



# **TRIPURA UNIVERSITY**

**(A Central University)  
Suryamaninagar-799022**

**Syllabus  
OF**

**Geography  
(General & Major)**

**Semester – III**

**2014**

**Semester – III**  
**(Paper-III)**  
**Ethics (Indian and Western)**  
**(Full Marks: 100)**

Unit –I : Indian Ethics : Purusarthas and their inter-relations, Purusartha Sadhana, Law of Karma, Carvaka Ethics.

Unit-II : Indian Ethics : Buddhist Ethics, The Four Noble Truths, Jaina Ethics: Anuvrata, Mahavrata, Triratna.

Unit-III : Western Ethics : Nature and Scope, Voluntary and Non-Voluntary Actions, Moral Judgements, Postulates of Moral Judgements, Objects of Moral Judgements.

Unit-IV: Western Ethics: Theories of Moral Standard (Hedonism, Rigorism of Kant, Perfectionism),  
Practical Ethics : Rights and Human Rights : Their Characteristics (Racism, Castecism), Feminism (Radical & Spiritaul), Environmental Ethics.

**Suggested Readings:**

1. Carvaka Darsanam: Panchanan Sastri
2. Carvaka darsan: Daksina Ranjan Sastri
3. Bharatiya Darsan: Pradyot Kumar Mandal
4. Bharatiya Darsan: Nirode Baran Chakraborty
5. Bharatiya Darsan: Dipak Kumar Bagchi
6. Buddha Darsan: Panchanan Sastri
7. Purva Mimansa Darsan: Sukhomay Bhattacharya
8. Nitividya: Samarendranath Bhattacharya
9. Nitividya : Shibapada Chakraborty
10. Nitividyar Tattvakatha: Somnath Chakraborty
11. The Ethics of Hindus: S.K. Maitra
12. Fundamentals of Hinduism: S.C. Chatterjee
13. Indian Philosophy: S. Radhakrishnan
14. Introduction to Indian Philosophy: D.M. Dutta and S.C. Chatterjee
15. A Critical Survey of Indian Philosophy: C.D. Sharma
16. Principles of Ethics: Phani Busan Chatterjee
17. Manual of Ethics: Mickenzie
18. An Introduction to Ethics : William Lillie



## GENERAL COURSE STRUCTURE

SEMESTER	PAPER	TOPIC	MARKS
1 <sup>st</sup>	FIRST	Physical Geography (Theory)	100
2 <sup>nd</sup>	SECOND	A. Human Geography (Theory)	50
		B. Practical	50
3 <sup>rd</sup>	THIRD	A. Economic Geography (Theory)	50
		B. Practical	50
4 <sup>th</sup>	FOURTH	A. Environmental Issues in Geography (Theory)	50
		B. Practical	50
5 <sup>th</sup>	FIFTH	A. Regional Geography (Theory)	50
		B. Practical	50

## MAJOR COURSE STRUCTURE

SEMESTER	PAPER	TOPIC	MARKS
1 <sup>st</sup>	FIRST	Geotectonics, Geomorphology and Oceanography (Theory)	100
2 <sup>nd</sup>	SECOND	A. Climatology, Soil and Biogeography (Theory)	60
		B. Practical	40
3 <sup>rd</sup>	THIRD	A. Economic Geography (Theory)	60
		B. Practical	40
4 <sup>th</sup>	FOURTH	A. Population, Settlement and Cultural Geography (Theory)	60
		B. Practical	40
5 <sup>th</sup>	FIFTH	Geographical Thought and Environmental Issues (Theory)	100
	SIXTH	Practical	100
6 <sup>th</sup>	SEVENTH	Geography of India and Special paper (Theory)	100
	EIGHTH	Practical	100

GENERAL COURSE  
SEMESTER – I  
PAPER – I (THEORETICAL)  
PHYSICAL GEOGRAPHY  
Full Marks – 100

UNIT – 1: Nature of Geography [20 Marks]

- Definition, Nature and Scope of Geography.
- Main Divisions of Geography – Systematic and Regional, Physical and Human.
- Interrelation of Geography with other disciplines.
- Geological Time Scale.
- Internal structure of the earth.
- Rock types and their origin, Classification and Characteristics.

UNIT – 2: Geotectonic and Geomorphology [20 Marks]

- Earth Movement: Types of Folds and Faults.
- Plate Tectonics: Orogenesis, Earthquake, Vulcanicity, Seafloor spreading.
- Weathering and Erosion, Mass Wasting.
- Processes and Landforms: Fluvial, Glacial, Arid, Coastal.

UNIT – 3: Climatology [20 Marks]

- Composition and Structure of the atmosphere.
- Atmospheric Temperature: Insolation and Heat Budget, Horizontal and Vertical distribution of temperature.
- Atmospheric Pressure and Wind system: Horizontal distribution of pressure, Factors affecting wind motion, Planetary, Periodic and Local Winds.
- Atmospheric moisture: Humidity, Evaporation, Condensation, Precipitation, Types of rainfall.
- Mechanism of Indian Monsoon.



UNIT - 4: Hydrology, Soil and Biogeography

[20 Marks]

- Hydrological Cycle, Freshwater System
- Importance of Ocean Currents, Temperature and Salinity of ocean water
- Soil Profile, Major Soil types of the World: Zonal, Azonal and Intrazonal.
- Concept of Biomes highlighting major characteristics of Flora and Fauna.
- Biogeography: Concept of Ecosystem, Components of Ecosystem, Trophic Structure, Food Chain and Food Web.

INTERNAL ASSESSMENT --- 20 Marks

*References:*

1. Adhikari, S. (2006): Fundamentals of Geographical Thought, Chaitanya Publishing House, Allahabad.
2. Dasgupta, A. and Kapoor, A. N. (1997): S. Chand & Company Ltd. New Delhi.
3. Singh, S. (2009): Prayag Pustak Bhawan, Allahabad.
4. Singh, S. (1997): Physical Geography, Prayag Pustak Bhawan, Allahabad.
5. Lal, D. S. (1998): Climatology, Sharada Pustak Bhawan, Allahabad.
6. Khullar, D. R. (2003): India-- A Comprehensive Geography, Kalyani Publishers, Chennai.
7. Ahamed, R. (2000): Abahowa O Jalabayu Bigyan (Bengali), Srijan Books and Stationary, Bangladesh.
8. Bandhopadhyaya, T. and Sil, A. (2011): Adhunik Bhu Parichya (Bengali), Chhaya Prakason, Kolkata.
9. Chakraborty, S. C. (2007): Natural Hazards and Disaster Management, Pragatisil Prakashak, Kolkata.
10. Futehally, L. (1994): Our Environment, National Book Trust, India.
11. Singh, S. (2001): Environmental Geography, Prayag Pustak Bhawan, Allahabad.

