

**M. A. GEOGRAPHY (SEMESTER – I)**

**Code -GEO – CC-1 (Core Course- 01)  
Geomorphology (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100

ESE : 70 Marks

CIA : 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit)  $10 \times 2 = 20$  marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit)  $4 \times 5 = 20$  marks

**Part – C**

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit)  $3 \times 10 = 30$  marks

<b>Unit I</b>	Concept of Isostasy: Views of Airy & Pratt Continental Drift Theory and Plate Tectonics Theory of Sea Floor Spreading
<b>Unit II</b>	Morphogenic Evolution Models of Davis, Penck and King Models of Slope Analysis Rejuvenation and Multiple Cycle of Erosion
<b>Unit III</b>	Classification and Evolution of: Arid Landforms Glacial Landforms Periglacial landforms Karst landforms
<b>Unit IV</b>	Earth Movements: Endogenetic & Exogenetic Force Folding; Faulting; Land Slides; Earthquake ; Vulcanicity
<b>Unit V</b>	Meaning and Scope of Applied Geomorphology Application of Geomorphology in engineering projects and oil exploration Morphometric Analysis of Drainage basin – Stream Order, Sinuosity Index and Drainage Density
<b>CIA</b>	..... 30 Marks

**Selected Readings:**

1. William, D. Thornbury - Principles of Geomorphology
2. Savindra Singh - Geomorphology
3. Enayat Ahmed - Geomorphology
4. P. Dayal- Geomorphology
5. V. K. Sharma - Geomorphology Earth Surfaces
6. Wooldrige and Morgan - An Outline of Geomorphology
7. R. N. Tikka - Physical Geography
8. P. K. Sen and N. Prasad - An Introduction to the Geomorphology of India
9. D. S. Lal - Physical Geography
10. Cotton - Geomorphology.
11. Sparks, B.W., Geomorphology.
12. Steers, J.A., Unstable Earth.
13. Strahler, A.H. & Strahler, A.H., Elements of Physical Geography.
14. Von Engeln., Geomorphology.
15. Daly; Our Mobile Earth

**Code - GEO –CC- 2 (Core Course-02)  
Climatology and Oceanography (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

**The questions for End Semester Examination Comprises of three parts as mentioned below**

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x5 = 20 marks

**Part – C**

Five long answer Questions - Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x10 = 30 marks

**Unit I**            Composition and Structure of Atmosphere  
                      Insolation; Heat Budget and Heat Balance

**Unit II**            Winds: Permanent and Local  
                      Airmasses: Characteristics and Classification  
                      Fronts: Types of Fronts and associated Weather Conditions  
                      Techniques of Weather Forecasting  
                      Cyclones and Anticyclones

<b>Unit III</b>	Theories of climatic change and Evidences and Causes of Climatic Change Climatic Classification: Koppen, Thornthwate , Trewartha Global Warming: Causes and Consequences El-Nino and La-Nina phenomena in Indian context
<b>Unit IV</b>	Oceanography: Relief Features of Ocean Floor Bottom Relief of Indian and Atlantic Ocean Submarine Canyons
<b>Unit V</b>	Salinity and Ocean Currents Theories of Origin of Tides Coral Reef: Types and Theories
<b>CIA</b>	..... 30 Marks

**Selected Readings:**

1. Savindra Singh – Climatology
2. D. S. Lal – Climatology
3. A. Miller – Climatology
4. E. Aguado E. and J. E. Bent: Understanding Weather and Climate
5. Alka Gautam – Jalvayu Abum Samudra Vigyan
6. Sharma & Vatal – Oceanography for Geographers
7. Blair, T.A., Climatology-General and Regional.
8. Chorley, R.J. & Barry, R.G., Atmospheric Weather and climate.
9. Donn, W.L., Meteorology.
10. Kendrew, W.G., Climates of the Continents.
11. Mather, J.R., Climatology: Fundamental and Applications, 1974.
12. Rama Sastry, A.A., Weather & Weather forecasting.
13. Rummey, G., Climatology and the world's climate.
14. Stringer., Foundation of Climatology.
15. Stringer., Techniques in Climatology
16. Trewartha, G.T., An Introduction to Climate.
17. Davis, R.J.A. 1986, Oceanography – An Introduction of the Marine Environment, Win C. Brown. Iowa.
18. Murray, S.J., 1913, Ocean. A General account of the Science of the sea, Thorton Butter Worth. London.
19. Siddhartha, K. 1999, Oceanography, A Brief Introduction, Kisalaya Pub. Pvt. Ltd., New Delhi..
20. Stahler, A. N. Stahler A.M., 1997, Geography and man's Environment, John Wiley and Sons, New York.
21. Thurnman, H.V., 1978, Introduction to oceanography, Charles E. Merrill Pub. Co., London.
22. Weyl, P.K. 1970, Oceanography an Introduction of the Marine Environment, John Wiley and Sons Ltd., London

**Code - GEO – CC-3 (Core Course-03)**  
**History of Geographical Thought (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

**Part – C**

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

**Unit – I** Contribution by Greek and Roman Scholars with special reference to Eratosthenes, Herodotus, Aristotle, Strabo, Ptolemy  
Contribution by Arab scholars  
Development of Geographical ideas in Ancient India

**Unit II** Dualism in Geography: Determinism vs Possibilism, Physical vs Human, Systematic Vs Regional; Development of Geography during 19<sup>th</sup> century  
Concept of Space- Absolute, Relative and Abstract  
Development of Geography in India

**Unit III** Positivism and Pragmatism  
Paradigms and Paradigm Shift  
Quantitative Revolution: Merits and Demerits.  
Models – Definition and Types

**Unit IV** Applied Geography  
Behavioural Geography  
Radical Geography  
Humanistic Geography

**Unit V** Structuralism  
Functionalism  
Feminism  
Post-Modernism

CIA .....30 Marks

**Selected Readings:**

1. Johnston R. and Sidaway J. (1997) Geography and Geographers
2. Richard Pee (1998) Modern Geographical Thought
3. Milton E. Harvey & Brian P. Holly (ed.) (1989): Themes in Geographical Thought
4. D. Harvey (1969) Explanation in Geography
5. R. Doi (2009) Geographical Thought
6. M. Hussain (2004 rep) Evolution of Geographical Thought
7. S. Adhikari (2009 5<sup>th</sup> Ed.) Fundamentals of Geographical Thought
8. R. D. Dikshit (2002): Geographical Thought: A Conceptual History of Ideas
9. Jagdish Singh (2000) Bhaugolik Chintan Ka Mool Adhar (Hindi)
10. Kaushik (2009) Bhaugolik Chintan avam Bidhitantra (Hindi)
11. V. K. Srivastava (2002) Bhaugolik Chintan Ka Adhar (Hindi)
12. Bansal (2008) Bhaugolik Chintan (Hindi)
13. Lalit Raina (2008) Geographical Thought (English)
14. Ali. S.M., Arab Geography, AMU., Press, Aligarh.
15. Anuchin, V., Directions in Geography.
16. Claval, P., Epistemology and History of Geographical Thought, in progress in Human Geography, Vol.4.
17. Dickinson, R.E., The Making of Modern Geography.
18. Davis, V.K., Conceptual Revolution in Geography.

