

# *The University of Burdwan*



## Syllabus

### For

## B.A. /B.Sc. 3-Year (Honours) Degree Course in Geography

*w.e.f. 2011-12 onward*

**REVISED IN 2010** : TO BE EFFECTIVE FROM THE ACADEMIC SESSION 2011-2012 AND REALLOCATION OF PAPERS FOR PART I, PART II & PART III AS PER THE RESOLUTIONS ADOPTED IN THE MEETING OF THE U.G. BOARD OF STUDIES IN GEOGRAPHY HELD ON 29.07.2010 AT RAJBATI, THE UNIVERSITY OF BURDWAN

# B.A. /B.Sc. Course in Geography

## Papers for Honours Course

### Section I: Course Structure and Examination Pattern

| Examination Pattern | Type        | Paper | Title of Paper                                   | Marks | Exam Time |
|---------------------|-------------|-------|--|-------|-----------|
| <b>Part- I</b>      | Theoretical | I     | Geotectonics, Geomorphology and Hydrology        | 100   | 4 hours   |
|                     | Practical   | II    | Cartographic Techniques in Geography             | 100   | 6 hours   |
| <b>Part- II</b>     | Theoretical | III   | Climatology, Soil Geography and Biogeography     | 100   | 4 hours   |
|                     | Practical   | IV    | Analytical Techniques in Geography               | 100   | 6 hours   |
| <b>Part- III</b>    | Theoretical | V     | Nature of Geography                              | 100   | 4 hours   |
|                     |             | VI    | Economic & Social Geography                      | 100   | 4 hours   |
|                     |             | VII   | Geography of India                               | 100   | 4 hours   |
|                     | Practical   | VIII  | Applied Geographical Techniques and Field Report | 100   | 6 hours   |

## Section 2: Syllabus with Details of Marks Division

### Part-I

#### PAPER-I

#### GEOTECTONICS, GEOMORPHOLOGY AND HYDROLOGY

Full Marks: 100

Examination Time: 4 Hours

*Number of lectures to be delivered for each Unit 20*

#### 1.0 GEOTECTONICS-I

[20 MARKS]

- 1.1 Origin of the Universe and the Earth: Theories Propounded by P. L. Laplace, Otto Schmidt, G. Kuiper, Stephen Hawking
- 1.2 Geological Timescale and Geological History of the Earth, Methods of Rock Dating
- 1.3 Thermal and Physical State of the Earth's Interior with special reference to Seismological Evidence
- 1.4 Theories of Isostasy: Models of Pratt, Airy, Heiskanen, and Daly

#### 2.0 GEOTECTONICS-II

[20 MARKS]

- 2.1 Rocks: Origin, Classification, Characteristics and impact on Landforms
- 2.2 Continental Drift: Evidences and Mechanisms
- 2.3 Seafloor Spreading: Evidences and Mechanisms
- 2.4 Orogenesis and Epeirogenesis with reference to Plate Tectonics

#### 3.0 GEOMORPHOLOGY-I

[20 MARKS]

- 3.1 Processes of Denudation: Weathering, Erosion and Mass Wasting
- 3.2 Cyclic and Non-Cyclic Concepts of Landscape Evolution (Davis, Penck and Hack)
- 3.3 Landform Evolution in Uniclinal and Folded Structures
- 3.4 Landform Development in Faulted and Volcanic Structures

#### 4.0 GEOMORPHOLOGY-II

[20 MARKS]

- 4.1 Fluvial Processes and Landforms
- 4.2 Aeolian Processes and Landforms
- 4.3 Coastal Processes and Landforms, Classification of Coasts and Shorelines (after Johnson and Shepard)
- 4.4 Glacial Processes and Landforms

#### 5.0 GLOBAL HYDROLOGY

[20 MARKS]

- 5.1 Components and Distribution of Hydrosphere, Significance of Global Hydrological Cycle
- 5.2 Runoff, Infiltration, Evaporation and Transpiration
- 5.3 Ground Water Storage and Circulation: Aquifer Recharge and Discharge
- 5.4 Tides: Types, Characteristics and Theories of Origin (Progressive Wave Theory and Stationary Wave Theory)

**N.B. :** *Pattern of setting question papers along with distribution of marks has been incorporated in the section-IV of this syllabus.*

## PAPER-II (PRACTICAL)

### CARTOGRAPHIC TECHNIQUES IN GEOGRAPHY

**Full Marks: 100**

**Examination Time: 6 hours**

*Number of periods to be assigned for each unit 20 (for unit 1, 2, 3) and 30 (unit 4)*

#### **1.0 SCALES AND CARTOGRAMS**

**[20 MARKS]**

- 1.1 Geographical Scales: Linear (including comparative), Vernier, Diagonal
- 1.2 Proportional Diagrams: Circles, Pies and Squares
- 1.3 Ternary Diagram
- 1.4 Taylor's Climograph, Hythergraph, Wind Rose and Ergograp

#### **2.0 DIAGRAMS AND MAPPING TECHNIQUES**

**[20 MAR**

- 2.1 Maps showing Population Density by Choropleth and Distribution by Dots and Spheres
- 2.2 Population Growth Rates: Annual and Decadal (Line graph and Choropleth), Age-sex Pyramid and Dependency Ratio
- 2.3 Cropping Intensity Maps (on the basis of Net-Sown and Gross-Sown Area)
- 2.4 Flow-chart based on Transport and Migration

#### **3.0 MAP PROJECTION**

**[20 MARKS]**

- 3.1 Base of Classification and Suitability of Projections
- 3.2 Cylindrical Equal-Area Projection
- 3.3 Conical Group of Projections: Simple Conic (one standard Parallel) and Bonne's and Polyconic
- 3.4 Gnomonic, Stereographic, Orthographic Projections (Polar Case)

