

**M.A. Geography
Rules and Regulations**

Only those candidates, who have offered geography in B.A./B.Sc.III as a subject may offer Geography in M.A.
No private candidate shall be allowed to offer Geography in M.A. The candidate is required to pass in theory and practical separately obtaining at least 36 percent marks in each.

**M.A. (Previous) Geography
Syllabus**

Note :

1. The courses of M.A. (Previous) Geography shall be grouped into two semesters: Semester I and Semester II.
2. There shall be five compulsory theory papers in semester I and four theory papers & one practical paper in semester II. The examination of Cartography paper shall be held in the lab of Geography department of the University and Affiliated Colleges.

Semester I

Paper I.	Geographical Thought: Concepts & Issues	50
Paper II.	Climatology	50
Paper III.	Man and Biosphere	50
Paper IV.	Principles of Economic Geography	50
Paper V.	Cartography	50

Semester II

Paper I.	Geomorphology: Theories and Concepts	50
Paper II.	Cultural Geography	50
Paper III.	Resource Geography	50
Paper IV.	Physical and Economic Geography of India	50
Paper V.	Practical	50

Semester I

Paper – I

Geographical Thought: Concepts and Issues**Unit-1**

Changing Paradigm of Geography; Development of Dualism in Geography – Physical v/s Human, Systematic v/s Regional.

Unit-2

Positivism in Geography; Quantitative Revolution and its Impact; Systems and Models in Geography; Theories and Laws in Geography.

Unit-3

Concept of Earth Surface; Concept of landscape; Concept of Region and its Typology; Concept of Spatial Organization.

Unit-4

Radical Geography; Geography as a Science of Human Welfare; Behavioralism & Phenomenology in Geography.

Unit-5

Post-modernism in Geography; Nature and Recent Trends in Geography; Progress of Geographical Research in India.

Books Recommended :

1. James, P.E. (1980) : A Hundred Years of Geography, Sachin Pub. Jaipur.
2. Davies, W.K.D. (1972) : The Conceptual Revolution in Geography, University of London Press, London.
3. Dickinson, R.E. (1969) : The Makers of Modern Geography, Routledge and Kegan Paul, London.
4. Harvey, D. (1969) : Explanation in Geography, Edward Arnold, London.
5. Husain, Majid (2001) : Evolution of Geographical Thought, Rawat Publications, Jaipur.
6. Hartshorne, R. (1959) : Perspectives on the Nature of Geography, John Murray, London.
7. Singh, Jagdish (2008) : Bhaugolik Chintan Ke Mooladhar, Gyanodaya Prakashan, Gorakhpur.
8. Dikshit, S.K. (2001) : Bhaugolik Chintan Ka Udbhav Avam Vikas, Vishwavidyalaya Prakashan, Varanasi.
9. Richard, Peet (1977) : Radical Geography, Methuen & Co. Ltd., London.
10. Adhikari, Sudipto (2009) : Fundamentals of Geographical Thought, Chaitanya Pub. House, Allahabad.
11. Chorley, R.J. & Haggett, P. eds. (1967) : Integrated Models in Geography, Methuen, London.
12. James, P.E. & Jones, C.F. (1954) : American Geography : Inventory & Prospect, Syracuse Univ. Press, New York.
13. Dikshit, R.D. (1990) : Geographical Thought : A Conceptual History of Ideas, Prentice Hall of India, N. Delhi.
14. Johnston, R.J. (1984) : Geography and Geographers, Arnold Heinemann, London.

Paper – II

Climatology**Unit-1**

Definition and Scope of Climatology; Heat Balance of the Earth; Origin of Monsoon – Recent Concepts.

Unit-2

Critical Appraisal of Climatic Classifications by –Koppen, Thornthwaite and Trewartha.

Unit-3

Applied Climatology –Climate and Landforms, Climate and Natural Vegetation, Climate and Agriculture, Climate and House Types & Settlement.

Unit-4

Human Impact on Climate – Green House Effect, Ozone Depletion.

Unit-5

Regional Climatology at Macro, Meso, Micro level; Urban Climatology; Heat Island; Weather Forecasting.

