

GEOGRAPHY (853)

Aims

1. To enable candidates to acquire knowledge (information) and to develop an understanding of facts, terms, symbols concepts, principles, generalizations, hypotheses, problems, trends, processes and methods of Geography at the national and global level.
2. To apply the knowledge of the principles of Physical Geography in explaining the causes and consequences of natural hazards and suggest ways of coping with them through sustainable development.
3. To develop skills of drawing maps, surveying, and drawing statistical diagrams and thematic maps.
4. To develop an interest in Geography.

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)

There will be one Theory paper of **three** hours duration divided into **two** parts -

Part I (30 marks) will be **compulsory** and will consist of Section A and Section B.

Section A will include **compulsory** short answer questions testing knowledge, application and skills related to elementary/fundamental aspects of the entire syllabus.

Section B will consist of one question on **mapwork**.

Part II (40 marks) will consist of **seven** questions. Candidates will be required to answer **four** out of **seven** questions. Each question in this part shall carry 10 marks.

GEOGRAPHY AS A DISCIPLINE

1. Geography - its interdisciplinary approach and future prospects

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).

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

Future prospects:

- (i) *In the area of GPS, GIS, Remote Sensing for resource identification.*
- (ii) *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. Earth's Interior

- (i) Composition and structure.

Age of the earth, theories of the formation of the earth – steady state, Big Bang and the developments today. Materials of the earth and properties: temperature, pressure, thickness; materials of the earth's crust: mantle, core and the intermediary layers.

- (ii) Rocks.

Silicates, carbonates, sulphides, metals. Classification of rocks by origin. Characteristics and types and the distribution in India of igneous, metamorphic and sedimentary rocks, based on texture and mineral composition. The rock cycle.

3. Changing Face of the Earth

Land forms and Processes of Gradation

- (i) Endogenous processes: theory of plate tectonics and the role of drifting continents and associated landforms – mountains, plateaus and plains and their types as an outcome. Isostasy – definition, theories and concepts.

The distribution of mountains, plateaus and plains in the world; plate tectonics and the role of the drifting continents. Processes inside the earth: nature of the earth's crust and the lithospheric plates. Folding and faulting. Isostasy – definition, theories and concepts by Pratt and A. Holmes.

- (ii) Vulcanicity – materials and processes. Major volcanic forms.

The concept of vulcanicity. Parts of a volcano, cone, shield and caldera. Types of volcanoes according to nature of explosions and frequency of eruption. Volcanic materials. Distribution of volcanoes related to plate tectonics.

- (iii) Earthquakes.

Origin of earthquakes, waves and their behaviour, hypocentre (focus), epicentre; their causes and distribution; effects; isoseismal and homoseismal lines, sea quakes, tsunamis; measuring earthquakes and their intensity. Major earthquakes during the last 25 years.

- (iv) Exogenetic process and associated landforms.

Weathering and gradation - difference. Role of weathering in gradation. Different types of weathering.

- (v) Soil.

The factors affecting soil formation; soil profile; distribution and characteristics of soils in the world - zonal, azonal and intrazonal – only broad characteristics related to Indian soils to be done (detailed distribution not required).

- (vi) Fluvial processes and associated landforms.

Work of rivers - concept of baselevel; processes of erosion, transportation and

*deposition. Processes of erosion - mechanical, solution, decomposition; types of erosion - headward, vertical, lateral; transportation mode and deposition; transport load depends on power of the river, the gradient of slope and nature of material carried; deposition mostly in the lower course due to reduction in slope, so also in river course. Landforms made by the river - gorges, rapids, waterfalls, alluvial fans, levees, floodplains, meanders, braided channels, oxbow lakes, deltas – delta plains. Development of river valleys, drainage patterns. **Diagrams and examples from India with photographs.***

- (vii) 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, and depositional - sand dunes and their types, sand shadows, loess. Diagrams and examples from India and Asia.

- (viii) Glacial processes and associated landforms.

Continental and mountain or valley glaciers, processes of glacial erosion – plucking, abrasion, attrition; erosional features, e.g. cirque and its components, U shaped and hanging valleys, roche moutonnes, depositional formations, moraines of various types. Some Indian glaciers - Siachen, Gangotri, Baltoro. Diagrams and examples from India.