#### **4.0 SURVEYING AND MAPPING**

**[30 MARKS]**

- 4.1 Preparation of Land Use Map of a Small Area by Plane Table Survey (Radiation and Intersection Methods)
- 4.2 Preparation of Land Use Map of a Small Area by Prismatic Compass Survey (Traversing and Intersection Methods)
- 4.3 Preparation of Contour Map of a Small Area by Prismatic Compass and Levelling Instruments
- 4.4 Determination of Height (with Accessible and Inaccessible Bases) by Theodolite

#### **5.0 PRACTICAL NOTEBOOK AND VIVA-VOCE**

**[6+4 MARKS]**

**N.B. :** *Pattern of setting question papers along with distribution of marks has been incorporated in the section-IV of this syllabus.*

## **Part-II**

### **PAPER-III**

#### **CLIMATOLOGY, SOIL GEOGRAPHY AND BIOGEOGRAPHY**

**Full Marks: 100**

**Examination Time: 4 Hours**

*Number of lectures to be delivered for each Unit 20*

#### **1.0 CLIMATOLOGY-I**

**[20 MARKS]**

- 1.1 Insolation and Heat Budget, Horizontal and Vertical Distribution of Temperature with particular reference to Normal Distribution and Types of Inversion
- 1.2 Forms and Processes of Condensation, Mechanism of Precipitation, Distribution of Rainfall
- 1.3 Planetary Wind System with Special reference to Tri-Cellular Model,
- 1.4 Genesis of Monsoon with particular reference to Jet Stream

#### **2.0 CLIMATOLOGY-II**

**[20 MARKS]**

- 2.1. Origin and Classification of Air Mass, Frontogenesis and Frontolysis
- 2.2 Origin and Characteristics of Tropical and Temperate Cyclones
- 2.3 Classification of World Climate: Schemes of Köppen and Thornthwaite (1948)
- 2.4 Climatic Change, Evidences and Causes

#### **3.0 SOIL GEOGRAPHY**

**[20 MARKS]**

- 3.1 Soil: Definition, Factors of Formation and Development of Soil Profiles
- 3.2 Physical and Chemical Properties of Soil with special reference to Texture, Structure, Organic Carbon and pH
- 3.3 Concept of Zonal, Azonal and Intrazonal Soil, Formation and Profile Characteristics of Podsol, Laterite and Chernozem
- 3.4 Soil Erosion and Conservation

#### **4.0 BIOGEOGRAPHY-I**

**[20 MARKS]**

- 4.1 Definitions of Biosphere and Biogeography, Meaning of Ecology, Ecosystem, Environment, Ecotone, Communities, Habitats, Niche, Biotopes and Biomes
- 4.2 Biosphere and Energy: Energy Sources, Laws of Energy Exchange, Food Chains and Flow of Energy
- 4.3 Factors of Plant Ecology: Light, Heat, Moisture, Wind and Topography
- 4.4 Biomes: Tropical Rainforest and Temperate Grassland

#### **5.0 BIOGEOGRAPHY-II**

**[20 MARKS]**

- 5.1 Impact of Climate and Soil on Distribution of Flora and Fauna
- 5.2 Bio-Climatic Regions in India and their Characteristics
- 5.3 Wildlife Conservation in India: Projects and their Importance with Special Reference to Tiger and Crocodile
- 5.4 Biodiversity and its Importance with reference to Sundarbans

**N.B. : *Pattern of setting question papers along with distribution of marks has been incorporated in the section-IV of this syllabus.***

## **PAPER IV (PRACTICAL)**

### **ANALYTICAL TECHNIQUES IN GEOGRAPHY**

**Full Marks: 100**

**Examination Time: 6 hours**

*Number of periods to be assigned for each Units 20 (for unit 1, 2, 3) and 30 (unit 4)*

#### **1.0 DATA COLLECTION AND REPRESENTATION**

**[20 MARKS]**

- 1.1 Geographical Data Management: Collection (Sampling Techniques- Significance and Types), Classification, Tabulation, Interpretation and Analysis of Geographical Data
- 1.2 Frequency Distribution: Attribute and Variable, Discrete and Continuous, Graphical Representation of Frequency Distribution (Histogram, Frequency Polygon, Curve and Ogives)
- 1.3 Measures of Central Tendencies: Mean, Median and Mode; Skewness
- 1.4 Measures of Dispersion: Range, Quartile Deviation, Mean Deviation and Standard Deviation

#### **2.0 DATA ANALYSIS AND INTERPRETATION**

**[20 MARKS]**

- 2.1 Scatter Diagram, Simple Correlation and Regression
- 2.2 Time Series Analysis: Actual Trend, Semi Average, Moving Average, Linear Trend by Least Square Method
- 2.3 Standard Error of Estimate and Standard Scores
- 2.4 Absolute Residual Mapping

#### **3.0 DATA RECORDING, AREA MEASUREMENT AND SPECIMEN IDENTIFICATION**

**[20 MARKS]**

- 3.1 Reading, Recording and Analysis of Data Obtained from Barometer, Hygrometer and Maximum-Minimum Thermometer
- 3.2 Determination of Soil Texture by Feel Method; Soil pH and Organic Carbon by Soil Kit
- 3.3 Measurement of Area by Graphical Method and Planimeter
- 3.4 Identification of Common Minerals and Rocks with their Characteristics: Quartz, Feldspar, Mica, Haematite, Magnetite, Chalcopyrite, Galena, Calcite, Gypsum, Bauxite, Granite, Basalt, Dolerite, Pegmatite, Conglomerate, Sandstone, Shale, Limestone, Gneiss, Schist, Phyllite, Quartzite and Marble.