GENERAL COURSE  
SEMESTER – II  
PAPER – II A (THEORETICAL)  
HUMAN GEOGRAPHY  
Full Marks – 50

UNIT – 1: Population Geography

[20 Marks]

- Concept and Scope of Human Geography.
- Composition, Growth, Distribution and Density of Population of the World.
- Concept of Fertility, Mortality and Demographic Transition.
- Migration.

UNIT – 2: Cultural and Settlement Geography

[20 Marks]

- Racial Divisions and Distribution and Linguistic Distribution of the World.
- Rural Settlement: Types and patterns in India.
- Urban Settlement: Definition and Types, Size-Classes and Distribution.
- Urban Issues: Urban Infrastructure, Concept of Urban Morphology and Urban Planning.

INTERNAL ASSESSMENT --- 10 Marks

*References*

1. Chanda, R. C. (2002): Geography of Population, Kalyani Publishers, Chennai, Kolkata.
2. Ray Chaudhuri, J. (2009): An Introduction to Development and Regional Planning, Orient BlakSwan.
3. Ghosh, S. (2007): Introduction to Settlement Geography, Orient BlakSwan.
4. Mandal, R. B. (2001): Introduction to Rural Settlement, Concept Publishing Company, New Delhi.
5. Mandal, R. B. (2000): Urban Geography, Concept Publishing Company, New Delhi.
6. Sen, J. (1998): Janabasati Bhugol (Bengali), Paschimbanga Rajya Pustak Parsad.
7. Husain, M. (2002): Human Geograpgy, Rawat Publication, New Delhi.
8. Sen, J. (2012): Manabio Bhugol (Bengali), Amar Pustakalaya, Kolkata.
9. Sen, J. (2010): Janasankha Bhugol (Bengali), Books and Allied (Private) Ltd, Kolkata.
10. Pradhan, N. and Bhattacharya, D. (2004): Adhunik Bhugol (Bengali), Naboday Publication, Kolkata.

GENERAL COURSE  
SEMESTER – II  
PAPER – II B (PRACTICAL)  
Full Marks – 50

- Scale: Linear and R.F., Vernier, Diagonal. [05 Marks]
- Study and Interpretation of Weather Maps of India: [10 Marks]  
(i) Rainy Season and (ii) Winter Season.
- Interpretation and Drawing of Temperature – Rainfall Graph. [05 Marks]
- Climatological Instrument reading: [05 Marks]  
(i) Fortein's Barometer, (ii) Dry and Wet Bulb Thermometer, (iii) Six's Maximum and Minimum Thermometer.
- Concept of Contour, Major Relief Features, Drainage Patterns, Broad Physiographic Divisions. [10 Marks]
- Laboratory Notebook and Viva-Voce. [05 Marks]

INTERNAL ASSESSMENT --- 10 Marks

*References:*

1. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. Honours Practical Geography, Kalyani Publishers, Kolkata.
2. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. General Practical Geography, Kalyani Publishers, Kolkata.
3. Bandhopadhyaya, T. and Sil, A. K. (2004): Beboharik Bhugöl Parichaya (Bengali), Chhaya Prakasoni.
4. Sarkar Asish (1998): Practical Geography- A Systematic Approach, Orient Longman.
5. Singh, R. P.B and Singh. R. L (2002): Elements of Practical Geography, Kalyani Publishers, New Delhi.
6. Hazra, Y. and Das, D. (2007): Snatak Beboharik Bhugol (Bengali), Chhaya Prakasoni, Kolkata.



GENERAL COURSE  
SEMESTER – III  
PAPER – III A (THEORETICAL)  
ECONOMIC GEOGRAPHY  
Full Marks – 50

**UNIT – 1: Economic Resources**

[20 Marks]

- Resource: Concept, Classification and Significance.
- Lumbering in Temperate and Tropical Forests.
- Fishing: Types of fishing; Major Commercial Marine Fishing Grounds in Temperate and Tropical Belts.
- Livestock Farming in Temperate Grasslands.
- Agriculture: Intensive Subsistence Farming in Monsoon lands -- Rice; Extensive Commercial Farming in Temperate lands -- Wheat; Plantation Farming in Tropical lands -- Tea, Coffee and Rubber; Mixed Farming.

**UNIT – 2: Minerals, Energy and Industrial Resources**

[20 Marks]

- Distribution, Production and Utility of major minerals: Iron Ore and Manganese.
- Distribution, Production and Utility of Conventional Energy Resources: Coal, Petroleum, Natural Gas, Minerals for Nuclear Energy -- Uranium and Thorium; Non-Conventional Energy Resources: Solar, Water, Wind, Biomass and Tides.
- Location and Production of Industries: Iron and Steel in India and UK, Aluminium in India and USA, Cotton Textile in India and USA, Heavy Chemicals in India, Paper in India and Canada.

**INTERNAL ASSESSMENT – 10 Marks**

*References*

1. Alexanderson, C. (1971): Geography of manufacturing, Prentice Hall India, New Delhi.
2. Bandhopadhyaya, T. K. and Sil, A. K. (2013): Adhunik Bhu Parichaya (Bengali), Scholar Books, -----
3. Dhillon, J. S. (2004): Agricultural Geography, -----
4. Guha, J.L. and Chattoraj, P.R. (1989): A New Approach to Economic Geography—A Study of Resources, The World Press private Ltd., Kolkata.
5. Hartshorn, T. A. and Alexander, J. W. (1988): Economic Geography, Prentice Hall India, New Delhi.
6. Leong, G.C and Morgan, G.C. (1975): Human and Economic Geography, Oxford University Press, Hong Kong.
7. Mamoria, C.B. (2006): Economic and Commercial Geography of India, Shiva Lal Agarwala and Company, New Delhi.
8. Paul, A. S. (2013): Sampad Samiksha (Bengali), Books and Allied Pvt. Ltd., Kolkata.
9. Roy, P. (2013): Economic Geography, A Study of Resource, New Central Book Agency, Kolkata.