- (ix) Work of ground water and associated landforms. Water Conservation.

Definition of ground water, watertable, aquifers, springs. Process of erosion by groundwater solution, corrosion. Features formed by underground water (karst topography) – sink holes, dolines, caves, caverns, karst lakes, depositional features – stalactites, stalagmites, cave pillars, dripstones: their formation. Diagrams and examples from India and Australia.

- (x) Marine processes and associated landforms.

Erosional process of sea waves – abrasion, attrition, solution and hydraulic action; coastline and shoreline, erosional features;

sea cliffs, sea caves, stacks and depositional landforms, e.g. - bays, bars and lagoons; Coral reefs: types – fringing, barrier and atolls; submerged and emergent coastlines. Diagrams and examples from India, Australia and West Europe (wherever relevant).

Note: For topics (vi) to (x) only diagram based questions will be asked. Photograph based information should be made use of to emphasize the different processes of gradation.

4. Atmosphere

(i) Composition and structure of atmosphere.

Layers of the atmosphere: troposphere, stratosphere, ozonosphere, mesosphere, ionosphere; its height; composition - dust and water vapour and its quantities; 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; isotherm maps of the world in July and January. **Practical work on temperature measurement and graphs to show temperature.***

(iii) Atmospheric Pressure.

*Its horizontal and vertical distribution, factors affecting the distribution, characteristics of isobars on world maps for July and January. Pressure belts and winds – types of winds, airmasses and atmospheric disturbances, cyclones of temperate and tropical areas; anticyclones – their types and associated weather. World map showing major paths of cyclones. Jet Streams – concepts to be introduced with reference to India. **Practical work on Pressure measurement.***

(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 – origin and factors that affect. Examples from different parts of the world. **Practical work on measuring rainfall and use of bar graphs to show rainfall.***

5. The Realms of Water

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

The depth and the features. The sea floor deposits and their characteristics, the importance of marine resources.

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

The composition of sea water and the factors that control the distribution of salinity.

(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 concepts.

6. Biosphere – Life on the Earth

Nature of Biosphere, concept of ecosystems, components of ecosystem.

Meaning, nature of interaction between the different components of the biosphere.

7. A. World Climatic types

Low Latitude / tropical climates

(i) Equatorial (ii) Monsoon and tradewind littoral (iii) Wet - dry tropical (iv) Dry tropical (desert).

Mid latitude/temperate climates -

(i) Mediterranean (ii) Marine west coast (iii) Dry sub tropical (iv) Moist subtropical (v) Moist continental (vi) Dry midlatitude (cold deserts).

High latitude/polar climates - (i) Boreal
(ii) Tundra (iii) Ice sheet.

Highland climates.

Location, areas and climate in each of the areas; major human activities and life of man are to be studied.

B. 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.

MAN- ENVIRONMENT INTERACTION

8. Natural hazards, their causes and management

(i) Hazards of volcanic eruptions and earthquakes.

Major volcanic areas and their problems; major earthquake prone areas - effects on land and human life. Seismic zones of India and measures to check the fury of earthquakes.

(ii) Identification of major drought prone areas.

Characteristics of drought prone areas. Causes, problems and remedial measures (like rain harvesting) adopted with special reference to India.

(iii) Areas prone to floods / landslides - India.

Landslides - causes, effects and measures adopted to check (Himalayan region). The causes of flooding and checking floods (like construction of dams and afforestation) – with special reference to India.

9. Map Work

On the outline map of the world: locating and labelling (for the examinations, some aspects could be identified, others labelled and located) - physical features, ocean currents, climatic regions from **Principles of Physical Geography** and cities from Climatic Regions only.

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 **three** of the following **four** topics to be undertaken.

- (a) Surveying - elementary principles; preparing plans of the school compound or a small area with the help of chain and tape.
- (b) 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).
- (c) Map projections – uses, construction and properties of the following:
 - (i) Cylindrical equal area.
 - (ii) Simple conical with one standard parallel.
 - (iii) Zenithal equidistant.
- (d) Aerial photographs – Introduction; definition; difference between map and an aerial photographs; uses of aerial photographs, advantages of aerial photography.