#### **4.0 MORPHOMETRIC ANALYSIS AND INTERPRETATION OF TOPOGRAPHIC MAPS: PLATEAU AND PLAIN REGIONS**

**[30 MARKS]**

- 4.1 Construction of Profiles: Superimposed, Projected and Composite
- 4.2 Stream Frequency and Drainage Density
- 4.3 Average Slope (Wentworth's method)
- 4.4 Interpretation of Relief, Drainage and Vegetation Characteristics
- 4.5 Interpretation of Settlement, Transport and Communication Systems
- 4.6 Relationship between Physical and Cultural Elements

#### **5.0 PRACTICAL NOTEBOOK AND VIVA-VOCE**

**[6 + 4 MARKS]**

**N.B. :** *Pattern of setting question papers along with distribution of marks has been incorporated in the section-IV of this syllabus.*

## **Part-III**

### **PAPER - V**

#### **NATURE OF GEOGRAPHY**

**Full Marks: 100**

**Examination Time: 4 Hours**

*Number of lectures to be delivered for each Unit 20*

#### **1.0 DEVELOPMENT OF GEOGRAPHY**

**[20 MARKS]**

- 1.1 Definition, Scope and Content of Geography
- 1.2 Development of Geography in the Ancient and Mediaeval Periods (up to 19th Century)
- 1.3 Development of Modern Scientific Geography in the 19th Century with particular reference to the Contributions of Humboldt and Ritter
- 1.4 Development of Geography in the 20th Century (upto 1970)

#### **2.0 DEVELOPMENT OF SCHOOLS OF THOUGHT IN MODERN GEOGRAPHY [20 MARKS]**

- 2.1 German School
- 2.2 French School
- 2.3 American School
- 2.4 Indian School

#### **3.0 CONCEPTS AND TRENDS IN GEOGRAPHY**

**[20 MARKS]**

- 3.1 Concepts of Determinism, Possibilism and Neo-Determinism
- 3.2 Concepts of Empiricism and Positivism
- 3.3 Approaches to Geographic Studies: Systematic vs Regional and Ecological
- 3.4 Critique of Quantitative Revolution in Geography

#### **4.0 APPROACHES TO REGIONAL STUDIES**

**[20 MARKS]**

- 4.1 Concepts and Types of Region
- 4.2 Bases and Methods of Regionalisation
- 4.3 Scale and Hierarchy of Region
- 4.4 Region and Regionalism

#### **5.0 ENVIRONMENT AND DEVELOPMENT**

**[20 MARKS]**

- 5.1 Relationship among Population Growth, Economic Development and Environmental Conservation
- 5.2 Environmental Issues Related to Urban and Industrial Expansion
- 5.3 Environmental issues of Large Dams
- 5.4 Sustainable Development

**N.B. :** *Pattern of setting question papers along with distribution of marks has been incorporated in the section-IV of this syllabus.*

**PAPER - VI**  
**ECONOMIC AND SOCIAL GEOGRAPHY**

**Full Marks: 100**

**Examination Time: 4 Hours**

*Number of lectures to be delivered for each Unit 20*

- 1.0 RESOURCE [20 MARKS]**
- 1.1 Resource: Concept and Classification, Economic and Environmental Approaches of Resource Utilisation
  - 1.2 Different sources of Energy Resources, their Relative Importance, Production and Consumption
  - 1.3 Problems of Resource Depletion - Global Scenario (Forest, Water, Fossil Fuels),
  - 1.4 Necessity and Methods of Resource Conservation; Expanding Oceanic Resource Horizon.
- 2.0 ECONOMIC ACTIVITY [20 MARKS]**
- 2.1 Agricultural Systems: Plantation Agriculture and Mixed Farming
  - 2.2 Models of Economic Activities: Von-Thunen, Weber, Losch
  - 2.3 Industrial Regions: Great Lakes, Mumbai-Pune, Asansol-Durgapur
  - 2.4 International Trade with Special Reference to WTO, EEC and SAARC
- 3.0 SOCIETY AND CULTURE [20 MARKS]**
- 3.1 Nature and Content of Social Geography, Evolution of Social Geography
  - 3.2 Races and Ethnicity: Major Racial Groups of the World
  - 3.3 Concept of Culture and Its Components; Innovation, Diffusion and Convergence of Culture
  - 3.4 Cultural Realms of the World and their Characteristics
- 4.0 SETTLEMENT [20 MARKS]**
- 4.1 Concept of Rural and Urban Settlement, Problems of Definition and Classification of Urban Settlement
  - 4.2 Types and Patterns of Rural Settlement
  - 4.3 Theories of Urban Structure Propounded by E.W. Burgess, Harris Ullman and Homer Hoyt
  - 4.4 Functional Hierarchy of Urban Settlement with Special Reference to Christaller's Central Place Theory
- 5.0 POPULATION [20 MARKS]**
- 5.1 Determinants and Dynamics of Population Growth
  - 5.2 Growth of World Population; Demographic Transition Model
  - 5.3 Migration: Types and Impact on Place of Origin and Destination
  - 5.4 Population Policy: India and China

**N.B. : *Pattern of setting question papers along with distribution of marks has been incorporated in the section-IV of this syllabus.***



**PAPER - VII**  
**GEOGRAPHY OF INDIA**

**Full Marks: 100**

**Examination Time: 4 Hours**

*Number of lectures to be delivered for each Unit 20*

**1.0 INDIA: PHYSICAL ASPECTS**

**[20 MARKS]**

- 1.1 Geology and Structure with Special Reference to Himalayan Structure and Evolution of the Peninsular India
- 1.2 Drainage Systems: Evolution and Characteristics of Peninsular and Extra-Peninsular Rivers
- 1.3 Climatic Characteristics: Seasonality, Unevenness and Unreliability of Rainfall, Drought and Floods
- 1.4 Classification and Characteristics of Soils, Causes and Consequences of Deforestation