GENERAL COURSE  
SEMESTER - III  
PAPER - III B (PRACTICAL)  
Full Marks - 50

- Cartograms: Concept, Drawing and Interpretation -- (35 Marks)
- Dots, Circles and Spheres.
  - Isoleth and Choropleth.
  - Age - Sex Structure.
  - Line Graph.
  - Flow Diagram.
  - Bargraphs: Simple, Compound and Composite.
  - Proportional Circles.
  - Proportional Squares.
- Laboratory Notebook and Viva-Voce. (05 Marks)

INTERNAL ASSESSMENT - 10 Marks

*References*

1. Bandhopadhyaya, T. K. and Sil, A. K. (2004): Byaboharik Bhugol Parichaya (Bengali), Chhaya Prakasoni, Kolkata.
2. Hazra, Y. and Das, D. (2007): Snatak Byaboharik Bhugol, Chhaya Prakasoni (Bengali), Kolkata.
3. Monkhouse, F.J. (1971): Maps and Diagrams, Methuen, London.
4. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. Honours Practical Geography, Kalyani Publishers, Kolkata.
5. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. General Practical Geography, Kalyani Publishers, Kolkata.
6. Sarkar, A. (1998): Practical Geography- A Systematic Approach, Orient Longman Ltd.
7. Singh, R.L. and Singh, R.P.B. (2002): Elements of Practical Geography, Kalyani Publishers, New Delhi.



GENERAL COURSE  
SEMESTER – IV  
PAPER – IV A (THEORETICAL)  
ENVIRONMENTAL ISSUES IN GEOGRAPHY  
Full Marks – 50

UNIT – 1: Extreme Events of Environment [20 Marks]

- Global Warming and Climate Change.
- Deforestation and Loss of Biodiversity.
- Soil Erosion and Conservation.
- Natural Hazards: Geomorphic – Landslides and River bank erosion;  
Tectonic -- Earthquake; Climatic -- Flood, Drought and Tropical Cyclone.

UNIT – 2: Environmental Pollution [20 Marks]

- Definition and Meaning of Pollution and Pollutants.
- Sources, Impact and Control of the following:
  - Air Pollution.
  - Water Pollution.
  - Soil Pollution by pesticides.
  - Noise Pollution.

INTERNAL ASSESSMENT – 10 Marks

*References*

1. Chakraborty, S.C. (2007); Natural Hazards and Disaster Management, Pragatishil Prokashak, Kolkata.
2. Manivasakam, N. (2001): Environmental Pollution, NBT Publication, New Delhi
3. Paul, G. (2004): Paribesh O Dushan (Bengali), Dasgupta and Company Pvt. Ltd., Kolkata.
4. Roy, M. and Chakraborty, B. (2004): Paribesh (Bengali), Progressive Publishers, Kolkata.
5. Singh, S. (1997): Environmental Geography, Prayag Pustak Bhawan, Allahabad, India.
6. Saha, P. and Chakravarty, A.K. (Ed.) (2000): Environmental Studies, Allied Publishers Private Ltd., Kolkata, India.
7. Sen, J. and Sarkar, S. (2011): Environmental Science, Kalyani Publishers, New Delhi.
8. Sen, J. and Sarkar, S. (2003): Paribesh Bhugol (Bengali), Kalyani Publishers, New Delhi.
9. Valdiya, K.S. (Ed.) (2004): Coping with Natural Hazards – Indian Context, Orient Longman Private Ltd., Kolkata.



GENERAL COURSE  
SEMESTER – IV  
PAPER – IVB (PRACTICAL)  
Full Marks – 50

- Basic Statistical Techniques: (25 Marks)
- Concepts on data and variables.
  - Diagrammatic representation of Frequency Distribution -- Histogram, Frequency Curve (Polygon) and Cumulative Frequency Curve (Ogive).
  - Measures of Central Tendencies -- Mean, Median and Mode.
  - Measures of Partition values -- Quartile, Decile and Percentile.
  - Scatter Diagram and Drawing of Regression Line with eye estimation.
- Computer Assisted Mapping using MS Excel: (10 Marks)
- Line Graph
  - Bar Graph
  - Pie Graph
- Laboratory Notebook and Viva-Voce. (05 Marks)

INTERNAL ASSESSMENT – 10 Marks

*References*

1. Alvi, Z. (1995): Statistical Geography – Methods and Application, Rawat Publications, Jaipur.
2. Bandhopadhyaya, T. K. and Sil, A. K. (2004): Byaboharik Bhugol Parichaya (Bengali), Chhaya Prakasoni, Kolkata.
3. Goon, A.M., Gupta, M.K. and Dasgupta, B. (1992): Fundamentals of Statistics, Vol. 1, The World Press Pvt. Ltd., Kolkata.
4. Goon, A.M., Gupta, M.K. and Dasgupta, B. (1992): Basic Statistics, Vol. 1, The World Press Pvt. Ltd., Kolkata.
5. Hazra, Y. and Das, D. (2007): Snatak Byaboharik Bhugol, Chhaya Prakasoni (Bengali), Kolkata.
6. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. Honours Practical Geography, Kalyani Publishers, Kolkata.
7. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. General Practical Geography, Kalyani Publishers, Kolkata.
8. Sarkar, A. (1998): Practical Geography- A Systematic Approach, Orient Longman Ltd.
9. Singh, R.L. and Singh, R.P.B. (2002): Elements of Practical Geography, Kalyani Publishers, New Delhi.

GENERAL COURSE  
SEMESTER – V  
PAPER – VA (THEORETICAL)  
REGIONAL GEOGRAPHY  
Full Marks – 50

ncy  
UNIT -- 1: Geography of India

[20 Marks]

- Physiography and Drainage.
- Climate, Natural Vegetation and Soil.
- Agriculture: Characteristics, Regions (after ICAR) and Problems.
- Population: Distribution, Density and Growth.

UNIT – 2: Geography of North-East India with special reference to Tripura [20 Marks]

- Physiography and Drainage.
- Climate, Natural Vegetation and Soil.
- Jhum cultivation, Transport facilities and Industrial backwardness, Tourism.
- Population: Characteristics with ethnic composition.