Books Recommended :

1. Trewartha, G.T. (1954) : An Introduction to Climate, Mc Graw Hill Series in Geography.
2. Kendrew, W.G. (1972) : Climatology, Oxford Uni. Press.
3. Hobbs, J.E. (1983) : Applied Climatology, Butterworths, London.
4. Mathur, J.R. (1974) : Climatology : Fundamentals and Applications, Mc Hill Book Company, New York.
5. Lockwood, J.G. (1974) : World Climatology and Environmental Approach, Edward Arnold, London.
6. Sidhartha, K. (2002) : Atmosphere, Weather and Climate, Kishlay Pub. Pvt. Ltd., New Delhi.
7. Singh, Savindra (2005) : Climatology, Prayag Pustak Bhawan, Allahabad.
8. Lal, D.S.(2001) : Climatology, Chaitanya Pub. House, Allahabad.
9. Banerji, R.C. & Upadhyay, D.S. (1999) : Mausam Vigyan, Rajasthan Hindi Granth Academy, Jaipur.
10. Upadhyay, D.P. & Singh, R. (2003) : Climatology and Hydrology (in Hindi), Vasundhara Prakashan, Gorakhpur.
11. Negi, B.S. (1999) : Climatology and Oceanography (in Hindi), Kedarnath Ramnath, Meerut.
12. Critchfield, H.J. (2002) : General Climatology, Prentice Hall of India, New Delhi.
13. Subrahmaniam, V.P. (1992) : Contribution to Indian Geography Part – III – General Climatology, Heritage Publication, New Delhi.

Paper – III
Man and Biosphere

Unit-1

Biosphere as a Global Eco-system; Structure and Function of the Major Ecosystems; Major Biomes of the World.

Unit-2

Nature of Environmental Crises; Man in Biosphere; Impact of Technology and Culture on Biosphere; The Impact of Industrial Revolution, Transport, Communication, Urbanization and Green Revolution on Biosphere.

Unit-3

Man and Environment System – Concept of Environment, Impact of Development and Culture on Environment,

Unit-4

Environmental Degradation and Reduction of Biodiversity; Concept of Sustainable Development and Eco-development.

Unit-5

Alternative Sources of Energy; Technological Alternatives with Special Reference to Bio-technology.

Books Recommended:

1. Strahler, A.N. and Strahler, A.H. (1992) : Geography and Man's Environment, John Wiley and Sons, New York.
2. Furley, P.A. & Neway, W.W. (1995) : Man and the Biosphere, Butterworth, London.
3. Arvill, R. (1997): Man and Environment, Penguin Books, Harmandsworth.
4. Mani, M.S. ed. (1975): Biogeography of India, London.
5. Hoyet, J.B. (1992): Man and the Earth, Prentice Hall, USA.
6. Mathur, H.S. (2003): Essentials of Bio-Geography, Pointer Publishers, Jaipur.
7. Odum, E.P. (1971): Fundamentals of Ecology, W.B. Saunders Co. Philadelphia.
8. Joy, T. (1977): Bio-geography : A Study of Plants in the Ecosphere, Oliver & Boyd, Edinburgh.
9. Detwyler, T.R. and Marcus, M.G. (1998): Urbanization and Environment, Duxbuy Press Belmont, California.
10. Detwyler, T.R. (1999): Man's Impact on the Environment, Mc Graw Hill, New York.
11. Singh, L.R. et.al. (2001): Environmental Management, Allahabad Geographical Society, Allahabad.
12. Singh, Savindra (2004): Environmental Geography, Prayag Pustak Bhawan, Allahabad.
13. C.S.E.: The State of Indian Environment: A Citizens Report, New Delhi.

Paper – IV
Principles of Economic Geography

Unit-1

Meaning and Scope of Economic Geography, Approaches to Study of Economic Geography, Recent Trends in Economic Geography.

Unit-2

Evolution of World Economic Systems, Concept and Models of Development, Agricultural Location Models - Von Thunen & Haggerstand.

Unit-3

Theories of Industrial Location - Weber, Hoover, Losch, Isard, Smith, Christaller's Central Place Theory.

Unit-4

Emerging Trade Pattern, Impact of Globalization on World Trade.

Unit-5

Economic, Agricultural and Industrial Regions of the World.

Books Recommended :

1. Berry, B.J.L. et al. (1976) : Geography and Economic Systems, Prentice Hall, Englewood Cliff.
2. Jones & Darkenwald (1960) : Economic Geography, New York.
3. Wheeler, J.O. et.al. (1995) : Economic Geogrpahy, John Wiley, New York.
4. Smith, G.H. (2000) : Conservation of Natural Resources, John Wiley, New York.
5. World Bank (2009) : World Development Report, Washington D.C.
6. Haggett, P. (1966) : Locational Analysis in Human Geography, St. Martin's Press, New York.
7. Boyce, R.D. (1990) : Bases of Economic Geography, Holt Rinehart & Winston, New York.
8. Hodder, B.W. & Lee, R. (1996) : Economic Geography, Methuen, London.
9. Hartshrone, T.A. & Alexander, J.W. (1994) : Economic Geography, Prentice Hall of India, New Delhi.
10. Alexander, J.W. (1974) : Economic Geography, Prentice Hall of India, New Delhi.
11. Singh, K.N. & Singh, J. (1996) : Arthik Bhoogol Ke Mooltatva, Gyanodaya Prakashan, Gorakhpur.
12. Rostov, W.W. (1960) : The Stages of Economic Growth, Cambridge Univ. Press, London.

