

SYLLABUS (2019-2020)

GEOGRAPHY GENERAL

PART-I (SEMESTER- I and II)

SEMESTER – I (100 Marks)

5.1 **GEO-G-CC-1- -TH – Physical Geography** 60 Marks · / 4 Credits

Unit I: Geotectonics

1. Earth's interior with special reference to seismology [3]
2. Plate Tectonics as a unified theory of global tectonics. Formation of major relief features of the ocean floor and continents according to Plate Tectonics [7]
3. Folds and faults: Classification and surface expressions [6]

Unit II: Geomorphology

4. Degradational processes: Weathering, mass wasting, and resultant landforms [4]
5. Principal geomorphic agents. Classification and evolution of fluvial, coastal, aeolian, and glacial landforms [12]
6. Basic models of slope evolution: Decline, replacement, and retreat. Systems approach and its significance in geomorphology [6].

Unit III: Hydrology

7. Global hydrological cycle: Its physical and biological role [2]
8. Run off: Controlling factors. Concept of ecological flow [3]
9. Drainage basin as a hydrological unit. Principles of watershed management [3]

Unit IV: Oceanography

10. Physical and chemical properties of ocean water. Distribution and determinants of temperature and salinity [4]
11. Ocean circulation, wave, and tide [7]
12. Marine resources: Classification and sustainable utilisation [3]

5.2 **GEO-G-CC-1--P – Physical Geography Lab** · 30 Marks / 2 Credits

A laboratory notebook, comprising class assignments of the following, is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Megascopic identification of *mineral samples*: Bauxite, calcite, chalcopyrite, feldspar,

galena, hematite, mica, quartz, talc, tourmaline [8]

2. Megascopic identification of *rock samples*: Granite, basalt, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite [12]
3. Extraction of physiographic information from Survey of India 1:50k topographical maps of plateau region: Construction and interpretation of relief profiles (superimposed, projected and composite), Construction and interpretation of relative relief map (c. 5'x5') [20]
4. Extraction of drainage information from Survey of India topographical maps of plateau region: Extraction and interpretation of channel features and drainage patterns, Construction of channel profiles [20]
5. Viva-voce based on laboratory notebook (5 Marks)

SEMESTER –II (100 Marks)

5.3 GEO-G-CC-2--TH – Environmental Geography 60 Marks / 4 Credits

Unit I: Climatology

1. Insolation and Heat Budget. Horizontal and vertical distribution of atmospheric temperature and pressure [5]
2. Overview of planetary wind systems. Indian Monsoons: Mechanisms and controls [6]
3. Atmospheric disturbances: Tropical and temperate cyclones. Thunderstorms [7]
4. Overview of global climatic change: Greenhouse effect. Ozone depletion [5]
5. Scheme of world climatic classification by Köppen [2]

Unit II: Soil Geography

6. Factors of soil formation [4]
7. Soil profile development under different climatic conditions: Laterite, Podsol, and Chernozem [6]
8. Physical and chemical properties of soils: Texture, structure, pH, salinity, and NPK status [6]
9. USDA classification of soils. Soil erosion and its management [4]

Unit III: Biogeography

10. Ecosystem and Biomes. Distribution and characteristics of tropical rainforest; Savannah, and hot desert biomes [6]
11. Plant types, occurrence and ecological adaptations: Halophytes, xerophytes, hydrophytes, and mesophytes [5]
12. Biodiversity: Types, threats and management with special reference to India [4]

5.4 GEO-G-CC-2-P Environmental Geography Lab 30 Marks / 2 Credits

A laboratory notebook, comprising class assignments of the following, is to be prepared and submitted.

The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Interpretation of daily weather map of India (any one): Pre-Monsoon or Monsoon or Post-Monsoon [20]
2. Construction and interpretation of hythergraph, climograph (G. Taylor) and wind rose (seasonal) [20]
3. Determination of soil type by ternary diagram textural plotting [10]
4. Preparation of peoples' biodiversity register [10]
5. Viva-voce based on laboratory notebook (5 Marks)

PART-II (SEMESTER III and IV)

SEMESTER – III (100 Marks)

5.5 GEO-G-CC-3-03-TH – Human Geography 60 Marks / 4 Credits

Unit I: Economic Geography

1. Sectors of the economy: Primary, Secondary, Tertiary and Quaternary. Factors affecting location of economic activities [5]
2. Location of economic activities: Theories of von Thünen, Lösch, and Weber [5]
3. Location of industries with special reference to India: Cotton, Iron and Steel [5]
4. Globalisation and integration of world economies [5]

Unit II: Social Geography

5. Human Society: Structure, functions, social systems. Population and migration: overview, causes and effects [5]
6. Types and characteristics of social organisations: Primitive, hunting–gathering, agrarian, industrial [5]
7. Race, Language and Religion: Origin, characteristics and spatial variations [6]
8. Social Issues: Diversity, conflict and transformation [5]

Unit III: Cultural Geography

1. Carl Sauer: cultural landscape and its elements [6]
2. Rural and urban settlements: Differentiation in cultural landscapes [5]