Types of Aerial Photographs:

- (i) *Based on the position of the cameral axis – vertical photographs, low oblique, high oblique (only definition and explanation).*
- (ii) *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)

Fieldwork to understand any physical phenomena in the local or selected area to illustrate the physical processes (Only **one** topic as an assignment of not more than 10-12 pages of written text excluding pages for pictures and maps. No extra credit will be given for computer output or special effects. Sketches and drawings will be given credit).

- (i) Take any physical feature in your immediate locality:
 - (a) draw sketches or take photographs to highlight physical features.
 - (b) survey how these features have been used and prepare a report.
 - (c) suggest ways by which the area of study could be better used keeping in view the needs of the people of the region.

- (ii) Choose any island area of the world or India and:

- (a) trace the map of the area and show physical features, towns and port cities.
- (b) 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?

CLASS XII

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

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

Paper II – Practical/Project Work ...30 marks

PAPER I: THEORY (70 Marks)

There will be one Theory paper of **three** hours duration divided into **two** parts -

Part I (30 marks) will be **compulsory** and will consist of Section A and Section B.

Section A will include **compulsory** short answer questions testing knowledge, application and skills related to elementary/fundamental aspects of the entire syllabus.

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INDIA IN THE WORLD'S CONTEXT

1. Physical Environment

- (i) **Locational setting - India:** size and area. Present importance of the location of India with reference to the Indian Ocean Rim countries and the Northern and Western frontiers. Comparison with China and Australia.

Extent, position with reference to latitude and longitude, length of coastline and frontiers with neighbouring countries. The locational advantages of India in the Indian Ocean and as a subcontinent.

- (ii) **Structure of India** – Geological formation, relief and drainage; major physiographic divisions and their characteristics.

Outline of the geological evolution and structure; the three-fold physiographic divisions - major relief features with reference to their extent, altitude, slope and landforms characteristics, drainage (i.e. rivers) and drainage systems. Comparison of Himalayan and Peninsular rivers.

- (iii) **Climate: India** - Factors affecting India's climate: Temperature - factors affecting temperature; Atmospheric pressure conditions during the year; origin and mechanism of the monsoon, Jet streams, Southern Oscillations; wind and rainfall distribution during the year; characteristics of the four main seasons - hot and dry, hot and wet, cool and dry, cool and wet with reference to temperature distribution in north and south India, pressure, wind conditions – distribution of resultant rainfall; variability of rainfall, incidence of droughts and floods. Temperature and rainfall graphs of Mumbai, Delhi, Kolkata, Chennai, Jaisalmer, Leh, Hyderabad.

Role of various factors affecting Indian climate; understanding of the concept and mechanism of monsoon; comparison of seasonal cycle in different seasons. Explanation of the variability of rainfall.

- (iv) **Natural vegetation:** Major vegetation types of India, their geographical distribution with reference to rainfall and temperature conditions – description of the important tree types and their adaptation to the climate. Forest – area covered, importance, use, misuse and potential both for exploitation and conservation. Present forest policy.

Classification of vegetation types and their geographical distribution and adaptation; importance of the trees in these forests. Potential and exploitation. Our policy of conservation.

2. Population and Human settlements

- (i) Population of India compared to six countries - China, Australia, USA, Canada, Russia and Brazil.

*Population of India as compared to the other six countries with reference to **percentage of world population** and India's position in comparison.*

- (ii) National and State level patterns of population distribution.

Identification of distinctive patterns shown by dots on a map of India and explanation of the factors – landforms, climate, accessibility and level of development that result in this pattern. Comparison of the distribution at State level.

- (iii) Pattern of population growth in the last three decades; implications for development.

Natural growth rate and absolute growth of population to be defined. Population growth of India at national level – trends for 1921, 1951 and 1981-2001. Impact of rapid growth rate on economic development; some general conclusions.

- (iv) Migration trends over the last 25 years.

Types and trends of migration between States; economic, political and social causes for migration, comparing the consequences of migration in the cities and rural areas.

- (v) Demographic attributes at National level - trends and patterns of: 1. Rural urban population 2. Age and sex composition 3. Literacy levels 4. Working and non-working population; implications for development.