**2.0 ECONOMIC ASPECTS**

**[20 MARKS]**

- 2.1 Agricultural Policy and Development since Independence
- 2.2 Agro-Climatic Regions in India and Impact of Green Revolution
- 2.3 Industrial Policy and Development since Independence
- 2.4 Recent Trends of Industrialization with Special Reference to SEZs

**3.0 SOCIO - CULTURAL ASPECTS**

**[20 MARKS]**

- 3.1 Population Growth and Human Development since Independence
- 3.2 Languages Groups: Characteristics and Spatial Distribution
- 3.3 Caste and Social Morphology in Rural India
- 3.4 Characteristics and Recent Trends of Urbanisation

**4.0 WEST BENGAL**

**[20 MARKS]**

- 4.1 Physiographic Region of West Bengal
- 4.2 Problems of Flood and Drought and their Management
- 4.3 Regional Problems of Darjeeling Hill Region and Sundarbans
- 4.4 Population Growth and Human Development

**5.0 REGIONAL ASPECTS**

**[20 MARKS]**

- 5.1 Bases and Schemes of Regionalization of India into Geographical Regions
- 5.2 Chotoanagpur Plateau
- 5.3 West Bengal Delta
- 5.4 Malabar Coast

**N.B. : Pattern of setting question papers along with distribution of marks has been incorporated in the section-IV of this syllabus.**

# PAPER-VIII (PRACTICAL)

## APPLIED GEOGRAPHICAL TECHNIQUES AND FIELD REPORT

Full Marks: 100

Examination Time: 6 hours

*Number of periods to be assigned for each of the Units: 20 (for Units 1, 2 and 4) & 30 (for Unit 3)*

### **1.0 ANALYSIS OF GEOLOGICAL MAPS [20 MARKS]**

- 1.1 Construction of Geological Section of Horizontal, Uniclinal, Folded and Faulted Structures Along with Igneous Intrusions and Line of Unconformity
- 1.2 Succession and Relation with Rock Groups
- 1.3 Topography and its Relation with Underlying Structures
- 1.4 Interpretation of Geological History

### **2.0 ANALYSIS OF CLIMATIC DATA AND MAPS [20 MARKS]**

- 2.1 Rainfall Dispersion Diagram
- 2.2 Construction of Station Model (Indian Context)
- 2.3 Preparation of Synoptic Chart and Interpretation (Indian Context)
- 2.4 Interpretation of Daily Weather Maps Prepared by Indian Meteorological Department

### **3.0 COMPUTER APPLICATION, REMOTE SENSING AND GIS [30 MARKS]**

- 3.1 Data Entry: Arrangement into Ascending and Descending Order; Cartograms Using Excel: Bar, Pie, Line Graph and Doughnut Chart
- 3.2 Calculation of Central Tendency and Standard Deviation Using Formula
- 3.3 Bivariate Techniques: Scatter Diagram and Fitting of Trend Lines
- 3.4 Basic Concepts of Remote Sensing, GIS and GPS
- 3.5 Location of a Place Using GPS; Georeferencing of Scanned Maps and Images (Using Software)
- 3.6 Principles of Preparing and Interpretation of Standard FCC of Images; Digital Classification and Extraction of Physiographic and Cultural Features (Using Software)

### **4.0 FIELD REPORT ON EITHER A RURAL MOUZA OR AT LEAST ONE WARD OF AN URBAN AREA TO BE CONDUCTED DURING FIELD EXCURSION**

**[HAND WRITTEN REPORT: 10 MARKS, VIVA-VOCE: 5 MARKS, QUESTION-ANSWER (WRITTEN): 5, TOTAL 20 MARKS]**

#### **4.1.1 Guidelines for field report on rural mouza**

The following methods are to be followed before the preparation of field report:

- (a) Plot-to-Plot Land Use Survey
- (b) Collection of Socio-Economic and Physical Data
- (c) Classification and Tabulation of Data
- (d) Preparation of Land Use Map on Cadastral Plan
- (e) Preparation of Maps and Diagrams showing Physiography, Drainage, Soil, Forest, Settlement, Irrigation, Cropping Pattern, Demographic Characteristics *etc.*
- (f) Interrelation and Analysis of Data, Maps and Diagrams

The Report is to be Prepared under the following sections:

- (a) Introduction: Objective, Extent and Space Relations, Sources of Information, Methodology *etc.*
- (b) Physical Components: Lithology, Drainage, Surface Condition, Slope, Climate, Soil Vegetation, *etc.*
- (c) Population: Number, FMR, Literacy, Occupational Structure, Ethnic and Religious Composition, Language, Mobility, Media Exposure, Per Capita Income *etc.*

- (d) Settlement: Number of Houses, Building Materials, Number and Size of Rooms, Amenities *etc.*
- (e) Agriculture: Soil Properties, Irrigational Facilities, General Land Use, Cropping Intensity, Crop-Combination, Use of Fertilisers, Production and Marketing *etc.*
- (f) Other Economic Activities: Fishing, Horticulture, Brick-Kiln Industries
- (g) Problems, Prospects, Suggestions and Conclusion
- (h) Bibliography

#### **4.1.2 Guidelines for Field Report on Urban Area (At least One Ward)**

The following methods are to be followed before the preparation of Field Report:

- (a) Plot-to-Plot Land Use Survey
- (b) Collection of Socio-Economic Data
- (c) Classification and Tabulation of Data
- (d) Preparation of Urban Land Use Map
- (e) Preparation of Maps and Diagrams showing Urban Morphology, Drainage and Sewage Networks, Communication Networks, Traffic Flow and Travel-Time, Demographic Characteristics, Cultural and Economic Zonation *etc.*
- (f) Interrelation and Analysis of Data, Maps and Diagrams