**Code - GEO –CC-4 (Practical) (Core Course-04)  
Representation and Analysis of Statistical Data (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

In the End Semester Examination questions will be set preferably from each unit out of which candidates are required to answer any three questions.

Each Question will carry 20 marks. (20×3=60 marks)

Practical record and viva voce will comprise 10 marks

<b>Unit I</b>	Population Data - Pie Diagram, Proportionate Circle, Spherical Diagram
<b>Unit II</b>	Climatic Data - Wind Rose, Foster's Climograph, Multiple Line Graph, Interpretation of Weather maps and Topographical maps
<b>Unit III</b>	Economic Data – Band Graph, Traffic Flow Diagram Density of Population – Choropleth and Isopleth Method
<b>Unit IV</b>	Statistical data - Correlation, Regression and Nearest Neighbor Analysis
<b>Unit V</b>	Practical Record and Viva-Voce
<b>CIA</b>	.....30 Marks

### Selected Readings:

1. Monkhouse and Wilkinson - Maps and Diagrams
2. Mahmood, Aslam, "Statistical Methods for Geographical Studies"
3. Campbell, J., Introductory Cartography, Prentice Hall, Inc., Englewood Cliff, New Jersey, 1984.
4. Cuff, D.J., & Mattson, M.T., Thematic Maps, their Design and Production, Mathuen, New York., 1982.
5. Robinson, A.H. & others., Elements of Cartography, John Willey and Sons, New York (New edition).
6. Archer, J.E., & Dalton, T.H., Fieldwork in Geography, London.
7. National Atlas and Thematic Maps Organization (NATMO): National Atlas of India, Calcutta.
8. Monkhouse, F. J., Maps and Diagrams, Methuen & Co., London, 1967.
9. डा० जे० पी० शर्मा प्रयोगात्मक भूगोल की रूपरेखा
10. डा० चतुर्भुज सामोय्या एवं ओ०एम०ल०जैन-मानचित्रांकन एवं प्रायोगिक भूगोल
11. डा० एम० एम० पी० सिन्हा एवं डा० सीमाबाला-उच्चकर्टोग्राफी
12. Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Private Ltd.
13. Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

## M. A. GEOGRAPHY ( SEMESTER – II )

Code - GEO – CC-5 (Core Course-05)

### Regional Planning and Rural Development (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE : 70 Marks

CIA : 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

#### Part – A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

#### Part-B

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x5 = 20 marks

#### Part – C

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x10 = 30 marks

**Unit I** Regions: Concept and Typology  
Formal and Functional Region  
Planning Process – Sectoral, Temporal and Spatial Dimensions

**Unit II** Special Purpose Planning Regions in India:  
River Valley Regions  
Metropolitan Region  
Problem Regions – Hilly Regions, Tribal Regions

**Unit III** Indicators of Development  
Concept of Planning Region and Methods for Delineation of Regions  
Regional disparities in India  
Need for Regional Planning in India  
Regional Development in India – Problems and Prospects.

**Unit IV** Concept of Multi Level Planning  
Role of Panchayati Raj Institutions in Rural Development  
Defining Development and Rural Development; Gandhian approach to rural development

**Unit V** Area Based Approach to Rural Development: Drought Prone Area Programme, PMGSY  
Target Group Approach MGNREGA, Jan Dhan Yojana and PURA  
Health Care Planning and Policies in India

CIA

30 marks

### Selected Readings

1. Bhatt, L.S., 1973, Regional Planning in India, Statistical Publishing Society, Calcutta.
2. Chandana, R.C., 2000, Regional Planning, Kalyani Publishers Ludhiana.
3. Chand, M., Puri, & V.K., 1983, Regional Planning in India, Allied Publishers, New Delhi.
4. Friedman, J., & Alonso, W., 1967 Regional Development and Planning-A Reader, MIT Press, Cambridge Mass.
5. Glasson, 1980, Regional Planning, Hutchinson, London.
6. Glikson, A., 1955, Regional and Development, Netherlands, Universities Foundation of International Corp, London.
7. Mishra, R.P., 1969, Regional Planning Concepts, Techniques and Policies, University of Mysore, Mysore.
8. Mishra R.P., et.al., 1974, Regional Development and Planning in India, Institute of Development Studies, Mysore.
9. Rao, V.L.B., 1960, Regional Planning, Asia Publishing House, New Delhi.
10. Kant Surya et.al (eds): Reinventing Regional Development, Rawat Publication, Jaipur and N.Delhi.
11. श्रीवास्तव शर्मा एवं चौहान-प्रादेशिक नियोजन एवं संतुलित विकास
12. Singh, K., Rural Development, SAGE

### Code - GEO – CC-6 (Core Course-06)

### Environment and Disaster Management (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE : 70 Marks

CIA : 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

#### Part – A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

#### Part-B

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

#### Part – C

Five long answer Questions - Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

#### Unit I

Meaning and Scope of Environmental Geography, Environmentalism  
Ecology and Dynamics of Ecosystem  
Types of Ecosystem- Marine and Terrestrial

#### Unit II

Environmental Degradation: Causes and Effects  
Pollution - Air Pollution, Water Pollution, Soil Pollution  
Biodiversity Hotspot in India, Conservation: Ex-Situ & In-Situ, IUCN- Red DataBook



**Unit III** Global Warming – Causes and effects  
Sea-level changes  
Ozone depletion  
Climatic changes

**Unit IV** Environmental Hazards and Disasters: Flood and Droughts in India;  
International Environmental Treaties: The Stockholm Conference, Earth Summit,  
Kyoto Conference, Convention on Biodiversity: Agenda 21, SDG, Paris Agreement  
National Action Plan on Climate Change in India

**Unit V** Disaster – Man-made disasters, their types – Technological and Industrial Disasters.  
Man-made disasters – Examples from India  
Mapping the Disasters