Paper – V
Cartography

- (i) **Geological Maps** : Drawing of Cross Sections – Inclined, Folded, Faulted Strata and Unconformable Series; Interpretation of Geological History – Nature of Relief and Rock Structure and their Correlation.

15 Marks

- (ii) **Remote Sensing** : Photogrammetry – Stereovision Test; Orientation of Photo Under Pocket and Mirror Stereoscope; Point Transfer; To Find Out the Flight line; Match line; Construction of Stereogram; Triplet and Photo Mosaic; Measurement of Scale; Distance; Height; Making of Base Map with the help of Photo and Sat. images; Interpretation and Delimitation of Physical and Cultural Homogeneous Regions on the Photographs and Satellite Imagery and their Mapping; Calculation of the Area on the Remotely Sensed Data.

15 Marks

- (iii) **Projections** : Meaning, Classification and Choice of Projections; Construction and Characteristic of Projections – Lambert's Conical, Polyconic, Galls, Equatorial Zenithal Projection - Gnomonic, Stereographic and Orthographic Cases; Sinusoidal, Mollweide and their interrupted cases, International Projection.

20 Marks

Note- In Cartography paper six questions (two questions from each section) will be asked, in which one question from each section will be compulsory.

Books Recommended:

1. Singh, J. et.al. (1990) : Bhaumikiya Manchitro Ki Ruprekha, Vasundhara Prakashan, Gorakhpur.
2. Robinson (1991) : Aerial Photography and Cartography, Mac Millan, London.
3. Sahani, P.B. (1993) : Advance Surveying, New Delhi.
4. Kanetkar, T.P. & Kulkarni, S.V. : Surveying and Leveling, Pune.
5. Davis, R.E. and Foote, F.S. : Surveying - Theory and Practices, Tokyo.
6. Rampal, K.K. : Photogrammetry and Photo-Interpretation, Rawat Publications, Jaipur.
7. Tiwari, R.C. and Tripathi, Sudhakar (2001) : Abhinav Prayogatmak Bhoogol, Prayag Pushtak Bhawan, Allahabad.

Semester II

Paper – I

Geomorphology: Theories and Concepts

Unit-1

Meaning, Scope and Fundamental Concepts of Geomorphology; Evolution of Geomorphic Ideas during Medieval and Modern Period.

Unit-2

Geological Time Scale, Landform Analysis; Geomorphic Agents and Processes; Models of Landscape Development by W.M. Davis, W. Penk, L.C. King, and M. Morisawa.

Unit-3

Earth Movements–Epeirogenesis and Orogenesis; Concept of Plate Tectonics, Mountain Building; Vulcanicity and Earthquakes.

Unit-4

Slope Evolution and Classification; Theories of Slope Development by Davis, Penk and King; Structural Geomorphology – Uniclinal Structure and Landforms.

Unit-5

Morphometric Analysis of Relief – Hypsometric Curve, Altimetric Frequency Curve, Histogram and Clinographic Curve; Strahler's Method of Drainage Ordering; Frequency and Density of the Drainage.

Books Recommended :

1. Thornbury, W.D. (1969) : Principles of Geomorphology, New Age International (p) Ltd., New Delhi.
2. Bloom, A.L. (1979) : Geomorphology, Prentice Hall, New Jersey, USA.
3. King, C.A.M. (1968) : Techniques in Geomorphology, Edward Arnold, London.
4. Small, R.J. (1976) : The Study of Landforms, Cambridge University Press, Cambridge.
5. Singh, Savindra (2005) : Geomorphology, Prayag Pustak Bhawan, Allahabad.
6. Kale, V.S. and Gupta, A. (2001) : Introduction to Geomorphology, Orient Longman, Hyderabad.
7. Sharma, H.S. and Kale, V.S.(2009) : Indian Geomorphology, Rawat Pub. Jaipur.
8. Dikshit, K.R. et.al. (1994) : India Geomorphological Diversities, Rawat Pub. Jaipur.
9. Tricart, J. & Cailleux, A. (1972) : Introduction to Climatic Geomorphology, Longman, London.
10. Dayal, P. (1987) : Geomorphology (in Hindi), Patna.

Paper – II

Cultural Geography

Unit-1

Nature and Scope of Cultural Geography; Approaches and Development; Relationship of Culture with Environment; Resources and Technology.