INTERNAL ASSESSMENT – 10 Marks

*References*

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1. Acharya, R. Bera, G. and Chowdhury, J. (Ed.) (2010): Shifting Cultivation: In Search of Alternatives, Abhijeet Publications, New Delhi.
  2. Bhattacharyya, N. N. (2005): North East India—A Systematic Geography, Rajesh Publications, New Delhi.
  3. Bhowmik, I. and Chakraborti, D. (ed.) (2011): Resources and Economy of Tripura, Eastern Book House Publishers (India), Guwahati.
  4. Khullar, D.R. (2001): India – A Comprehensive Geography, Kalyani Publishers, Kolkata.
  5. Mamoria, C. B. (1975): Geography of India, Shiva Lal Agarwala and Company, Agra, India.
  6. Sharma Cutinho (1997): Economic Geography of India, Ludhiana.
  7. Taher, M. and Ahmed, P. (2001): Geography of North-East India, Mani Manik Prakash, Guwahati, India.

GENERAL COURSE  
SEMESTER - V  
PAPER - VB (PRACTICAL)  
Full Marks - 50

- Map Projection: Concept, Classification and Drawing: (12 Marks)
- Simple Conical Projection with one standard parallel.
  - Cylindrical Equal Area Projection.
  - Sinusoidal Projection.
  - Polar Stereographic Projection.
- Laboratory Notebook and Viva-Voce. (03 Marks)
- Field Report and Viva-Voce. (15 + 10 = 25 Marks)

INTERNAL ASSESSMENT - 10 Marks

*References*

Sarkar, A. (1998): Practical Geography- A Systematic Approach, Orient Longman Ltd.



MAJOR COURSE  
SEMESTER - I  
PAPER - I (THEORETICAL)  
GEOTECTONICS, GEOMORPHOLOGY AND OCEANOGRAPHY  
Full Marks - 100

**UNIT - 1: Geotectonics** [20 Marks]

- Geological Time Scale.
- Interior of the earth.
- Plate Tectonics: Orogenesis, Earthquake, Vulcanicity, Seafloor spreading.
- Concept of Isostasy: Airy, Pratt and Holmes, Global isostatic adjustment.
- Types of rocks and associated landforms.
- Types of folds and faults and associated landforms.

**UNIT - 2: Concepts and Processes in Geomorphology** [20 Marks]

- Fundamental concepts in Geomorphology.
- Concepts on slope development: Davis, Penck and King.
- Weathering and Mass Wasting.
- Processes: Fluvial, Glacial, Aeolian, Karst and Coastal Processes.
- Interruptions in Fluvial Cycle.

**UNIT - 3: Landforms** [20 Marks]

- Fluvial Landforms.
- Glacial Landforms.
- Aeolian Landforms.
- Karst Landforms.
- Coastal Landforms.
- Drainage development and Structure: Folded and Uniclinal.

**UNIT - 4: Oceanography** [20 Marks]

- Surface configuration of ocean floor: Pacific Ocean, Atlantic Ocean and Indian Ocean.
- Temperature, Salinity and Density of ocean water.
- Oceanic Circulation System: Pacific Ocean, Atlantic Ocean and Indian Ocean.
- Coral Reefs and Atolls: Theory of Daly and Murray.
- Oceanic Resources.

INTERNAL ASSESSMENT -- 20 Marks

*Reference:*

1. Dayal, P. (2011): A Text Book of Geomorphology, Rajesh Publication, New Delhi
2. Singh, S. (1997): Physical Geography, Prayag Pustak Bhawan, Allahabad.
3. Singh, S. (2009): Geomorphology, Prayag Pustak Bhawan, Allahabad.
4. Ahamed, E. (2001): Geomorphology, Kalyani Publishers, Kolkata.
5. Ahamed, E. (1989): Physical Geography, Kalyani Publishers, New Delhi.
6. Monkhouse, F. J. (1971): Principles of Physical Geography, University of London Press, Ltd.
7. Morgan, R.S. and Wooldridge, S.W. (1988): An Outline of Geomorphology, Orient Longman.
8. Thornbury, W. D. (1984): Principles of Geomorphology, 2<sup>nd</sup> Edition, Wiley Eastern Ltd., New Delhi.

MAJOR COURSE  
SEMESTER - II  
PAPER - II A (THEORETICAL)  
CLIMATOLOGY, SOIL AND BIOGEOGRAPHY  
Full Marks - 60

**UNIT - 1: Climatology**

[24 Marks]

- Precipitation: Causes, Forms and Processes; Types of Rainfall.
- Mechanism of Indian Monsoon with special reference to Jet Stream.
- Climatic Classification: Principles of classification of World's Climate after Koppen and Thornthwait.

**UNIT - 2: Soil and Biogeography**

[24 Marks]

- Factors of soil formation.
- Concept of Zonal, Azonal and Intrazonal Soils.
- Profile development of Podzols, Chernozem and Laterites.
- Physical (Texture, Structure and Moisture) and Chemical (pH and Organic matter) properties of soil.
- Concept of Ecology and Basic Ecological Principles.
- Concept of Biogeochemical cycles: (a) Hydrological Cycle, (b) Gaseous Nutrient Cycles (Nitrogen Cycle and carbon Cycle), (c) Sedimentary Nutrient Cycle.
- Concept and Components of Ecosystem, Trophic Structure, Food Chain and Food Web.
- Concept of Biome and Major Biomes of the World: (i) Forest, (ii) Grassland and (iii) Marine.