**CIA** ..... 30 Marks

**Selected Readings:**

1. Gaur, S., and Chandrashekhar, T., 2006, Global Environmental Crisis, Book Enclave, Jaipur.
2. Chandna, R.C., 1998, Environmental Awareness, Kalyani Publishers, New Delhi.
3. Gupta, P.D., 2003, Environmental Issues for the 21<sup>st</sup> Century, Mittal Publications, New Delhi.
4. Morris, D., Freeland, J., Hinchliff, S., Smith, S. (ed.), 2003, Changing Environments, Pd. John Wiley and Sons Ltd., The Open University, U.K.
5. Park, C.C., 1980, Ecology and Environmental Management, Butterworths, London.
6. Radha, S., and Sankhyan, A.S., (ed.), 2004, Environmental Challenges of the 21<sup>st</sup> Century, Deep Publications, New Delhi.
7. Rasure, K.A., 2007, Environment and Sustainable Development, Serials Publications, New Delhi.
8. Saxena, H.M., 2006, Environmental Studies, Rawat Publications, Jaipur.
9. Singh, S., 1991, Environmental Geography, Prayag Publication, Allahabad.
10. Strahler, A.N., and Strahler, A.M., 1997, Geography and Man's Environment, John Wiley and Sons, New York.
11. Taj, B., Murphy, P. and Rana, P.S., 2007, Environmental Impact Assessment, An Indo – Australian Perspective, Bookwell New Delhi.
12. Verma, S. B. and Shiva, K.S.,(ed.), 2005, Environmental Protection and Development, Deep Publications, New Delhi.
13. Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
14. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Pub. , New Delhi.
15. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.
16. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi.
17. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
18. Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
19. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.

**Code - GEO – CC-7 (Core Course-07)**  
**Resource and Economic Geography (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

**The questions for End Semester Examination Comprises of three parts as mentioned below**

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x5 = 20 marks

**Part – C**

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x10 = 30 marks

**Unit I** Factors affecting Economic activities  
Natural Resources: Conservation and Management with special reference to  
Water Resources and Biotic Resources  
Energy Resources: Conventional & Non-Conventional  
World Energy Crisis

**Unit II** Von Thunen's Model of Land use Planning  
Crop Diversification, Agricultural Productivity  
Crop Combination Region: Weaver, Doi & Rafiullah  
Food Production and Food Security

**Unit III** Distribution and Production in the World: Iron, Copper and Atomic minerals  
Industrial regions of USA and Japan

**Unit IV** Weber's Model and Smith's Model of Industrial location  
Iron and Steel Industry of the World with special reference to China and India  
Petro-Chemical Complexes with Reference to India

**Unit V** World Trade Theories and Pattern  
Impact of Globalization on World Economy  
Role of WTO in World Trade  
Concept of Export Processing Zone and SEZ (Special Economic Zone)

**CIA** ..... 30 marks

### Selected Readings:

1. Alexander, J. W. & Hartshorne, T. A. (1995): Economic Geography.
2. Hussain Majid, Economic Geography
3. Guha, J. L. & Chattoraj, P. R. (1998): A New Approach to Economic Geography: A Study of Resources
4. Singh, J & Dhillon, S. S. (1984) Agricultural Geography, New Delhi, Tata McGraw Hills.
5. Boesch, H., A Geography of world Economy.
6. Brian, J.L., Berry et al., The Geography of Economic Systems.
7. Barlow, M.H. & R.G. Newton., Patterns and Processes in Man's Economic Environment.
8. Chisholm, M., Geography and Economics.
9. Jones, C.F., Economic Geography.
10. Grigg, D.B., Agricultural Systems of the World: An Evolutionary.
11. Lloyd, P. & P. Dickens., Location in Space; A Theoretical Approach to Eco. Geo.
12. Strahler, A.N. & A. Strahler., Geography and Man's Environment.
13. Thoman, R.S. & E.C. Conkling., The Geography of Economic Activity.
14. Thoman, R., "Econ.Geog." in International Encyclopaedia of S.Science.
15. Miller, E. & E. Willard., A Geography of Manufacturing.
16. Mc. Carty, H. & J.B.Lindberg., A preface to Economic Geography.
17. Von Royen, W., Fundamentals of Economic Geography.
18. William Von Royen, et. al., Fundamentals of Economic Geography.
19. Zimmerman, E.W., World Resources and Industries.
20. Hartshon, T.A., Economic Geography.
21. Majid Husain, Economic Geography

### Code - GEO CC-8 (Core Course-08) Geography of India (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE : 70 Marks

CIA : 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

#### Part – A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

#### Part-B

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

#### Part – C

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

#### Unit I

- India – Relief and Structure; Peninsular and Himalayan Drainage
- Origin and Mechanism of Indian Monsoon
- Soils of India: Their types, Soil Erosion and Conservation

<b>Unit II</b>	Forest Resources in India Sources of Power: Coal, Petroleum and Hydro-electricity, Non Conventional Sources of Energy
<b>Unit III</b>	Industrial Regions of India Industrial Policy of India: Concentration and Dispersal Agricultural Revolutions in India – Green, Blue, Yellow and White
<b>Unit IV</b>	Human Resources and Social well being: Social well- being and its indicators Human Development Index (HDI) Food Problems and Food Security in India Cultural Regions of India
<b>Unit V</b>	Spatial distribution of Tribes, Major Linguistic Groups and Ethnicity, Social and Gender inequality in India
<b>CIA</b>	..... 30 Marks

**Selected Readings:**

1. Spate O. H. K. & Learmont- Geography of India & Pakistan
2. Ramamoorthy & GopalKrishnam - Geography of India
3. Singh, Gopal - Geography of India
4. Singh, Jagdish - INDIA: A Comprehensive Systematic Geography
5. Puri, G.S., Indian forest Ecology, New Delhi.
6. Ray Chaudhary, S.P. Land and soil, New Delhi
7. Krishnan, M.S., Geology of India and Burma
8. Das, P.K., The Monsoon, New Delhi
9. Wadia, D.N., Geology of India, London.
10. चतुर्भुज ममोरिया - भारतकाभूगोल
11. चौहान बी० एस० एवं गौतमअलका - भारत : A Geography of India
12. सिंह ए गोपाल- भारतकाभूगोल

**Code - GEO – CC-9 (Practical) (Core Course-09)  
Cartographic Techniques (5 Credits)**

Time: 3 Hours (ESE.)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

In the End Semester Examination questions will be set preferably from each unit out of which candidates are required to answer any three questions.