Study of the trends of rural urban composition, sex ratio at the country level in the 1981 and 2001 census. Age and sex ratio. Statewise working population to total population, literacy level of males and females for the latest census figures.

- (vi) Rural settlements – size and number of villages in 2001. Types and patterns in hill areas, plains and coastal locations.

Size and classification of villages as per the 2001 census; determining the factors affecting the types and spacing of rural settlements in plains, coastal areas, mountains and plateau areas.

- (vii) Urban settlements – size classification of towns in 2001. Study of population growth in Delhi, Mumbai, Kolkata and Chennai since 1951 till 2001.

Trends of urbanization and factors that influence the growth of urban centres in India. Problems of urban growth; advantages of urban growth.

3. Resources of India and their Utilisation

- (i) Land resources: Land use pattern in India – quality of cultivable land, size of land holdings.

Defining the term land resource; its importance and problems. Land use pattern, availability of arable land – quality and size of cultivable land holdings. Land degradation, soil erosion, water-logging in India.

- (ii) Water resources and types of irrigation.

Sources of irrigation: wells, tanks, tube wells; advantages and disadvantages of each method. Modern methods: tube wells, multipurpose projects, Perennial canals, sprinkler irrigation - advantages and disadvantages, use and misuse of water for irrigation and dangers of over watering. Study of alternative methods of irrigation.

- (iii) Agriculture: Types, development and problems.

(a) Wet and dry farming, crop rotation and crop combination, intensity of cropping, problems of Indian agriculture; use of technology in agriculture. Modern inputs, change over from subsistence to commercial agriculture, need for Green Revolution. Diversifying Indian agriculture – importance of animal husbandry.

Wet and dry agriculture: location of areas, crops associated, intensity of cropping, concept and its expression; subsistence type, advantages of crops grown and use of new technology. Diversification of Indian agriculture.

- (b) Comparative study of:

(i) Conditions of growth (soil, temperature, rainfall requirements, crop seasons, secondary crops cultivated with them) (ii) World production and India's position (iii) Major producing States in

India and their rank as producers of the following crops:

Food grains - Rice (China/Japan), Wheat (China/Pakistan), Coarse grains – Sorghum (Jowar, Maize), Pennisetum (Bajra or Cambo), Eleusine (Ragi), pulses. (India, inter-state).

Commercial and Industrial crops – Coffee (Nilgiris and N.E. India), Tea (Sri Lanka), Cotton (Pakistan), Sugarcane (China), Jute (Bangladesh), oilseed cultivation in India particularly of Groundnut, Coconut (Sri Lanka).

Importance of Market Gardening and Orchard Farming – reasons and trends in development in recent years.

Self-explanatory.

- (iv) Fishing in India, Japan and Bangladesh.

Areas, methods, types of fish caught, fishing grounds; factors affecting the importance and development, fishing ports and markets, need and methods of fish conservation. Recent Indian Fisheries Policy.

- (v) Minerals and power resources.

Iron ore, manganese, mica, petroleum, coal, Nuclear power resources. Thermal, hydel power and nuclear power generation in India. Non conventional sources of energy – areas and production. Conservation of natural resources - need and methods. State level distribution of energy consumption and production.

(Emphasis to be on the use and analysis of maps showing distribution, production, consumption).

4. Infrastructural Resources (Development of Transport and Communication).

- (a) Railways – Roadways – Water transport (inland and coastal) – air transport- pipelines - these modes of transport are to be studied with regard to –
- (i) Location and state wise distribution of air, road and rail routes, natural and economic factors that govern their distribution; density and growth. Patterns in India.

The present position, areas well and poorly served by each mode, (map showing the distribution pattern of railways, roadways, airways, canal ways and major ports). Problems – comparative advantage of each mode of transport, national goals to be achieved in the development of modes of transport.

- (ii) Ports, their location and advantage; major exports and imports of different ports. Nature and direction of trade from the ports. International trading patterns and products in the last five years.

- (b) Communication – importance of communication in rural development and its policy. Importance of infrastructure as key to the development of an industrial economy.

Modern means of communication to be highlighted so as to understand the way these act as support system to the development of the national economy and rural areas, even the most remote parts of the country. Advantage of satellites and remote sensing - Geographic Information Systems, their use today.