Unit-2

Major Concepts-Cultural Diffusion, Material Culture, Cultural Landscape and Cultural Ecology; Origin & Dispersal of Man.

Unit-3

Origin, Types & Dispersal of Human Races; Racial Composition of India; Linguistic and Religious Structure of the World.

Unit-4

Domestication of Plants and Animals; Renewal and Dispersal Activities of Crops – Paddy, Maize, Sugarcane and Rubber; Agricultural Practices and Innovations; Industrial and Technological Revolution.

Unit-5

Globalization and Cultural Development; Ecological Impact of Population Explosion; Cultural Hearths; Major Cultural Realms and Regions of the World.

Books Recommended :

1. Spencer, J.E. and Thomas, W.L. (1978) : Introducing Cultural Geography, John Willey and Sons, New York.
2. Wagner, P.J. and Mikesell, M.W. (1962) : Readings in Cultural Geography, University of Chicago Press.
3. Rostlund, F. (1988) : Outline of Cultural Geography, California Book Co. Berkley.
4. Dicken, S.N. & Pitts, F.R. (1970) : Introduction of Cultural Geography : A Study of Man and his Environment, Edwin & Co. Waltham, Massachusetts.
5. Salter, C.L. (1971) : The Cultural Landscape, Durbury Press, California.
6. Carter, G.F. (1998) Man and the Land : A Cultural Geography, Rienhart, New York.
7. Dohus, F.E. & Sommers, L.M. (ed) (1967) : Cultural Geography – Selected Readings, Dunn – Donnally Publishing Corporation, New York.
8. Sopher, D.E. (1978) : Geography of Religions, Prentice Hall, New Jersey.
9. Frazier, E.F. (1957) : Race and Cultural Contacts in the Modern World; A.A. Knopf, New York.
10. Coulborn, R. (1959) : The Origin of Civilized Societies, Princeton University Press, Princeton, New Jersey.
11. Wagner, P.L. (1972) : Environment of People, Prentice Hall, Englewood Cliffs.

12. Dikshit, S.K. & Tripathi, R.D. (2001) : Sanskritic Bhoogol, Vasundhara Prakashan, Gorakhpur.

Paper – III

Resource Geography

Unit-1

Concept of Resources, Classification of Resources, Principles of Resources : Adequacy and Scarcity.

Unit-2

Resources and Development. Imbalance in Resource Distribution and Utilization, Globalization and Resources.

Unit-3

Problems and Prospects of Soil, Water, Forest Resources and Mineral & Power Resources, Resource Depletion.

Unit-4

Emerging Issues – Desertification, Deforestation, Loss of Biodiversity, Energy Crisis, Resource Conservation.

Unit-1

Strategies and Planning of Resources with special reference to Soil, Water and Forest. Population Resources Regions.

Books Recommended :

1. Zimmermann, E.W. (1966) : Introduction to World Resources, Harper & Row, New York.
2. Smith, G.H. (ed.) (2000) : Conservation of Natural Resources, John Wiley, New York.
3. Kellogg, C.F. (1986) : Food, Soil and People, The Manhattan Publishing Co. New York.
4. Simmans, I.G. (1981) : The Ecology of Natural Resources, Edward Arnold, London.
5. Smith, J.R. (1987) : Industrial and Commercial Geography, London.
6. United Nations (2007) : Human Development Report, Oxford, UNDP.
7. Singh, Jagdish (1998) : Sansadhan Bhoogol, Gyanodaya Prakashan, Gorakhpur.
8. Behra, Deepak Kumar (2000) : Resource Management Through Indigenous Knowledge, New Delhi.
9. Holechek, J.L. et.al. (2000) : Natural Resources : Ecology, Economics and Policy, Prentice Hall, New Jersey.
10. Rao, B.P. (2006) : Resources and Environment, Vasundhara, Prakashan, Gorakhpur.

Paper – IV

Physical & Economic Geography of India

Unit-1

Geological Evolution & Relief Features – Plains, Plateaus, Mountains and Coasts; Origin of Himalayas, Origin of River Systems of India.

Unit-2

Climate & Climatic Regions, Delimitation & Characteristics of Physiographic Regions & Agro-Climatic Regions.

Unit-3

Population Resource Regions; Green Revolution; Agricultural Regions & New Trends in Indian Agriculture.

Unit-4

Mineral Resource Regions; Regional Development and Disparities; Industrial Policies & Trend of Industrialization; Industrial Regions & Industrial Complexes.

Unit-5

Special Economic Zones; Impact of Globalization on Indian Economy; Problems & Prospects of Industrially Backward Regions; Planning Regions of India : Delimitation and Salient Features.