Each Question will carry 20 marks. (20×3=60 marks)

Practical record and viva voce will comprise 10 marks

<b>Unit I</b>	Cartograms: Hypsographic, Climographic and Altimetric Frequency Curve
<b>Unit II</b>	Relief Profiles: Serial, Superimposed, Composite and Projected Slope Analysis by: Smith, Henry and Wentworth Methods
<b>Unit III</b>	Map Projections: Mercator's, Sinusoidal, Gall's and International Projection
<b>Unit IV</b>	Interpretations of Aerial Photographs, Satellite Imagery Geological section and Interpretation of Geological Maps
<b>Unit V</b>	Practical Record and Viva-Voce
<b>CIA</b>	..... 30 Marks

**Selected Readings:**

1. Monkhouse and Wilkinson - Maps and Diagrams
2. Mahmood, Aslam, "Statistical Methods for Geographical Studies"
3. Campbell, J., Introductory Cartography, Prentice Hall, Inc., Englewood Cliff, New Jersey, 1984.
4. Cuff, D.J., & Mattson, M.T., Thematic Maps, their Design and Production, Methuen, New York., 1982.
5. Robinson, A.H. & others., Elements of Cartography, John Willey and Sons, New York (New edition).
6. Archer, J.E., & Dalton, T.H., Fieldwork in Geography, London.
7. National Atlas and Thematic Maps Organization (NATMO): National Atlas of India, Calcutta.
8. Monkhouse, F.J., Maps and Diagrams, Methuen & Co., London, 1967.
9. Singh and Singh - Practical Geography
10. Spurr S.H., Photogrammetry & Photo Interpretation, New Delhi., 1960.
11. Stersheew, A.I., Aerial Photography.
12. Tomar, M.A. & Maslakar, A.R., Aerial Photographs in Landuse & Forest Survey, Dehra- Dun,
13. Thomas, E.A., Interpretation of Aerial Photographs, Minnesota.
14. Usill, G.W. (Revised by Hearn, G.S.G) Pract. Surveying, London, 1960.
15. White, L.P., Aerial Photography & Remote Sensing for Soil Survey.
16. Campbell, James, B., Introduction to Remote Sensing- 2nd Edi. Taylor & Francis, London
17. Platt and Charliner - Simple Geological Structures
18. डा० जे० पी० शर्मा-प्रयोगात्मकभूगोल की रूपरेखा
19. डा० पी० आर० चौहान-प्रयोगात्मकभूगोल
20. डा० चतुर्भुजमामोरिया एवं जे०दामलजैन-मानचित्रांकन एवं प्रायोगिकभूगोल
21. डा० हीरालाल प्रयोगात्मकभूगोल
22. डा० एम० एम० पी० सिन्हा एवं डा० सीमाबाला-उच्चकार्टोग्राफी
23. सिंह जगदीश और श्री. पी. राव - भौमिकीय मानचित्रों की रूपरेखा

**M. A. GEOGRAPHY ( SEMESTER – III )**  
**Code - GEO – CC-10 (Core Course-10)**  
**Quantitative Techniques and Research Methodology (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100

ESE : 70 Marks

CIA : 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit)  $10 \times 2 = 20$  marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit)  $4 \times 5 = 20$  marks

**Part – C**

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit)  $3 \times 10 = 30$  marks

**Unit I** Quantitative Methods in Geography: Merits and limitations, Research types and Methodology, Research Problems and Research Design, Review of Literature

**Unit II** Data collection and classification, Questionnaire and Schedules, Sampling Types – Random, Stratified and Purposive.

**Unit III** Hypothesis: Concept and Types, Procedure for Hypothesis Testing, Chi-Square Test, Student's 't' Test

**Unit IV** Correlation Coefficient Techniques-Pearson and Spearman, Simple Linear Regression Analysis, Analysis of Variance (ANOVA), Multivariate Analysis-Importance and its Application

**Unit V** Models and Analogue, Types of Model, Gravity Potential Model, Population Potential Model

**CIA** ..... 30 Marks

**Note: Use of MS-EXCEL shall be promoted during the classroom teaching**

**Selected Readings:**

1. Mahmood, Aslam. "Statistical Methods for Geographical Studies"
2. Koshari, K. C., "Research Methodology in Social Sciences"
3. Suleman, M., Research Techniques and Methods in Social Sciences
4. Adhikari, S. (2005): Fundamentals of Geographical Thought, Allahabad
5. Chorley, R. J. & Haggett, P. (ed.) (1967): Models in Geography, London

6. Hartshorne, R. (1994 Indian Print): The Nature of Geography, Jaipur, Rawat Publication
7. Harvey: Explanation in Geography
8. Kaushik D., S. D. (2001) Bhougolik chintan aur Vidhitantra (Hindi)
9. Hammond / Mc Cullah., Quantitative Techniques in Geography, Oxford, 1974.
10. Gregory, S., Statistical Method for Geography, Longman, 1975.
11. Berry, B.J.L., & Marble, D.F., Spatial Analysis: A Reader in Statistical Geography, New Jersey, 1968.
12. Cole, J.P., & King, C.A.M., Quantitative Methods in Geography, New York, 1968.
13. King, L.J., Statistical Analysis in Geography, New Jersey.
14. Johnson, R.J., Multivariate Statistical Analysis in Geography, 1978.
15. Elhance, D.N., Elementary Statistics.
16. Pal, S.K., Statistical Methods in Geography.
17. Alvi, Zamiruddin., Statistical Geography.

**Code - GEO – CC-11 (Core Course-11)**

**Remote Sensing and Geographical Information System (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100

ESE : 70 Marks

CIA : 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x5 = 20 marks

**Part – C**

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x10 = 30 marks

- |                 |   |
|-----------------|---|
| <b>Unit I</b>   | Meaning and Definition of Remote Sensing, Historical Development, Significance and Utility of Remote Sensing in Geography.    |
| <b>Unit II</b>  | Remote Sensing Platforms, Geo-Stationary and Sun-Synchronous Satellites: LANDSAT, IRS, and QUICK- BIRD Series.                |
| <b>Unit III</b> | Sensors and Resolution, Interpretation of Aerial Photographs and Satellite Imagery, Digital Elevation Model (DEM)             |
| <b>Unit IV</b>  | Concept and Principles of GIS, Elements of GIS, Nature and Source of Data Projection and Georeferencing, Digital cartography. |

**Unit V** GIS Data Structure: Raster Vs. Vector Data structure, G.P.S.:- Concept and Applications, Application of Remote Sensing and GIS : Land Information System, Urban Management and Disaster Management.

**CIA** ..... 30 marks

**Selected Readings:**

1. Avery, T. E. (1962): Interpretation of aerial photograph. Minneapolis.
2. Dury, G. M. (1952): Map Interpretation
3. Cunan, R. J. (1985): Principles of Remote Sensing.
4. Lillesand, T. M. & Kiefer, R. W. (1979): Remote Sensing and Image Interpretation. New York.
5. Sabins, F. F. (1997): Remote Sensing and Interpretation, New York.
6. Campbell, J. B. Introduction to Remote Sensing, London.
7. Fraser Taylor, D. R. (1991): Geographical Information System, London.
8. DevidattChauniyal, SudoorSamvedanevamBhaugolikSoochnaPranali.
9. Siddiqui. An Introduction to Geographical Information System.
10. American Society of Photogrammetry: Manual of Photographic Interpretation , Banta Pub. Co., Wisconsin, 1960.
11. Baret, E.C. & Curtis, L.F., Introduction of Environ. Remote Sensing, 1976.
12. Hord, R.M., Remote Sensing: Methods and Applications, N.Y., 1986.
13. Lender, D.R., Aerial Photographic, Mc Graw Hill, N.Y., 1960.
14. Luder, D., Aerial Photography Interpretation: Princ. and Appl., McGraw Hill, New York., 1959.
15. Lilles & Kiefer, Remote Sensing & Image Interpretation.
16. Reeves, R.G.(Ed.) Manual of Remote Sensing (Vol.2), Virginia, 1975.
17. Smith, H.T.V., Aerial Photographs & their Applications, New York, 1943.
18. Spurs S.H., Photogrammetry & Photo Interpretation, New .Delhi., 1960.
19. Stersshew, A.I., Aerial Photography.
20. Tomar. M.A. & Maslakar, A.R., Aerial Photographs in Landuse & Forest Survey, Dehra-Dun.
21. Thomas. E.A., Interpretation of Aerial Photographs, Minnesota.
22. Usill, G.W. (Revised by Hearn, G.S.G) Pract. Surveying, London, 1960.
23. White, L.P., Aerial Photography & Remote Sensing for Soil Survey.