The Report is to be Prepared under the Following Sections:

- (a) Introduction: Objective, Extent and Space Relations, Sources of Information, Methodology *etc.*
- (b) Physical Components: Surface Conditions, Slope, Drainage, Climate, *etc.*
- (c) Demography: Spatial Analyses of Population Density, FMR, Literacy, Occupational Structure, Ethnic and Religious Composition, Language, Mobility, Media Exposure, *etc.*
- (d) Town Morphology: Activity Zones, Sectors of Land Use, Linkages between different Zones and Sectors
- (e) Economy: Economic Individuality of the Town, Production and Marketing Patterns, Spatial differences in Occupation and Per Capita Income Characteristics *etc.*
- (f) Urban Waste and its Management: Types of Wastes Generated, Network of Drains, Efficiency of Waste Removal and Sewage Treatment, Peoples' Perception of Pollution Problem
- (g) Bibliography

4.2 Field Report is to be **Hand-Written**

4.3 Text of the Report should not Exceed 4,000 words

4.4 Maps and Diagrams Excluding Photo-Plates should not Exceed 20

#### **5.0 LABORATORY NOTEBOOK AND VIVA-VOCE**

**[6+4 MARKS]**

***N.B. : Pattern of setting question papers along with distribution of marks has been incorporated in the section-IV of this syllabus.***

**N.B. FOR PRACTICAL EXERCISES OF UNIT 3.0, OF PAPER VIII, THERE MUST BE ADEQUATE INFRASTRUCTURAL FACILITIES IN TERMS OF SETS OF COMPUTER (1 FOR 3 STUDENTS) AND ADEQUATE SOFTWARE (UNIFORM IN ALL COLLEGES).**

### **Section 3: References**

#### **Paper-I: Geotectonics, Geomorphology & Hydrology**

- Ahmad. E. 1990, *Geomorphology*, Kalyani Pub. New Delhi
- Bland, W. and Rolls, D. 1998, *Weathering*, Hodder & Stoughton.
- Bloom. A L 1998, *Geomorphology: A Systematic Analysis of Late Cenozoic Landforms*. 3<sup>rd</sup> Edition. Prentice Hall India Ltd. New Delhi.
- Burbank, .D. G. and Anderson, R.S. 2001, *Tectonic Geomorphology: A Frontier in Earth Science*, Blackwell Science Inc. London.
- Carter, R.W.G. 1988, *Coastal Environments: An Introduction to the Physical Ecological and Cultural Systems of Coastlines*, Academic Press, London.
- Chorley, R.J. and Kates, R.W. (Editors) 1969, *Water Earth and Man*, Methen, London.
- Cox. A. and Hart. R.B. 1986, *Plate Tectonics: How it Works*, Blackwell Scientific Publications, Oxford.
- Dayal, P. 1990, *A Textbook of Geomorphology*, Shukla Book Depoi, Patna.
- Duff. P.M.D. (Editor) 1994, *Holmes' Principles of Physical Geology*, English Language Book Society/Chapman & Hall, London.
- Faniran, A. and Jaje, L.K. 1983, *Humid Tropical Geomorphology*, Longman Ltd. Hyderabad.
- Faribridge, S.W. *Encyclopedia of Geomorphology*, Reinhold Corp. Ltd.
- Kale, V.S. and Gupta. A. 2001, *Introduction to Geomorphology*, Orient Balckswan Ltd. Hyderabad.
- Keary. F. and Vine. M. 1997, *Global Tectonics*. 2<sup>nd</sup> edition, Blackwell Scientific Publications. Oxford.
- Kington D. 1998, *Fluvial Forms and Processes: A New Perspective*, Arnold. London.
- Pal, S.K. 2003. *Physical Geography of India*, Orient Balckswan Ltd. Hyderabad
- Powell, J. 2001, *Mysteries of Terra Firma: The Age and Evolution of the Earth*. Free Press. London. 272p.
- Prasad. N. and Basu R. (Editors) 2002, *Contemporary Dimensions in Geography: Academic Staff College . University of Burdwan. Bardhaman*.
- Selby, M.J. 1985, *An Introduction to Geomorphology*, Clarendon, Oxford.
- Sharma, R.C. and Vatal. M. *Oceanography for Geographers*. Chaitanya Pub. House. Allahabad.
- Singh. S. 2000, *Geomorphology*, 2<sup>nd</sup> edition, Prayag Pustak Bhavan, Allahabad.
- Stahler and Strahler 2002, *Geography and Man's Environment*, John Wiley, New York.
- Summerfield M.A. (Editor) 1991, *Global Geomorphology: An Introduction to the Study of Landforms*, John Wiley and Sons Ltd., New York.
- Tarback. E.J. Lutgens. F.K. and Tasa. D., 2003, *Earth Science, 10<sup>th</sup> edition*, Prentice Hall, Englewood Cliff's.
- Thornbury. W.D. 1969, *Principles of Geomorphology*, 2<sup>nd</sup> edition, Wiley Eastern Limited. New Delhi.
- Woodroffe, C.D. 2002, *Coasts: Form, Process and Evolution*, Cambridge University Press. Cambridge.

#### **Paper II: (Practical): Cartographic Techniques in Geography**

- Elfic. M.H. Fryer. J.G. Brinkners. R.C. and Wolf. P.R. 1994, *Elementary Surveying* 8<sup>th</sup> edition. Harper Collins Publishers. London.
- Hussain. S.K. AND Nagaraj. M.S. 1992, *Text Book of Surveying*. S. Chand & Co. Ltd. New Delhi.
- Kanetkar. R.P. and Kulkarni. S.V. 1988, *Surveying and Levelling, Part-I* Pune Vaidyarthi Griha Prakashani, Pune.
- Kellaway. G.P. 1979, *Map Projections*. 1<sup>st</sup> Indian edition. B.I. Publication. Delhi.
- Kochher, C.i. 1993, *A Text Book of Surveying*. S.K. Katariya & Sons. Delhi
- Mishra R.P. Ramesh. A 2000, *Fundamentals of Cartography*. Concept Publishing Company, New Delhi.

