marks)

Candidates will be required to undertake the following Practical work and Project work:

### 1. Practical Work

Any *two* of the following four topics to be undertaken.

- Surveying - elementary principles; preparing plans of the school compound or a small area with the help of chain and tape.
- Statistical diagrams - line graphs (simple and multiple), composite bars, pie diagram, flow and star diagram, (the data used will be that used in Paper I).
- Map projections – uses, construction and properties of the following:
  - Cylindrical equal area.
  - Simple conical with one standard parallel.

(iii) Zenithal equidistant.

- Aerial photographs – Introduction; definition; difference between map and an aerial photograph; uses of aerial photographs, advantages of aerial photography.

*Types of Aerial Photographs:*

- Based on the position of the camera axis – vertical photographs, low oblique, high oblique (only definition and explanation).
- Based on Scale – (a) Large scale photographs (b) Small scale photographs. Scale of Aerial Photograph – (a) by establishing of relationship between photo distance and ground distance; (b) by establishing relationship between photo distance and map distance.

### 2. Project Work (Assignment)

**One** topic as an assignment. Sketches and drawings will be given credit.

- Take any physical feature in your immediate locality:
  - draw sketches or take photographs to highlight physical features.
  - survey how these features have been used and prepare a report.
  - suggest ways by which the area of study could be better used keeping in view the needs of the people of the region.
- Choose any island area of the world or India and:
  - trace the map of the area and show physical features, towns and port cities.
  - prepare a project report using photographs and pictures from brochures and magazines to show:
    - its origin and formation.
    - soil types, vegetation.
    - human occupations.

- (iii) Any natural hazard like drought, flood, erosion, landslides, etc. in a local area.

*Choose a natural hazard in the local area. Describe the nature of damage by consulting newspaper reports, studies, interviews with local people. Identify the nature of damage before and after – land, building, public property, soil, vegetation, animals, etc. What are the chances of it occurring again and what precautions are being taken?*

- (iv) World Climatic types

Low latitude/tropical climates:

- (a) Equatorial (b) Monsoon and trade wind littoral (c) Dry tropical (desert).

Mid latitude/temperature climates:

- (a) Mediterranean (b) Marine west coast (c) Dry sub-tropical (d) Dry mid latitude (cold deserts).

High latitude/polar climates –

- (a) Boreal (b) Tundra

*For each of the above climatic types, the following is to be studied:*

- *Location, climatic conditions and areas;*
- *Description of major human activities (both farming and forestry).*