**Code - GEO – CC-12 (Core Course-12)  
Human and Social Geography (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

**The questions for End Semester Examination Comprises of three parts as mentioned below**

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks



CC-12  
Human Geog. & Social Geog.

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

**Part – C**

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

- Unit I**      Meaning, Definition and Scope of Human Geography  
Approaches to Human Geography, Critical Human Geography  
Growth, Distribution and Density of World's Population  
Migration: Causes and Consequences
- Unit II**      Human Settlement: Types and Patterns of Rural Settlements.  
Processes and Pattern of Urbanization in the World. (Urbanization and Related problems)  
Primate City & Rank-Size Rule  
Megacities, Global cities & Edge cities
- Unit III**      Meaning and Scope of Social Geography  
Cultural Evolution of Man  
Major Human Races in the World- Negroid, Mongoloid, Caucasoid  
Major World Religions: Their Origin, Diffusion and Spatial Distribution.  
Major World Languages: Their Origin, Diffusion and Spatial Distribution.
- Unit IV**      Concept of Social Justice and Social Well-being.  
Social Structure, Process and Social Pattern.  
Components of Quality of Life and its Spatial Pattern  
Globalization and Social Transformation.
- Unit V**      Spatial Distribution of Social Groups in India:  
Tribes, Caste, Religion and Language
- CIA**      ..... 30 Marks

**Selected Readings:**

1. An Introduction to Social Geography, Emery Jones and John Eyles
2. Cultural Geography – Mike Crang
3. Sociology and Social Anthropology – M. S. Goal
4. Social Geography – A. Ahmad
5. Social Geography – Majid Husain

6. Social Geography – Ruth Panelli
7. Rural Sociology in India – A. R. Desai
8. Readings in Social Geography – Emery Jones
9. Human Geography – Paul. L. Knox, S. A. Marston
10. International Encyclopedia of Geography, Vol. VIII (Social Geography) – Subhash Mehtani, Amarjit Sinha, Common Wealth Publication Pvt. Ltd., New Delhi
11. Cultural Geography: Form & Process – Neelam Grover and Kashi Nath Singh, Concept Publishing Company, Delhi
12. Social Geography of India – Ashok Kumar, Anmol Publications, New Delhi
13. सांस्कृतिक भूगोल – श्रीकान्तदीक्षित एवंरामदेव त्रिपाठी, वसुन्धराप्रकाशन, गोरखपुर
14. सामाजिक भूगोल – डॉ० एस० डी० मौर्य
15. सांस्कृतिक भूगोल – इन्दिरा सिंह, युनिवर्सिटीपब्लिकेशन, नयीदिल्ली
16. सांस्कृतिक भूगोल – गायत्री प्रसाद

**Code - GEO – CC-13 (Core Course-13)**  
**Land use and Agriculture Geography (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100

ESE : 70 Marks

CIA : 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

**Part – C**

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

**Unit I**

Agriculture and Agricultural Geography  
Origin and development of Agriculture  
Model of Landuse : Von Thunen, Jonassan

<b>Unit II</b>	Landuse Survey and classification: U. K. and India Landuse pattern in India Land capability classification Planning of Landuse in India	
<b>Unit III</b>	Factors influencing Agricultural Pattern Innovation and Technology in Agriculture Agricultural Systems of the world Delineation of Agricultural regions	
<b>Unit IV</b>	Measurement of Agricultural productivity and efficiency Crop-combination and Crop diversification Methods of Delineating Crop combination region: Weaver & Rafiullah	
<b>Unit V</b>	Green Revolution and White Revolution in India Cropping pattern and Agro-climatic regions of India Agricultural problems and policies, Food Security in India	
<b>CIA</b>	.....	30 Marks

**Selected Readings:**

1. Hussain, Majid – Agriculture Geography
2. Singh J. & Dhillon, S. S. – Agriculture Geography
3. B. S. Negi – Krishi Bhugol
4. Sharma, B. I. – Krishi Bhugol
5. Wrigley – Tropical Agriculture
6. Ali Mohammad – Studies in Agriculture Geography
7. Krishna, D. – The New Agricultural Strategy
8. Dutta and Sundaram – Indian Economy
9. Kumar, Pramila and Sharma, S.K. : Krishi Bhoogol
10. Smith, T.P. Bayliss: The Ecology of Agricultural Systems
11. Morgan, W.B. and Norton J.C.; Agricultural Geography
12. Singh, B.B.: Krishi Bhoogol
13. Symons, I.: Agricultural Geography
14. Shafi, M: Agricultural Geography
15. Tiwari, R.C. and Singh, B.N.: Krishi Bhoogol

**Code - GEO – CC-14 (Practical) (Core Course-14)**  
**Maps and Surveying (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

In the End Semester Examination questions will be set preferably from each unit out of which candidates are required to answer any three questions.

Each Question will carry 20 marks. (20×3=60 marks)

Practical record and viva voce will comprise 10 marks

**Unit I** Survey by Levelling instrument  
Prismatic Compass and Theodolite

**Unit II** Types of Maps, Techniques of Map Making,  
Data Representation on Maps: Pie, Bar, Line Graph

**Unit III** Digital Image Processing  
Georeferencing using GIS  
Digitization of Maps

**Unit IV** Field Study Report/ Excursion

**Unit V** Practical Record and Viva-Voce

**CIA** .....30 Marks

**Note: Departments are requested to introduce open source software like Q GIS**

**Selected Readings:**

1. M. M. P. Sinha & Seema Bala– Advanced Cartography ( mPpdkVksZxzkQh)
2. Kanetkar – Surveying and leveling Vol. I & II
3. Punamia- Surveying Vol. I , II & III
4. J. P. Sharma – çksxkRed Hkwxsy dh :ijs[kk
5. Punmia, B.C., Surveying and Leveling, Vol I.
6. Alvi, Zamiruddin, A Text Book of Surveying
7. Basak, N.N. 2017. Surveying and Levelling, 2nd ed, McGraw Hill Education.
8. Bolton, T. 2009 (reprint). Geological Maps: Their Solution and Interpretation, Cambridge Univ. Press.
9. Kanetkar, T.P., Kulkarni, S.V. 1988. Surveying and Levelling, Part I, Pune Vidyarthi Griha Prakashan.
10. Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams
11. Robinson, A.H., Morrison, J.L., Phillip, C.M., Kimerling, A.J., Guphill, S.C. 1995. Elements of Cartography, 6th ed, Wiley.
12. Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Private Ltd.
13. Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.
14. Siddiqui, An Introduction to Geographical Information System
15. Tomlin, C.D. . GIS and Cartographic Modelling , Prentice Hall