- Monkhouse, F.J. and Wilkinson. H.R. 1971, *Maps and Diagrams: Their Compilation and Construction*. B.I. Publications Private Limited. New Delhi.
- Roy P. 1988, *An Analytical Study of Map Projections*. Volume I, Kolkata.
- Sarkar, A. 1997, *Practical Geography: A Systematic Approach*, Orient Blackswan Ltd. Hyderabad.
- Singh. R.L and Singh. R.P.B. 1991, *Elements of Practical Geography*. Kalyani Pub. New Delhi.
- Steers. J.A. 1965, *An Introduction to Map Projections*. 14<sup>th</sup> edition. University of London Press. London.
- Venkatramaiah. C. 1996, *A Textbook of Surveying*. Universities Press/Orient Longman Ltd. Hyderabad.

### **Paper-III: Climatology, Soil Geography & Biogeography**

#### **Climatology**

- Anthes. R. 1997, *Meteorology*, 7<sup>th</sup> edition. Prentice-Hall Inc. Upper Saddle River.
- Barry. R.G. and Chorley. R.T. 1998, *Atmosphere. Weather and Climate*. 7<sup>th</sup> Edition, Routledge. London.
- Coch, N.K. 1995, *Geohazards: Natural and Human*, Prentice Hall India Ltd. New Delhi 453p.
- Critchfield. H.J. 1983, *General Climatology*, 4<sup>th</sup> edition, Prentice Hall India Ltd. New Delhi.
- Das. P.K. 1995. *Monsoons* 2<sup>nd</sup> edition, National Book Trust, New Delhi.
- Lutgens, F.K. and Tarbuck, E.J. 1998, *The Atmosphere: An Introduction to Meteorology*, 7<sup>th</sup> edition. Prentice-Hall Englewood Cliffs.
- Moran. J.M. and Morgan, M.D. 1997, *Meteorology: The Atmosphere and the Science of Weather* . 5<sup>th</sup> edition Prentice Hall Inc. Englewood Cliffs.
- Pant, G.B. and Kumar R.K. 1997, *Climates of South Asia*. John Wiley and Sons. Ltd. Chichester.

#### **Soil Geography**

- Biswas, T.D. and Mukherjee, S.K. 1987, *Text book of Soil Science*. Tata-McGraw-Hill.
- Brady. N.C. and Weil. R.R. 1996, *The Nature and Properties of Soil*. 11<sup>th</sup> edition. Longman. London.
- Floth. H.D. 1990, *Fundamentals of Soil Science*, 8<sup>th</sup> edition. John Wiley and Sons. New York.
- Morgan. R.P.C. 1995, *Soil Erosion and Conservation*, 2<sup>nd</sup> edition. Longman. London.
- Schwab. G.O. Fandmeir. D.D. and Eliot, W.J. 1996, *Soil and Water Management Systems*, 4<sup>th</sup> edition, John Wiley and Sons Inc. New York.
- Young. A. 2000, *Land Resources: Now and for the Future*, Cambridge University Press. Cambridge.

#### **Biogeography:**

- Chapman J.L. and Reiss. J.J. 1993, *Ecology: Principles and Applications*, Cambridge University Press, Cambridge.
- Chiras D.D. Reganold J.P. and Owen, O.S. 2002, *Natural Resource Conservation. Management for a Sustainable Future*. 8<sup>th</sup> edition, Prentice Hall. Englewood Cliffs.
- Dash. M.C. 2001, *Fundamentals of Ecology*, 2<sup>nd</sup> edition, Tata McGraw-Hill, New Delhi.
- Huggett. R. 1998, *Fundamentals of Biogeography*, Routeledge. London.
- Kormondy. E.J. 1996, *Concepts of Ecology*, 4<sup>th</sup> edition. Prentice-Hall, India. New Delhi.
- Myers. A.A. AND Giller. P.S. (editors) 1988, *Analytical Biogeography: An Integrated Approach to the study of Animal and Plant Distributions*. Chapman and Hall. London.
- Odum E.P. 1997, *Ecology: A Bridge between Science and Society*, Sinaur Associates Inc. Publishers, Sunderland..
- Sharma P.D. 1996, *Ecology and Environment*, 7<sup>th</sup> edition, Rastogi Publications, Mirat.
- Spellerberg. I.F. and Sawyer, J.W.D. 1999, *An Introduction to Applied Biogeography*: Cambridge University Press, Cambridge.
- Weddell, B.J. 2002, *Conserving Living Natural Resources in the Context of a Changing World*. Cambridge University Press. Cambridge.
- World Wide Fund for Nature-India (Eastern Region) 1995, *Nature Conservation Handbook*. Calcutta.