5. Industries

- (a) Study of the location and distribution of important industrial centres; a general comparison of disparities.
- (b) Major and minor industrial regions – factors governing their growth.
- (c) Location, production and growth of the following industries:
- (i) **Agro based industries** – Sugar, cotton textile and ready-made garments.
- (ii) **Mineral based industries** – Iron and steel, aluminium, cement, and transport equipment. Petrochemicals, including refineries and fertilizers.

Maps and sketches of industrial centres-industrial regions- location of agro based and mineral based industries (only those identified) will be the basis for explaining the pattern of industrial development. Factors responsible for the origin and development and present status of the industries – contribution to the production in India in the last decade.

- (d) Tourism industry – Major natural and cultural tourist areas in India. Their special features and level of development - impact on environment and local economy. Tourist flows.

Concept, characteristics and types in India today: importance given; the nature of Indian environment and history; positive and negative impact of mass based tourism, problems and remedial measures for developing eco-tourism. Map showing important tourist routes in India.

6. Regional Economic Development

(Case studies)

Case studies will be preceded by a brief understanding of the meaning of development, multilevel planning and planning regions. These case studies will be undertaken with reference to the advantages and disadvantages that have accrued to the people and area - aspects covered will be their geographical location, resource base, developmental history, present trends of population, occupations, agriculture and industrial activities, issues of development.

1. Area development in Chattisgarh region – mining, silk industry and farming.
2. Electronics industry in Bangalore – reasons for its development, extent, national and international linkages and problems.
3. Growth of Haldia port, its industries and hinterland.

7. Map Work

A question on map work will be set as follows:

Marking locations and distributions of features and areas pertaining to the items studied in topics 1-6 above, using appropriate symbols/colour tints or shades in an outline map of India.

Self-explanatory.

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

- (i) Drawing of scales: linear, graphic scales showing primary and secondary divisions; representative fractions and statement of scale methods.
- (ii) Drawing of cross-section or profiles of important contours, viz. ridge, plateau, escarpment, valley, conical hill, types of slope, sea cliffs, waterfalls, spurs, by using vertical exaggeration and horizontal equivalent.
- (iii) Understanding and illustrating location references of SOI maps.
- (iv) Map reading and interpretation of survey of India maps: Study will be based on representative portions of any three topographical sheets. It will include the description of location, extent, relief features, drainage, land use, settlement patterns, communications and inferences about human occupations and stage of economic development of the area.
- (v) Introduction to Geographic Information System: Elements of visual interpretation of remote sensing maps/ images.

Colour significance in the image and true colour (false colour composition): texture; size; shape; shadow; association.

(Reference material – Wikipedia, Google.earth, IIRS Hyderabad).
- (vi) Elementary principles of surveying an area: preparing two plans of school compound and/or a small area using Plane table/ GPS.

2. Project Work (Assignment)

Local field surveys on any **one** of the following will be submitted as Project Report. The length of project report will be 15-20 written pages, excluding photographs, maps, diagrams and sketches. No extra credit will be given for computer based maps or text. These surveys should be organized with a table of contents, sample taken and statistical methods used, interview schedule. The report should be organized systematically and the conclusions should be clearly stated.

(i) Agricultural land use survey.

Choose a district or topographical map of an area 1: 250000 and make a sketch map showing land use; compare the patterns of these. Alternatively, a local village could be chosen and the fields mapped from the cadastral map with information on the crops grown in different seasons and the location of the village, its roads and landmarks, if any.

(ii) Household survey of about 30-60 households of a village or locality.

Family size, age structure, educational background, occupation, involvement of men and women in economic activity, educational service. Draw conclusions to reflect the economic development of the households.

(iii) Amenity study.

Study of hospitals in a city, schools (school where you studied), post offices, municipal zones within the city (blocks in a village study) – reasons for travel (based on the importance and demand for the place), travel time, travel distance, mapping the hinterland of the service.

(iv) Study of a manufacturing industry or a self employed person.

Visit a manufacturing unit or self employed person – cycle or car repair shop, small fabricating unit, factory if nearby and find out – source of raw material, supply routes, final product, areas where it is sent, manpower strength and their organization.

(v) Area development of a multipurpose project – impact on the region.

Self- explanatory.