**M. A. GEOGRAPHY ( SEMESTER – IV )**  
**Code - GEO – EC-1 A (Elective Course-01)**  
**Urban Geography (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

**The questions for End Semester Examination Comprises of three parts as mentioned below**

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x5 = 20 marks

**Part – C**

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x10 = 30 marks

**Unit – I**      Definition and Scope of urban geography, Development of urban geography in India  
Urban ecology and Urban System  
Basis of urban functions and functional classification of towns

**Unit II**      Rank-Size Rule and Primate City  
Urban hierarchy  
Million Cities and Mega Cities  
Concept of Megalopolis and Metropolitan regions

**Unit III**     Concept of urban morphology  
Theories of urban landuse – Burgess, Hoyt, Harris and Ullman  
Concept and characteristic of CBD  
Conurbation, Urban Agglomeration in context of India

**Unit IV**     Trend of Urbanization in India and the World  
Concept of City region  
Concept of Umland  
Rural urban fringe

**Unit V**      Urban problems with reference to slums  
Urban poverty  
Urban planning policies in India  
Smart city concept

**CIA** ..... 30 Marks

### Selected Readings:

1. Carter, H. (1972) The Study of Urban Geography, Arnold Heinemann
2. Geddes, P. (1968) Cities in Evolution, Benn Publisher.
3. Hall, P. (1992) Urban & Regional Planning, Routledge, London
4. Johnson, J. (1972) Urban Geography: An introductory Analysis, Germ Area
5. Mayer & Kohn (1959) Readings in Urban Geography, Chicago Area
6. Scott, J.A. (2001) Global city Region, Oxford University area, U.K.
7. Sinha M. M. P. & Seema Bala: Nagariya Bhoogol (Hindi)
8. Bansal: Nagariya Bhoogol (Hindi)
9. Alam, S.M., Hyderabad-secundarabad Twin Cities, Asia Publishing House, Bombay.
10. Berry, B.J.L and Horton, F.F., Geographic perspectives on Urban Systems, Prentice Hall, Englewood Cliff, New Jersey, 1970.
11. Beaujeu Garnier, J., Chabot, G., Urban Geography, London, 1969.
12. Dickinson, R.E., 1964., City and Region, Routledge, London.
13. Gibbs, J.P., Urban Research Methods, New Jersey, 1961

### Code - GEO – EC-1 B (Elective Course-01) Political Geography (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE : 70 Marks

CIA : 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

#### Part – A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

#### Part-B

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x5 = 20 marks

#### Part – C

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x10 = 30 marks

#### Unit – I

Meaning and scope of Political Geography;  
Approaches to Political Geography; Functional and Unified Field Theory Approaches  
Geopolitics; Classical Geopolitics and Critical Geopolitics

#### Unit-II

Geopolitical World Order: Origin and Cessation of cold war;  
Global Strategic Views: H. J. Mackinder, N G Spykman,  
Geopolitics of Asia-Pacific

- Unit- III**      Concept of Nation and State  
Land-Locked States  
Frontiers and Boundaries  
Maritime Boundaries
- Unit –IV**      Changing Political map of India: State re-organization  
Geographical Bases of Indian Federalism  
River water Disputes – International and National
- Unit- V**        Sino-Indian Border Dispute  
Kashmir Problem  
Geopolitics of Indian Ocean: Sino Indian Rivalry  
Regionalism in India and Regional Organisation  
Geopolitical codes of India

CIA ..... - 30

**Selected Readings:**

1. John R. Stuart (1982) - An Introduction to Political Geography
2. Richard Muir (1995) - Modern Political Geography
3. Bergman K. Edward (1975) - Modern Political Geography
4. Lucie Carlson (1971) - Geography and World Politic
5. S. B. Cohen (1968) - Geography and Politics in a Divided world
6. N. J. G. Pounds (1972) - Political Geography
7. I. M- Alexander (1963) - World Political Systems
8. P. J. Taylor & C. Flint: (2004 India. Ed) - Political Geography
9. R. D. Dikshit (1982) - Political Geography
10. S. Adhikari (1997) - Political Geography
11. B. L. Sukhwal (1985) - Modern Political Geography of India
12. S. Adhikari (2008) - Political Geography of India: A contemporary Perspective.
13. G. Parkar (1998) - Geopolitics: Past, Present and Future.
14. S. K. Dikshit (2006) - Political Geography and Geo- politics
15. Hari Mohan Saxsena (2009) - Political Geography
16. S. Adhikari and Ratan Kumar (2010) -Political Geography

**Code – EC-1 C (Elective Course-01)  
Population Geography (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

**The questions for End Semester Examination Comprises of three parts as mentioned below**

EC.-O/C.  
Population Geography

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x5 = 20 marks

**Part – C**

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x10 = 30 marks

<b>Unit I</b>	Nature and Scope of Population Geography, Historical development of Population Geography, Relationship with Demography, Sources of Population Data: The Census, vital registration and other sources.
<b>Unit II</b>	Population distribution, growth and determinants: Pre-historic, ancient, medieval and modern period; Theories of Population Growth: – Malthus, Marx and Demographic Transition
<b>Unit III</b>	Population Dynamics: <u>Fertility-measurement</u> ; Mortality measurement, determinants and distribution; Migration: Brief history, trends and pattern of international migration, migration in India, Indian Diaspora.
<b>Unit IV</b>	Population Regions: Typology of population regions, Ackerman scheme of population resource region. <u>Human security</u> - economic, food and health.
<b>Unit V</b>	✓ Growth and distribution of population in India Population composition of India Internal migration in India Trends of urbanization Urban problems
CIA	..... - 30

**Selected Readings:**

1. Chandana, R. C. – A Study in Population Geography
2. Ghosh, B. N. – Population Geography
3. Hiralal – Jansankhya Bhoogol
4. Bhende and Kantkar – Population Studies
5. Singh, R. L. – Practical Geography
6. Sharma J. P. Prayogic Bhoogol Ki Rooprekha (Hindi)