**INTERNAL ASSESSMENT --- 12 Marks**



*References:*

1. Dasgupta, A. and Kapoor, A. N. (1997): Principles of Physical Geography, S. Chand Company Ltd.
2. Lal, D. S. (1998): Climatology, Sharada Pustak Bhawan, Allahabad.
3. Menon, P. A. (1989): Our Weather, National Book Trust, India.
4. Critchfield, H. J. (1990): General Climatology, 4<sup>th</sup> edition, Prentice Hall of India Pvt Ltd., New Delhi.
5. Chorley, R. J. (1985): Atmosphere, Weather and Climate, 4<sup>th</sup> Edition, ELBS.
6. Trewartha : Climatology, Wiley Publishers, New Delhi.
7. Chanda, R. C.: Environmental Geography, Kalyani Publishers, New Delhi.
8. Mukherjee, S. and Ghosh, K.: Environmental Studies, Books Allied Ltd, Kolkata.
9. Futehally, L. (1988): Our Environment, National Book Trust, India.
10. Chakraborty, S. (2007): Natural Hazards and Disaster Management, Progotisil Prakashok, Kolkata.
11. Dara, S. S. (2005): A Textbook of Environmental Chemistry and Pollution Control, S Chand & Company Ltd.
12. Bhattacharyya, N. N. (2011): Biogeography, Rajesh Publication, New Delhi.
13. Kumar, A. (2004): A Textbook of Environmental Science, A P H Publishing Corporation New Delhi.
14. Gautam, A. (2009): Environmental Geography, Sharda Pustak Bhawan, Allahabad.
15. Singh, S. (2001): Environmental Geography, Prayag Pustak Bhawan, Allahabad.
16. Valdy, K.S.: Geology Environment Society, University Press.
17. Kumar, S. (2011): Environmental Studies, Mitra, Kolkata.

MAJOR COURSE  
SEMESTER – II  
PAPER – II B (PRACTICAL)  
Full Marks – 40

- Concept of Scale and Construction of Linear Scale; Principle of Topographical Sheet numbering. [04 Marks]
- Morphometric Analysis: [10 Marks]  
Relative Relief, Dissection Index and Average Slope (After Wentworth); Construction of Profiles: Superimposed, Projected and Composite.
- Soil testing with the help of Field Kit: [6 Marks]  
pH, NPK and Organic matter.
- Climograph (After G.Taylor) and Hythergraph. [08 Marks]
- Laboratory Notebook and Viva-Voce. [04 Marks]

INTERNAL ASSESSMENT --- 08

*References:*

1. Sarkar, A. (1998): Practical Geography A Systematic Approach, Orient Longman.
2. Singh, R. L Singh and Rana, P. B. (2002): Elements of Practical Geography, Kalyani Publishers, New Delhi.
3. Kanetkar, T. P. and Kulkarni, S. V. (1991): Surveying and Levelling, Part I, Pune Vidyarthi Griha Prakasan, Pune.
4. Singh, R. and Singh, K.: Map work and Practical Geography; Central Book Depot, Allahabad.
5. Saha, P. and Basu, P. (2010): Advanced Practical Geography, Books and Allied (P) Ltd.

MAJOR COURSE  
SEMESTER - III  
PAPER - III A (THEORETICAL)  
ECONOMIC GEOGRAPHY  
Full Marks - 60

**UNIT - 1: Agricultural and Industrial Resources, Transport and Trade** [24 Marks]

- Von Thunen's Model of Agricultural Land Use.
- Agriculture: Intensive Subsistence Farming in India and South-East Asia, Extensive Commercial Farming in USA, Plantation Farming of Tea in India, Rubber in Tripura and South-East Asia, Mixed Farming.
- Agricultural Regions of India after ICAR.
- Green Revolution—Positive and Negative Impact on Indian Agriculture.
- Industry: Weber's Model of Industrial Location.
- Locational factors and Distribution of industries: Iron and Steel in India and Japan, Cotton Textile in India and USA, Paper in India and Canada, Petroleum Refining in India and Middle East.
- Transport and trade: Major Transport systems of the World -- Trans-Siberian Railway, Canadian-Pacific Railway, Panama Canal Route, Suez canal Route.
- Concept of World Trade Organization (WTO), Multi National Corporation (MNC) and International Trade.
- International Trade System of India.

**UNIT - 2: Regional Planning**

[24 Marks]

- Concept of Region, Regionalization and Regional Planning.
- Growth Pole Theory -- Perroux's Concept, 1955.
- Hierarchy of Planning Regions: Macro, Meso and Micro with Indian examples.
- Types of Planning: District Planning and Metropolitan Planning.
- Regional imbalances and inequalities in India.
- Indicators of regional development.
- India's Five Year Plans (Post 1990's).
- Rural Development Programmes and their impact on Regional Development.
- Urban Development Programmes.

INTERNAL ASSESSMENT – 12 Marks

*References*

1. Bala, R. (1986): Trends of Urbanizations in India, Rawat Publication, Jaipur
2. Jones, C. F. and Darkenwald, G. G. (1954): Economic Geography, Macmillan, New York.
3. Lahiri, C. B. (ed.) (1972): Balanced Regional Development, Oxford Publishing Company, IB.
4. Mishra, H. N. (1988): Urban System of a developing economy, Heritage Publishers, New Delhi.
5. Mishra, R. P. (1985): Development issues of our time, Concept Publishing Company, New Delhi.
6. Morgan, W. B. and Munton, R. J. C. (1971): Agricultural Geography, Methuen, London.
7. Miller, E. (1962): A Geography of Manufacturing, Printice Hall, Englewood Cliff, N. J.
8. Paterson, J. H. (1976): Land, Work and Resources – An Introduction to Economic Geography, Edward Arnold, London.
9. Smith, D. N. (1971): Industrial Location – An Economical Geographical Analysis, John Wiley, New York.
10. Sundaram, K. V. (1983): Geography of underdevelopment, Concept Publishing Company, New Delhi.
11. Sundaram, K. V. (1983): Urban and Regional Planning in India, Vikash Publishing House, New Delhi.



MAJOR COURSE  
SEMESTER – III  
PAPER – III B (PRACTICAL)  
Full Marks – 40

- Interpretation of Topographical Map -- Plateau Region. (10 Ma
- Construction, Properties, Limitations and Uses of the following Projections with maps: (10 Ma  
(1). Bonne's Projection  
(2). Sinusoidal Projection  
(3). Stereographic Projection  
(4). Gnomonic Projection
- Cartograms: Concept, Drawing and Interpretation -- Line Graph, Flow Diagram, Bar Graphs and Proportional Squares. (08 Mark
- Laboratory Notebook and Viva-Voce. (04 Mark

INTERNAL ASSESSMENT – 08 Marks

*References*

1. Bandhopadhyaya, T. K. and Sil, A. K. (2004): Byaboharik Bhugol Parichaya (Bengali), Chhaya Prakasoni, Kolkata.
2. Hazra, Y. and Das, D. (2007): Snatak Byaboharik Bhugol, Chhaya Prakasoni (Bengali), Kolkata.
3. Monkhouse, F.J. (1971): Maps and Diagrams, Methuen, London.
4. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. Honours Practical Geography, Kalyani Publishers, Kolkata.
5. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. General Practical Geography, Kalyani Publishers, Kolkata.
6. Sarkar, A. (1998): Practical Geography- A Systematic Approach, Orient Longman Ltd.
7. Singh, R.L. and Singh, R.P.B. (2002): Elements of Practical Geography, Kalyani Publishers, New Delhi.