#### **Paper IV: (Practical): Analytical Techniques in Geography**

- Alvi. Z. 1995, *Statistical Geography: Methods and Applications*, Rawan Pub. New Delhi.
- Mishra R.P. Ramesh A. 2000, *Fundamentals of Cartography*. Concept Publishing Company. New Delhi.
- Monkhouse F.J. and Wilkinson. H.R. 1971, *Maps and Diagrams. Their Compilation and Construction*, B.I. Publications Private Limited. New Delhi.
- Pal S.K. 1999, *Statistics for Geoscientists*, Concept publishing Company. New Delhi.
- Robinson, A.H. Sale, R.D. Morrison, J. 1984, *Elements of Cartography*, Wiley, New Delhi.
- Sarkar A. 1997, *Practical Geography: A Systematic Approach*, Orient Blackswan Ltd. Hyderabad.
- Sen. P.K. 1989, *Geomorphological Analysis of Drainage Basin: An Introduction to Morphometric and Hydrological Parameter*, University of Burdwan, Bardhaman
- Silk. J. 1979, *Statistical Techniques in Geography*, George Allen and Unwin, London.
- Singh, S.L and Singh, R.P.B. 1994, *Elements of Practical Geography*: Kalyani Pub. New Delhi.
- Steers. J.A. 1965, *An Introduction to Map Projections*. 14<sup>th</sup> edition, University of London Press, London.
- Walford. P. 1995, *Geographical Data Analysis*, John Wiley and Sons Inc. New York.

#### **Paper-V: Nature of Geography**

- Adhikari S. 1992, *Geographical Thought*. Chaitanya Pub. House. Allahabad.
- Binege. W. 1962, *Theoretical Geography*. Glenerp. London.
- Chorley. R.J. and Hagget. P. (eds) 1965, *Frontiers in Geographical Teaching*. OUP. Oxford.
- Dikshit. R.D. (eds) 1994, *The Art and Science of Geography: Selected Readings*. Prentice Hall India. New Delhi.
- Dunbar. G.S. (eds) 1991, *Modern Geography: An Encyclopaedic Survey*. St. James Press. Chicago:.
- Gregory D. and Walford. R. (eds) 1988, *Horizons in Human Geography*, Macmillan London.
- Hussain. M. 1995, *Evolution of Geographical Thought*, 3<sup>rd</sup> edition, Rawat Pub. Co., New Delhi.
- Johnston. R.J. Gregory. D. Prett. G and Watts. M. 2000, *The Dictionary of Human Geography*. 4<sup>th</sup> edition. Blackwell Pub. Ltd. London.
- Lahiri-Dutt, K. *Bhugol Chintar Bikash*, World Press
- Matthews. J.A. and Herbert. J.A. 2004, *Unifying Geography: Common Heritage, Shared Future?* Routledge. London.
- Messy D. and Allen J. (eds) 1984, *Geography Matters: A Reader*, Cambridge University Press Cambridge.
- Peet. R. 1998, *Modern Geographical Thought*. Blackwell, London.
- Stoddart. D.R. 1986, *On Geography and its History*. Basil Blackwell, Oxford.

#### **Paper-VI : Economic & Social Geography**

- Blanden J. Haggett. P. Harnnett. C. and Sarre, P. 1985, *The Fundamentals of Human Geography*. Harper and Raw. New York.
- Carter H. 1981, *Urban Geography*: 3<sup>rd</sup> edition Arnold-Heinemann. New Delhi.
- Carter. J. and Jones. T. 1989, *Social Geography: An Introduction to Contemporary Issues*. Edward Arnold London.
- Chandna, R.C. 2000, *Population*, Kalyani Publishers. New Delhi.
- Clark G.I., Gertler, M.S. and Feldman. M.P. 2003, *The Oxford Handbook of Economic Geography*. Oxford University Press. Oxford.
- De Blij H.J. and Murphy. A.B. 2002, *Human Geography Culture. Society and Space*. 7<sup>th</sup> Edition John Wiley and Sons. New York.
- Ghosh S. 1998, *Introduction to Settlement Geography*. Orient Blackswan Ltd. Calcutta. 158p.
- Guha J.I. and Chatteraj. P.R. 1998, *A New Approach to Economic Geography. A Study of Resources*. 15<sup>th</sup> edition. World Press, Calcutta.

- Harrison P. Pearch. E. and Raven. P.H. 2001, *AAAS Atlas of Population and Environment*. University of California Press.
- Hartshorn. T.A. and Alexander, J.W. 1988, *Economic Geography*. 3<sup>rd</sup> edition. Prentice-Hall India Ltd. New Delhi.
- Hussain M. 1994, *Human Geography*, Rawat Pub.. Co. New Delhi.
- Johnston. R.J. Taylor. P.J. and Watts. M.J. (editors) 1995, *Geography 2<sup>nd</sup> edition*. Oxford University Press. Oxford.
- Leong G.C. and Morgan G.C. 1982, *Human and Economic Geography*, 2<sup>nd</sup> edition. Oxford University Press. Oxford.
- McCully P. 1996, *Silenced Rivers: The Ecology and politics of Large Dams*, Orient Longman Hyderabad.
- Mitchell. B. 1997, *Resources and Environment Management*. Addison Wesley Ltd. Harlow.
- Nagle. G and Speacer. K. 1997, *Sustainable Development*. Hodder. & Stoughton London.
- Newbold. K.B. 2002, *Six Billion Plus: Population Issues in the Twenty-First Century*. Rowman & Littlefield Publishers. New York.
- Norton. W. 2001, *Human Geography 4<sup>th</sup> Edition* Oxford University press Oxford.
- Pearce D. 1995, *Tourism Today: A Geographical Analysis: 2<sup>nd</sup> edition*. Longman Scientific & Technical London.
- Pickering K. and Owen A. A. 1997, *An Introduction to Global Environmental Issues*, 2<sup>nd</sup> edition Routledge. London.
- Raw. M. 1986, *Understanding Human Geography : A Practical Approach*, Bell and Hyman. London.
- Robinson H. 1999, *A Geography of Tourism*, 2<sup>nd</sup> edition, McDonalds and Evans. London.
- Rubenstein. J.M. 2002, *The Cultural Landscape 7<sup>th</sup> edition*, Prentice Hall, Englewood Cliffs.
- Sayer. J. Campbell. B. 2003: *The Science of Sustainable Development: Local Livelihoods and the Global Environment*, Cambridge University Press, Cambridge.
- Simmons. H.I.G. 1997, *Humanity and Environment: A Cultural Ecology*, Addison Wesley Longman Ltd. Harlow.
- Smith D M 1982, *Human Geography: A Welfare Approach*. Edward Arnold. London.
- United Nations Populations Fund 1997, *India Towards Population and Development Goals*. Oxford University Press. New Delhi.
- Valentine. G. 2001, *Social Geographies*. Prentice Hall, Englewood Cliffs.
- Webbell. B.J. 2002. *Conserving Living Natural Resources in the Context of a Changing World*. Cambridge University Press. Cambridge.
- Whyne. CH. 1990, *Elements of Human Geography*. Unwin and Hyman Ltd. London.