7. Bhende, A.A. & Kanitkar, (2014), Principles of Population Studies, Himalayan Pub. H., Mumbai.
8. Bogue, D. J., Principles of Demography, New York, 1969.
9. Chandna, R.C., Geography of Population: Concepts Determinants and Pattern, Kalyan Pub. Ludhiana, 2014.
10. Clarke, J.I. Population Geography, Oxford, 1981.
11. Hassan M.I., Population Geography, Rawat Pub. Jaipur, 2008.
12. Jhingan M.L. Bhatt B.K. and Desai, J.N. Demography, Vrid Pub. Delhi, 2006
13. Khullar D.R., India: A comparative Geography, Kalyan Pub. Ludhiana, 2014.
14. Mandal, R.B. Uyanga J and Prasad H., Introductory Methods in Population geography, Concept Pub. Co. New Delhi-2007.
15. Maurya S.D., Population Geography, Pravalika Pub, Allahabad, 2014.
16. Newbold, K.B.- Population Geography: Tools and Issues, Rawat Pub. Jaipur, 2012.
17. Palmore, J.A. and Gardner R.W. Measuring, Mortality, Fertility and Migration: A Self Teaching Guide to Elementary Measures. The East-West Centre, Honolulu, 1987.
18. IPoston, Jr D.L. and Bouvier L.F., Population and society: An Introduction to Demography, Cambridge Uni. Press, New York, 2010.
19. Premi M.K. and Das D.N., Population of India 2011, B.R. Pub. Delhi, 2012.
20. Srinivas, K. Basic Demographic Techniques and Applications, Sage Pub. New Delhi, 1998.
21. Trewartha, G.T., A Geography of Population: World Patterns, NY. 1969.

**Code- GEO –EC-1 D (Elective Course-01)  
Geology of India (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100

ESE : 70 Marks

CIA : 30 Marks

**The questions for End Semester Examination Comprises of three parts as mentioned below**

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

EC - 1D.  
Geology of India

**Part - C**

Five long answer Questions - Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

- Unit I** Definition, scope and function of Geology, Principles of correlation, Standard Stratigraphic scale, Indian Stratigraphic scale.
- Unit II** Origin, geographical distribution and lithological characteristics of Dharwar system, Vindhyan system, Gondwana system and Deccan Lava system.
- Unit III** Classification, mode of occurrence and distribution of the following minerals with special reference to India – Iron ore, Mica, Bauxite and Copper
- Unit IV** Classification mode of occurrence and distribution of energy resources in India: Coal, Petroleum, Uranium and Thorium
- Unit V** Rocks and mineral association, form, structure and classification of igneous rocks, Origin and types of sedimentary rocks, Process of metamorphism, Types and characteristics of metamorphic rocks.

CIA ..... - 30

**Selected Readings:**

1. Wadia, D. N. – Geology of India
2. Mukharjee, P. K. – Physical Geology
- 3<sup>प</sup> D. P. Singh – भारतका भूवैज्ञानिक परिचय
4. Mehar D. N. Wadia – Minerals of India
5. Gokhale and Rao – Minerals of India
6. Platt and Charliner – Simple Geological Structures
- 7<sup>प</sup> Karna, N. N. – सरल भूवैज्ञानिक संरचनाएँ
- 8<sup>प</sup> Singh, Jagdish & B. P. Rao – भौमिकीय मानचित्रों की रूपरेखा

**Code- GEO –EC-1 E (Elective Course-01)**  
**Settlement Geography (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

**The questions for End Semester Examination Comprises of three parts as mentioned below**

Geo. EC-1E Elective course  
Settlement Geography

**Part - A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

**Part - C**

Five long answer Questions - Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

- Unit I**      Meaning and Scope of Settlement Geography  
Development of Settlement Geography in India  
Evolution of Settlement in the Middle Ganga Valley  
Types of Rural settlement in India
- Unit II**      Old Sites of Settlements and Nomenclature  
Development of Different forms of Rural settlements  
Morphological features of Rural Settlements  
Problems of rural settlements
- Unit III**     Rural house types in different geographical environment in India  
Rural – Urban continuum  
Rural Service centres  
Hierarchy of settlements
- Unit IV**     Locational and functional features of urban settlements  
Morphological features of Indian cities  
Problems of Indian urban centres  
Problems of slums in India
- Unit V**      Planning of Rural settlements  
Planning of urban settlements  
Metropolitan region  
Planned urban centres of India

**CIA** ..... 30 Marks

**Selected Readings:**

1. Hopkinson, D. (1989) Geography of Settlement, Oliver & Boyd
2. Hudson, F. S. (1970) Geography of Settlement, Mackold&Erau.
3. Singh, R. L. (Ed.) Rural Settlements in Monsoon Asia
4. Carter, H. (1972) The Study of Urban Geography, Arnold Heinemann

5. Misra, R. P. & K. Misra (Ed.) Million Cities of India, Nice Publisher
6. Singh, R. Y. : An Introduction of settlement Geography
7. Ghosh, S. : Settlement Geography
8. Sinha, V.N.P., Verma U., & Sahay A.- Introduction to Settlement Geography

**Code- GEO –EC-1 F (Elective Course-01)  
Advance Cartography (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

**The questions for End Semester Examination Comprises of three parts as mentioned below**

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x5 = 20 marks

**Part – C**

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x10 = 30 marks

**Unit –I**

Brief history of cartography and its present status;  
Fundamentals of computer based cartography and its application;  
Thematic maps –types and their use.

**Unit-II**

Mathematical construction and characteristics of the following map projections –  
Conical Equal- Area with one standard parallel (Lambert's V); Gnomonic projection  
(Equatorial Case); Stereographic projection (Equatorial Case); Cassini's Projection

**Unit III**

Principles of triangulation Survey; Measurement of base-line in triangulation survey.  
Definition and characteristics of the following astronomical terms – Azimuth, Right  
Ascension, Hour Angle, Star at elongation, Altitude, Declination.

**Unit IV**

Brief history and basic principle of Photogrammetry;  
Types and scales of aerial photographs.  
Interpretation of aerial photographs.

**Unit V**

Brief history of satellite remote sensing;  
Concept of remote sensing;  
Development of remote sensing in India;  
Elements of the interpretation of satellite imageries.