MAJOR COURSE  
SEMESTER – IV  
PAPER – IV A (THEORETICAL)  
POPULATION, SETTLEMENT AND CULTURAL GEOGRAPHY  
Full Marks – 60

**UNIT – 1: Population Geography**

[24 Marks]

- Concept and Scope of Population Geography.
- Malthusian Theory of population growth.
- Demographic Transition Model.
- Population composition: Age, Sex, Literacy and Occupation.
- Distribution and Density of Population.
- Fertility and Mortality.
- Migration – Immigration and Emigration.

**UNIT – 2: Settlement and Cultural Geography**

[24 marks]

- Rural Settlement: Types and patterns.
- Urban Settlement: Classification of towns based on their Size and Functions.
- Census categories of urban units in India.
- Classical models of urban morphology: Concentric Zone, Sector theory, Multiple Nuclei.
- Hierarchy of Urban Centers: Central Place Theory.
- Problems of Towns and Cities in India.
- Racial Divisions and Distribution; Linguistic Distribution of the World.
- Concept of Cultural Diffusion and its Processes; Cultural Hearth and Cultural Realm.

**INTERNAL ASSESSMENT – 12 Marks**

### *References*

1. Bhende, Asha A and Kanitkar, T (1997): Principles of Population Studies, Hir Publishing House, Mumbai.
2. Chandna, R. C. (2013): Geography of Population, Kalyani Publishers, New Delhi.
3. Ghosh, S. (1998): Introduction to Settlement Geography, Orient Longman Ltd., Kolkata.
4. Govt. of India: National Human Development Report, 2014.
5. Mitra, A. (2004): India's Population, Abhinav Publisher, Nagpur.
6. Shrivastava, O. S. (1996): Demography and Population studies, Vikash Publishing House Ltd., Bhupal.
7. Yadav, J. P. (2004): Population Geography, Anmol Publication Pvt. Ltd., New Delhi.

MAJOR COURSE  
SEMESTER - IV  
PAPER - IV B (PRACTICAL)  
Full Marks - 40

- > Cartograms: Concept, Drawing and Interpretation -- (18 Marks)
- Chorocromatic and Choroschematic.
  - Dots, Proportional Circles and Spheres.
  - Choropleth.
  - Age - Sex Structure.
- > Visual Image Interpretation. (10 Marks)
- > Laboratory Notebook and Viva-Voce. (04 Marks)

INTERNAL ASSESSMENT - 08 Marks

*References*

1. Bandhopadhyaya, T. K. and Sil, A. K. (2004): Byaboharik Bhugol Parichaya (Bengali), Chhaya Prakasoni, Kolkata.
2. Hazra, Y. and Das, D. (2007): Snatak Byaboharik Bhugol, Chhaya Prakasoni (Bengali), Kolkata.
3. Lillesand, T. M. and Kiefer, R. W. (2003): Remote Sensing and Image Interpretation, John Willey and Sons, Inc. New York.
4. Monkhouse, F.J. (1971): Maps and Diagrams, Methuen, London.
5. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. Honours Practical Geography, Kalyani Publishers, Kolkata.
6. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. General Practical Geography, Kalyani Publishers, Kolkata.
7. Reddy, M. A. (2010): Text Book of Remote Sensing and Geographical Information Systems, BS Publications, Hyderabad.
8. Sarkar, A. (1998): Practical Geography- A Systematic Approach, Orient Longman Ltd.
9. Singh, R.L. and Singh, R.P.B. (2002): Elements of Practical Geography, Kalyani Publishers, New Delhi.



MAJOR COURSE  
SEMESTER - V  
PAPER - V (THEORETICAL)  
GEOGRAPHICAL THOUGHT AND ENVIRONMENTAL ISSUES  
Full Marks - 100

**UNIT - 1: Evolution of geographical thought** [20 Marks]

- Contribution of Greek and Roman Scholars during Ancient Period
- Contribution of Arabian Scholars during the Medieval Period.
- Renaissance and initiation of Modern Geography.

**UNIT - 2: Paradigm shift in Modern Geography** [20 Marks]

- Determinism and Possibilism.
- Positivism and Quantitative Revolution.
- Radicalism and Human Ecology.
- System Approach and System Analysis.
- Recent trends in Geography.

**UNIT - 3: Major Global Environmental Issues** [20 Marks]

- Climate Change and Recent Global Warming.
- Deforestation and loss of biodiversity.
- Air and Water pollution - Need for green technology.
- Millennium Development Goals (MDG) for controlling social evils and discrimination.

**UNIT - 4: Hazard and Disaster Management** [20 Marks]

- Mitigation of Geomorphic Hazards - Landslide and River bank erosion.
- Mitigation of Weather related hazards - Flood, Drought and Tropical Cyclone.
- Adaptation and Reconstruction in post- earthquake phase.
- Crime as social hazard and its impact on modern society.

**INTERNAL ASSESSMENT - 20 Marks**

### *References*

1. Basu, R. (2014): 'Millennium Development Goals: Problems of attainment in India' in the book titled Emerging issues in Geography. Proceedings of the Eleventh Refresher Course in Geography, S. Bhaduri (ed.), Dept. of Geography, University of Calcutta, Oxford University Press.
2. Chakraborty, S.C. (2007); Natural Hazards and Disaster Management, Pragatishil Prokashak, Kolkata.
3. Husain, M. (1988): Evolution of Geographical Thought, Rawat Publications, Jaipur, India.
4. Pandey, M. (2014): Disaster Management, Wiley India Private Ltd., New Delhi.
5. Singh, S. (1997): Environmental Geography, Prayag Pustak Bhawan, Allahabad, India.
6. Saha, P. and Chakravarty, A. K. (ed.) (2000): Environmental Studies Allied Publishers Private Ltd., Kolkata, India.
7. Valdiya, K.S. (ed.) (2004): Coping with Natural Hazards – Indian Context, Orient Longman Private Ltd., Kolkata.