3. Cultural regions and cultural realms [5]
4. Diffusion of culture and innovations [4]

5.6 GEO-G-CC-3-03-P– Human Geography Lab 30 Marks / 2 Credits

A laboratory notebook, comprising class assignments of the following, is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. State-wise variation in occupational structure by proportional divided circles [15]
2. Time series analysis of industrial production using any two manufactured goods from India [20]
3. Measuring arithmetic growth rate of population comparing two datasets [15]
4. Nearest neighbour analysis: Rural example from Survey of India 1:50k topographical maps [10]

SEMESTER – IV(100 Marks)

5.7 GEO-G-CC-4-04-TH – Cartography 60 Marks / 4 Credits

Unit I: Scale and Projections

1. Maps: Classification and types. Scales: Types, significance, and applications [3]
2. Coordinate systems: Polar and rectangular. Bearing: Magnetic and true, whole-circle and reduced [3]
3. Map projections: Classification, properties and uses. Concept and significance of UTM projection [8]

Unit II: Topographic and Thematic Maps

4. Survey of India topographical maps: Reference scheme of old and open series. Information on the margin of maps [4]
5. Representation of data by dots and proportional circles [4]
6. Representation of data by isopleth and choropleth [4]
7. Principal national agencies producing thematic maps in India: GSI, NATMO, NBSSLUP, NHO, and NRSC. Acquaintance with Bhuvan platform [5]

Unit III: Remote Sensing and Geographical Information System

8. Basics of Remote Sensing: Types of satellites, sensors, bands, and resolutions with special reference to the ISRO missions [10]

9. Principles of preparing standard FCCs and classified raster images [5]

10. Principles of Geographical Information System: Concepts of vector types, attribute tables, buffers, and overlay analysis [6]

Unit IV: Surveying

11. Basic concepts of surveying and survey equipment: Prismatic compass [6]

12. Basic concepts of surveying and survey equipment: Dumpy level [6]

5.8 GEO-G-CC-4-04-P – Cartography Lab ☑ 30 Marks / 2 Credits

A laboratory notebook, comprising class assignments of the following, is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Graphical construction of scales: Plain and comparative [10]

2. Construction of projections: Simple Conic with one standard parallel, Cylindrical Equal Area,, and Polar Zenithal Stereographic [20]

3. Construction of thematic maps: Proportional squares, proportional circles, choropleths, and isopleths [20]

4. Preparation of annotated thematic overlays from satellite standard FCCs of 1:50k [10]

5. Viva-voce based on laboratory notebook (5 Marks)

7. GENERAL COURSE: SKILL ENHANCEMENT ELECTIVES

7.1 GEO-G-SEC-A-3/5-01-TH – Coastal Management .90 Marks / 2 Credits

5. Components of a coastal zone. Coastal morphodynamic variables and their role in evolution of coastal forms [7]

6. Environmental impacts and management of mining, oil exploration, salt manufacturing, land reclamation and tourism [8]

7. Coastal hazards and their management using structural and non-structural measures: Erosion, flood, sand encroachment, dune degeneration, estuarine sedimentation and pollution [8]

8. Principles of Coastal Zone Management. Exclusive Economic Zone and Coastal Regulation Zones with reference to India. [7]

7.2 GEO-G-SEC-A-3/5-02-TH – Forest and Wildlife Management .90 Marks / 2 Credits

1. Forest and wildlife management: Importance and strategies. Role and significance of stakeholders. Tangible and intangible benefits of forest and wildlife management [7]

2. Legal framework of forest and wildlife protection in India: The Indian Forest Act 1927, Forest Conservation Act 1980, Wild Life Protection Act 1972, Biodiversity Act 2002 [5]
3. Forests as common property resources. Forest rights: Tribals and forests. Gender dimension of forest management. Management of poaching and illegal logging. [8]
4. Principles of community participation and joint forest management. Causes and management of human–wildlife conflicts with special reference to Jangal Mahal, Sundarban and Duars [10]

PART-III

Paper-IV

100 Marks

MODULE VII LAND USE AND SETTLEMENT GEOGRAPHY (50 marks)

7.1 Concept and attributes of land

7.2 Objectives and principles of land use

7.3 Factors influencing land use and land categories i) Agricultural land use ii) Non agricultural land use:

7.4 Rural and urban settlements: i) Rural settlements: evolution, nature and characteristics, effect of physical environment; ii) Urban settlements: definition, morphology and functions

MODULE VIII REMOTE SENSING AND THEMATIC MAPPING (20 marks)

8.1 Definition of remote sensing, different methods of remote sensing; air photo and satellite imagery

8.2 Air photo: characteristics, interpretation

8.3 Satellite imagery: Types of satellite imageries, characteristics of IRS imageries

8.4 Definition, objective and principles of thematic mapping (climatic, economic and population)

Practical

MODULE IX APPLIED GEOGRAPHICAL TECHNIQUES –III (30 marks)

9.1 Preparation of land use maps from cadastral maps based on primary or secondary data

9.2 Preparation of thematic maps: flow diagram and accessibility maps

9.3 Air photo interpretation by pocket stereoscope for identification of broad features

9.4 Laboratory Notebook and Viva-voce