CIA

..... 30 Marks

### Selected Readings:

1. F. J. Monkhouse – Maps & Diagrams & H. R. Wilkinson
2. Sinha, M. M. P. & Bala, Seema – Advanced Cartography, Sharda Publication, Allahabad
3. Kanetkar – Surveying and leveling Vol- II
4. Punmia, B. C. – Surveying Part II & III
5. Sarkar, A. - Practical Geography: A Systematic Approach, Orient Blackswan Private Ltd.
6. Singh, R.L. and Singh, R.P.B. - Elements of Practical Geography, Kalyani Publishers, New Delhi
7. Maltiar, K.K. and Maltiar, S.R. – Concept of Cartography, Remote Sensing and G.I.S. – Rajesh Publication, New Delhi
8. Devis, R.E., Foote, F.S. and Kelly, J.W. – Surveying : Theory and Practice
9. Misra, R. P., Singh, R. B., Misra, Brijesh and Pandey, Anupam – Fundamentals of Cartography, Concept Publishing Company Pvt. Ltd., New Delhi
10. Narayan, L.R.A. - Remote Sensing and its Application, Universities Press, Hyderabad
11. Venkatramaiah, C. -Textbook of Surveying, Universities Press, Hyderabad
12. Joseph, George – Fundamentals of Remote Sensing, Universities Press, Hyderabad
13. Fazal, S. – Remote Sensing Basics, Kalyani Publishers, Ludhiana
14. Lillesand, T.M., Kiefer, R.W. and Chipman, J.W. – Remote Sensing and Image Interpretation, Wiley India Pvt. Ltd., New Delhi

### GEO – EC-2 Elective Course – 02 Dissertation /Project Work (5 Credits)

Full marks-100  
ESE- 70  
CIA- 30

Students have to prepare a Dissertation / Project work based on Socio-Economic survey.

The topic will be approved by departmental council.

ESE will consist of total of 70 marks, out of which, 45 marks will be on a written test and 25 marks for Viva Voce on dissertation. CIA will comprise of written test, Presentation and brief summary of report.

Students have to submit one copy of dissertation/ Project work report prior to the commencement of the semester examination

**Unit I** Procurement of a topographic map of 1:50,000 to 1:25,000 scale to study the settlements selected in its regional setting

**Unit II** Collection of demographic, social & economic data of the village/town from Census Reports to study the temporal changes in the profile of such characteristics.

**Unit III** Selection of sampling site, defining sampling size, and conducting socio-economic survey at households level with a self- structured questionnaire and supplementing the information by personal observations and perceptions.

**Unit IV** Based on results of the land-use and socio-economic survey of the households, preparation of a critical field-survey report. Photographs and sketches, in addition to maps and diagrams, may supplement the report.

**CIA** ..... 30 Marks

**Selected Readings**

1. Gregory, S. 1980. Statistical methods and the Geographer. Longman, London
2. Mahmood, A. 2008. Statistical Methods in Geographical Studies. Rajesh Pub., New Delhi.
3. Ibrahim, R. 1992. Socio-Economic Profile of Mewat. Radha Publishers, New Delhi.
4. Robinson, A.H., et.al. 1995(6th edition). Elements of Cartography. John Wiley , New York.
5. Raisz, E. 1962. Principles of Cartography. Mc Graw Hill, New York.

**Code- Discipline Specific Elective -DSE-01 (201-CC)  
Regional Planning and Rural Development (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100

ESE : 70 Marks

CIA : 30 Marks

**The questions for End Semester Examination Comprises of three parts as mentioned below**

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x5 = 20 marks

**Part – C**

Five long answer Questions -Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x10 = 30 marks

**Unit I** Regional Planning: Concept, Merits and Limitation  
Planning Process – Sectoral, Temporal and Spatial Dimensions  
Concept of Planning Region and Methods for Delineation of Regions

**Unit II** Special Purpose Planning Regions in India:  
River Valley Regions  
Metropolitan Region  
Problem Regions – Hilly Regions, Tribal Regions

- Unit III** Indicators of Development  
Regional disparities in India  
Need for Regional Planning in India  
Regional Development in India – Problems and Prospects.
- Unit IV** Concept of Multi Level Planning  
Role of Panchayati Raj Institutions in Rural Development  
Defining Development and Rural Development; Gandhian approach to rural development
- Unit V** Area Based Approach to Rural Development: Drought Prone Area Programme, PMGSY  
Target Group Approach: SJSY, MGNREGA, Jan Dhan Yojana and PURA  
Provision of Services- Physical and Socio-Economic Access to Elementary Education and Primary Health Care and Micro Credit

**CIA** ..... 30 marks

**Selected Readings**

13. Bhatt, L.S., 1973, Regional Planning in India, Statistical Publishing Society, Calcutta.
14. Chandana, R.C., 2000, Regional Planning, Kalyani Publishers Ludhiana.
15. Chand, M., Puri, & V.K., 1983, Regional Planning in India, Allied Publishers, New Delhi.
16. Friedman, J. & Alonso, W., 1967 Regional Development and Planning-A Reader, MIT Press, Cambridge Mass.
17. Glasson, 1980, Regional Planning, Hutchinson, London.
18. Glikson, A., 1955, Regional and Development, Netherlands, Universities Foundation of International Corp. London.
19. Mishra, R.P., 1969, Regional Planning Concepts, Techniques and Policies, University of Mysore, Mysore.
20. Mishra R.P, et al., 1974, Regional Development and Planning in India, Institute of Development Studies, Mysore.
21. Rao, V.L.B., 1960, Regional Planning, Asia Publishing House, New Delhi.
22. Kant Surya et al (eds): Reinventing Regional Development, Rawat Publication, Jaipur and N.Delhi.
23. श्रीवास्तव शर्मा एवं चौहान-प्रादेशिक नियोजन एवं संतुलित विकास
24. पदहीए ज्ञणए ललंतस कमअमसवचउमदजएँ लळ

**Code- Generic Course-GE-01  
Geography of Bihar (5 Credits)**

Time: 3 Hours (ESE)

Full Marks: 100  
ESE : 70 Marks  
CIA : 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Generic Course GE-01.  
Geography of Bihar. (5 credits)

**Part – A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

**Part-B**

Five short Answer Questions – Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

**Part – C**

Five long answer Questions - Three questions to be answered. (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

- Unit I** Historical Account of Bihar as a State, Geological Formation and Landforms, Physiographic Divisions, Drainage, Soils, River Valley Projects: Gandak, Kosi and Sone
- Unit II** Climate: Regional Variation in Rainfall and Temperature, Seasonal Variation of Rainfall and Temperature  
Flood and Drought Prone Areas, Wet Land Areas
- Unit III** Landuse and Agriculture: Landuse Pattern, Agricultural Infrastructure, Agricultural Seasons, Food Crop, Cash Crop, Development and Prospect of Horticulture, Aquaculture, Floriculture, Herbal Plants, Pisciculture, Agricultural Regions
- Unit IV** Industries: Agro Based Industries, Small and Cottage Industries, Prospects of Food and Fruit Processing Industries, Industrial Regions
- Unit V** Population and Settlement: Population Attributes- Growth, Distribution, Occupation, Age and Sex Ratio, Evolution of Settlement: Types and Pattern, Morphological Features, Rural Dwellers

CIA ..... – 30

**Selected Readings:**

1. M.S. Pandey- Historical Geography and Topography of Bihar
2. Ahmed, E. – Bihar- Physical, Economic and Regional Geography
3. Sinha, VNP and Nazim Md.- Bihar: Land and People
4. Sharma, N. Bihar Ka Bhugol ( Hindi)