MAJOR COURSE  
SEMESTER - V  
PAPER - VI (PRACTICAL)  
Full Marks - 100

- Drawing of section and interpretation of Geological Maps (15 Marks)
  - Simple Fold
  - Uniclinal Structure
  - Cases with Unconformity
  
- Surveying with instruments (Selection by Lottery during Examination) (15 Marks)
  - Prismatic Compass Survey for Closed Traversing of a Quadrangular area.
  - Survey with Dumpy Level along a road.
  - Triangular measurements of height and distance by Transit Theodolite with accessible base.
  
- Computer Application using MS Excel with interpretation (10 Marks)
  - Compound Bar
  - Histogram
  - Pie Diagram
  - Scatter Diagram with Regression.
  
- Topographical Map interpretation - Plain Region (10 Marks)
  - Physical and Cultural Landscape with suitable attributes.
  
- Laboratory Notebook and Viva-voce. (5 Marks)
  
- Field Report (15 + 10 = 25)
  - Selection of either a Rural and/or an Urban area based on Cadastral / Municipal Maps.
  - Preparation of questionnaire for Household Survey.
  - Objective and Methodology in relation to Physical and Cultural landscape.
  - Page limit should be 30 pages inclusive of text, maps, diagrams and photographs.

INTERNAL ASSESSMENT - 20 Marks

## References

1. Bandhopadhyaya, T. K. and Sil, A. K. (2004): Byaboharik Bhugol Parichaya (Bengali). Chhaya Prakasoni, Kolkata.
2. Hazra, Y. and Das, D. (2007): Snatak Byaboharik Bhugol, Chhaya Prakasoni (Bengali). Kolkata.
3. Monkhouse, F.J. (1971): Maps and Diagrams, Methuen, London.
4. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. Honours Practical Geography, Kalyani Publishers, Kolkata.
5. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. General Practical Geography, Kalyani Publishers, Kolkata.
6. Sarkar, A. (1998): Practical Geography- A Systematic Approach, Orient Longman Ltd.
7. Singh, R.L. and Singh, R.P.B. (2002): Elements of Practical Geography, Kalyani Publishers, New Delhi.
8. Saikia, R. and Thakuria, G. (2015): Practical Geography, EBH Publishers (India), Guwahati.
9. Singh, C. P. (2002): Allied Geomorphology, B. R. Publishing Corporation (India) Ltd., Delhi.



MAJOR COURSE  
SEMESTER – VI  
PAPER – VII (THEORETICAL)  
REGIONAL GEOGRAPHY AND SPECIAL PAPER  
Full Marks – 100

GROUP – A (REGIONAL GEOGRAPHY)  
(Marks : 50)

UNIT-1: Geography of India

- Physiography and Drainage.
- Climate, Natural Vegetation and Soil.
- Minerals and Power Resources: Iron Ore, Coal, Petroleum, Non-conventional energy bases.
- Population: Distribution, Density and Growth.

[20 Marks]

UNIT – 2: Geography of North-East India with special reference to Tripura [20 Marks]

- Physiography and Drainage.
- Climate, Natural Vegetation and Soil.
- Energy Resources and Tourism Industry.
- Demographic characteristics with ethnic composition.

INTERNAL ASSESSMENT – 10 Marks

*References*

1. Bhattacharyya, N.N. (2005): North East India—A Systematic Geography, Rajesh Publications, New Delhi.
2. Bhowmik, I and Chakraborti, D. (ed.) (2011): Resources and Economy of Tripura, Eastern Book House Publishers (India), Guwahati.
3. Khullar, D.R. (2001): India – A Comprehensive Geography, Kalyani Publishers, Kolkata.
4. Mamoria, C. B. (1975): Geography of India, Shiva Lal Agarwala and Company, Agra, India.
5. Sharma Cutinho (1997): Economic Geography of India, Ludhiana.
6. Taher, M. and Ahmed, P. (2001): Geography of North-East India, Mani Manik Prakash, Guwahati, India.

GROUP – B (Special Paper on FLUVIAL GEOMORPHOLOGY)  
(Marks: 50)

UNIT – 3: Stream Hydraulics

[20 Marks]

- Drainage Basin as a Geomorphic Unit.
- Hydrological Cycle of a Drainage Basin.
- Factors affecting Run off and Run off Cycle.
- Channel Flow: Laminar and Turbulent.

UNIT – 4: Channel Characteristics

[20 Marks]

- Channel Patterns: Straight, Meandering and Braided.
- Factors of Settling Velocity of small particles and Erosion velocity.
- Competence and Capacity of a Stream.
- Concept of Grade and Equilibrium.

INTERNAL ASSESSMENT – 10 Marks

*References*

1. Devi, H. I. (2000): River Basin Morphology, Rajesh Publications, New Delhi.
2. Leopold, L.B., Wolman, M.G. and Miller, J.P. (1964): Fluvial Processes in Geomorphology, S. Chand and Company Ltd., New Delhi.
3. Morisawa, M. (1968): Streams: Their dynamics and Morphology, McGraw Hills Book Co.
4. Mukhopadhyay, S. and Mukhopadhyay, M. (1991): River Geography, IPP.
5. Sen, P. K. (1993): Geomorphological analysis of Drainage Basins, The University of Burdwan, Barddhaman.
6. Singh, S. (1998): Geomorphology, Prayag Pustak Bhawan, Allahabad.
7. Selby, M.J. (2005): Earth's Changing Surface, Oxford University Press, [Indian Edition].

*[A student will opt any one of the prescribed Special Papers i.e. either  
FLUVIAL GEOMORPHOLOGY or POPULATION GEOGRAPHY]*

GROUP – B (Special Paper on POPULATION GEOGRAPHY)  
(Marks: 50)

UNIT – 3: Population dynamics

[20 Marks]

- Factors influencing spatial distribution and density of population.
- Determinants and Measures of Fertility, Morbidity, Mortality and Migration.
- Concept of Census data and Sample Survey; Concept of Over-population, Under-population, Optimum Population and Ageing.
- Theories of Population Growth and Migration; Marx, Ravenstine and Lee.