## **Paper - VII: Geography of India**

- Dutta. R. and Sundaram. K.P.M. 1999, *Indian Economy*. S. Chand and Company Limited. New Delhi.
- Guha J.I and Chatteraj. P.R 1998, *A New Approach to Economic Geography: A Study of Resources*, 15<sup>th</sup> edition. World Press, Calcutta.
- Khullar, D.R. 1999, *A Comprehensive Geography of India*. Kalyani Publishers, New Delhi. Kumar. R. 1985. *Fundamentals of Historical Geology and Stratigraphy of India*, Wiley-Eastern, new Delhi.
- Mamoria. C.B. 1996, *Economic and Commercial Geography of India*. Revised edition. Shival Aggarwala an Co. Agral.
- Mathur S.M. 1986, *Physical Geology of India*. National Book Trust New Delhi.
- Pathak. C.R. 2002, *Spatial Structure and Process of Development in India*, Regional Science Association. Kolkata.
- Sen. P.K. and Prasad, N. 2002, *An Introduction to Geomorphology of India*. Allied publishers. Delhi.
- Sharma. T.C. and Coutinho. O. 1998, *Economic and Commercial Geography of India*. 3<sup>rd</sup> edition. Vikash Pub. House Pvt. Ltd. New Delhi.
- Shiva. V. 1992, *The Violence of the Green Revolution: Agriculture, Ecology and Politics in the*

- South*, 2001 reprint, Other India Press. Mapua.
- Singh. R.L. (eds) 1971, *India: A Regional Geography*, National Geographical Society of India/UBS Pub. Distributors Ltd. New Delhi.
- Spate. O.H.K. and Learmonth. A.T.A. 1967, *India and Pakistan*. 3<sup>rd</sup> edition. Munshiram Monoharlal Pub. Ltd.

### **Paper – VIII (Practical): Applied Geographical Techniques**

- Beaumont. J.R. and Williams. S.W. 1983, *Project work in the Geography Curriculum*, Croom Helm, London.
- Campbell, J.B. 1996, *Introduction to Remote Sensing*. 2<sup>nd</sup> edition. Taylor & Francis, London.
- Chaisman. N. 1992, *Exploring Geographical Information Systems*. John Wiley and Sons. Inc. New York.
- Lillesand, T.M. and Kiefer, R.W. 1994, *Remote Sensing and Image Interpretation*, 3<sup>rd</sup> edition, John Wiley and Sons, New York.
- Maltman, A. 1990, *Geological Maps: An Introduction*, Open University Press, Buckingham.
- Marcolongo, B. and Mantorani, F. 1997, *Photogeology: Remote sensing Application in Earth Science*, Oxford and IBH Pub. Pvt. Ltd., New Delhi.
- National Remote Sensing Agency. 1996, *India through Images*, Hyderabad.
- Parsons, T. and Knight. P. 1995, *How to do your Dissertation in Geography and Allied Disciplines*, Chapman and Hall, London.
- Rajan, M.S. 1995, *Space Today*, 2<sup>nd</sup> edition, National Book Trust, New Delhi.
- Sabins 1997, *Remote Sensing: Principles and Applications*, 3<sup>rd</sup> edition, W.H. Freeman & Company, New York.



## Section 4: Question Pattern

### HONOURS COURSE

#### **Theoretical Papers (Paper I, Paper III, Paper V, Paper VI, Paper VII): Full Marks: 100**

**Pattern of setting questions:** In **SECTION A** which carries 16 marks, altogether 15 questions (**Short Answer Type**) each of 2 marks from 5 Units, having three questions from each Unit are to be set. 8 questions are to be answered, selecting at least one from each Unit. In **SECTION B** which carries 36 marks, question number 1 (**Short Type**) with an optional question shall be compulsory of 6 marks. 10 other questions (**Short Type**), each of 6 marks from 5 Units, having 2 questions from each Unit are to be set. Question number 1 and 5 other questions, selecting one from each Unit are to be answered. 6 marks shall have a break-up of either 4+2 or 4+1+1 or 5+1. In **SECTION C** which carries 48 marks, altogether 10 questions (**Broad Type**), each of 12 marks from 5 Units, having two questions from each Unit are to be set. 4 questions are to be answered; selecting one from four of the five Units. 12 marks shall have a break-up of 10+2.

#### **Practical Paper (Paper II, Paper IV):**

**Full Marks: 100**

**Pattern of setting questions:** • *Units 1.0—4.0:* Four compulsory questions are to be set from each Unit; each Question is to have at least two parts. • *Unit 5:* Evaluation of Practical Notebook: 6 marks. Viva-voce: 4 marks.

#### **Practical Paper (Paper VIII):**

**Full Marks: 100**

**Pattern of setting questions:** • *Units 1.0—3.0:* Three compulsory questions are to be set from each Unit; each Question is to have at least two parts. • *Unit 4:* Evaluation of hand written report: 10 marks. Viva-voce: 5 marks, at least one question related to field report: 5 marks, • *Unit 5:* Evaluation of Practical Notebook: 6 marks. Viva-voce: 4 marks.