UNIT – 4: Population Regions, Problems and Policies

[20 marks]

- Population-Resource Regions after Zelinsky.
- Population Problems of the Third world: Poverty, Famine, Nutrition and Unemployment.
- Fertility influencing Policies: Pro-natal and Anti-natal – Sweden and India.
- Migration influencing Policies in India and USA; Concept of Brain Drain.

INTERNAL ASSESSMENT – 10 Marks

*References*

1. Chandna, R. C. (2000): Geography of Population: Concept, Determinants and Patterns, Kalyani Publishers, New Delhi.
2. Clark, J. I. (1973): Population Geography, Pergamon Press, Oxford.
3. Government of India: National Human Development Report 2014 (Published annually).
4. Government of India: Census of India (2001 and 2002).
5. Mitra, A. (1978): India's Population, Vol. I and II, Abhinav Publisher, Nagpur.
6. UNESCO (2014): Human Development Report, Oxford University Press (Published annually).
7. Zelinsky, W. (1966): A prologue to Population Geography, Prentice Hall.



MAJOR COURSE  
SEMESTER - VI  
PAPER - VIII (PRACTICAL)  
Full Marks - 100

GROUP - A (STATISTICS)  
(Marks : 50)

(35 Marks)

❖ Statistical Techniques

- Tabulation and Classification of Statistical Data.
- Diagrammatic representation of Frequency Distribution:
  - Histogram
  - Frequency Polygon
  - Normal and Skewed distribution
  - Ogive (Cumulative Frequency Polygon)
- Measures of central Tendency by means of Mean, Median and Mode:  
Calculation and Diagrammatic Representation.
- Measures of Partition Values: Quartiles, Deciles and Percentiles;  
Calculations and Diagrammatic Representation.
- Measures of Dispersion or Variation:
  - Mean Deviation
  - Quartile Deviation
  - Standard Deviation
  - Coefficient of Variation
- Laboratory Notebook and Viva-voce. (5 Marks)

INTERNAL ASSESSMENT - 10 Marks

*References*

1. Alvi, Z. (1995): Statistical Geography - Methods and Application, Rawat Publications, Jaipur.
2. Das, N. G. (2008): Statistical Methods, McGraw Hills Education (India) Pvt. Ltd.
3. Goon, A. M., Gupta, M. K. and Dasgupta, B. (1992): Fundamentals of Statistics, Vol. 1, The World Press Pvt. Ltd., Kolkata.
4. Goon, A. M., Gupta, M. K. and Dasgupta, B. (1992): Basic Statistics, Vol. 1, The World Press Pvt. Ltd., Kolkata.

GROUP – B (Special Paper Practical on FLUVIAL GEOMORPHOLOGY)

(Marks: 50)

- **Hydrological Analysis** (20 Marks)
- Preparation and Analysis of Hydrograph and Rating Curve.
  - Stream Order after Horton, Strahler, Shreve and Scheidegger.
  - Study of Drainage Patterns from different SOI topographical maps.
  - Study of Fluvial Landforms from different SOI topographical maps.
- **Analysis of a Drainage basin from a SOI topographical map applying Quantitative Methods** (15 Marks)
- Relation between Stream Order ( $n$ ), Stream Number ( $N_n$ ) and Stream Length ( $L_n$ ).
  - Bifurcation Ratio ( $R_b$ )
  - Stream Length Ratio ( $R_L$ )
  - Drainage Density ( $D_d$ )
  - Stream Gradient
  - Form Factor ( $F$ )
  - Circularity Ratio ( $R_c$ )
  - Elongation ratio ( $R_e$ )
  - Longitudinal Profile
  - Cross Profiles
- **Laboratory Notebook and Viva-voce.** (5 Marks)

INTERNAL ASSESSMENT – 10 Marks

*References*

1. Devi, H. I. (2000): River Basin Morphology, Rajesh Publications, New Delhi.
2. Singh, C. P. (2002): Allied Geomorphology, B. R. Publishing Corporation (India) Ltd., Delhi.
3. Thornbury, W.D. (1984): Principles of Geomorphology, Wiley Eastern Limited, New Delhi.

GROUP – B (Special Paper Practical on POPULATION GEOGRAPHY)  
(Marks: 50)

- **Measures of Temporal and Spatial changes** (20 Marks)
- Population growth rate: Absolute and Compound.
  - Population projection by Arithmetic Method.
  - Measures of Fertility and Mortality: Crude Birth Rate (CBR), Gross Reproduction Rate (GRR), Total Fertility Rate (TFR); Crude Death Rate (CDR), Infant and Child Mortality Rate (IMR and CMR), and Maternal Mortality Rate (MMR).
  - Sex Ratio, Work Participation Rate, Ginny's Coefficient and Lorenz Curve.
- **Mapping and Interpretation of Population data** (15 Marks)
- Population Density; Distribution of Rural and Urban Population.
  - Residual Mapping.
  - Mean Centre of population and its shift over time.
- **Laboratory Notebook and Viva-voce.** (5 Marks)

**INTERNAL ASSESSMENT – 10 Marks**

*References*

1. Bandhopadhyaya, T. K. and Sil, A. K. (2004): Byaboharik Bhugol Parichaya (Bengali), Chhaya Prakasoni, Kolkata.
2. Hazra, Y. and Das, D. (2007): Snatak Byaboharik Bhugol, Chhaya Prakasoni (Bengali), Kolkata.
3. Monkhouse, F.J. (1971): Maps and Diagrams, Methuen, London.
4. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. Honours Practical Geography, Kalyani Publishers, Kolkata.
5. Mitra, K., Ghosh, K. and Das, M. (2006): B.A. General Practical Geography, Kalyani Publishers, Kolkata.
6. Sarkar, A. (1998): Practical Geography- A Systematic Approach, Orient Longman Ltd.
7. Singh, R.L. and Singh, R.P.B. (2002): Elements of Practical Geography, Kalyani Publishers, New Delhi.
8. Saikia, R. and Thakuria, G. (2015): Practical Geography, Eastern Book House, Guwahati.
9. Sarkar, A. (2013): Quantitative Geography: Techniques and Presentations, Orient Black Swan Pvt. Ltd.