Books Recommended :

1. Wadia, D.N. (1953) : Geology of India, Oxford University Press.
2. Spate, O.H.K. & Learmonth, A.T.A. (1954) : India & Pakistan, Methuen, London.
3. Khullar, D.R. (2006) : India : A Comprehensive Geography, Kalyani Pub., New Delhi.
4. Chauhan P.R. (2001) : Bharat Ka Vrihat Bhoogol, Vasundhara Prakashan, Gorakhpur.
5. Tiwari, R.C. (2007) : Geography of India, Prayag Pustak Bhawan, Allahabad.
6. Hussain, Majid (2008) : Advance Geography of India, Tata Mc Graw Hill, New Delhi.
7. Singh, R.L. (1991) : India : A Regional Geography, NGSI, Varanasi.
8. Singh, J. (2001) : India : A Comprehensive Geography, Gyanodaya Prakashan, Gorakhpur.
9. Gautam, Alka (2001) : Geography of India, Sharda Pustak Bhawan, Allahabad.
10. Bansal, S.C. (1999) : Advanced Geography of India, Meenakshi Publication, Meerut.
11. Govt. of India : Economic Survey 2008-09, Ministry of Finance, New Delhi.
12. Govt. of India : India, 2008, Govt. of India Pub., New Delhi.

Paper – V
Practical

A-Surveying:

- | | |
|--|----------|
| (i) Leveling and Plotting by Dumpy Level; | 10 Marks |
| (ii) Measurement of Horizontal and Vertical Angle by Theodolite; | 07 Marks |
| (iii) Survey by Telescopic Alidade | 08 Marks |

B- Survey Camp: Contouring and Plotting of a given area
(Outside of the Campus) for at least two days. 15Marks

C- Practical Record & Viva-voce 10Marks

Books Recommended :

1. Singh, R.L. & Singh, R.P.B. (1991) : Elements of Practical Geography, Kalayani Publishers, New Delhi.
2. Yadav, H.L. (1990) : Prayogatmak Bhoogol, Radha Publications, New Delhi.
3. Sahani, P.B. (2005) : Advance Surveying, New Delhi.
4. Kanetkar, T.P. & Kulkarni, S.V. : Surveying and Leveling, Pune.
5. Davis, R.E. and Foote, F.S. : Surveying - Theory and Practices, Tokyo.
6. Chauhan, P.R. (2005) : Prayogatmak Bhoogol, Vasundhara Prakashan, Gorakhpur.
7. Sharma, J.P. (2000) : Prayogik Bhoogol, Rastogi Publications, Meerut.
8. Tiwari, R.C. and Tripathi, Sudhakar (2001) : Abhinav Prayogatmak Bhoogol, Prayag Pushtak Bhawan, Allahabad.
9. Singh, L.R. (2001) : Practical Geography, Sharda Pustak Bhawan, Allahabad.

M.A. (Final) Geography Syllabus

Note:

The courses of M.A. (Final) Geography shall be grouped into two semesters: Semester III and Semester IV.

There shall be three compulsory & two optional theory papers in semester III and two compulsory, two optional theory papers & one practical paper in semester IV. The examination of Cartography paper shall be held in the lab of Geography Department of the University and Affiliated Colleges.

The optional papers to be selected, one paper from each group, in each semester.

Semester III

Paper I.	Oceanography	50
Paper II.	Geomorphology: Study of Landforms	50
Paper III.	Group - A	50
	(i) Agricultural Geography (ii) Industrial Geography (iii) Marketing Geography (iv) Remote Sensing	
Paper IV.	Group - B	50
	(i) Population Geography (ii) Rural Development (iii) Indian Ocean Region (iv) Geographical Information System	
Paper V.	Cartography	50

Semester IV

Paper I.	Research Methodology	50
Paper II.	Regional Geography of India	50
Paper III.	Group - A	50
	(i) Political Geography (ii) Transport Geography (iii) Geography of Health (iv) Geography of Tourism	
Paper IV.	Group - B	50
	(i) Urban Geography (ii) Regional Planning (iii) Natural Hazards & Disaster Management (iv) Advanced Cartography	
Paper V.	Practical	50

Note : The candidate scoring at least 55% marks in M.A. Previous, may offer dissertation in lieu of one optional paper of IVth semester.

Semester III

Paper – I

Oceanography**Unit-1**

Definition, Scope and Evolution of Oceanography; Submarine Morphology.

Unit-2

Relief Features of Indian Ocean; Distribution of Temperature and Salinity in the Oceans; Circulation of Oceanic Water – Currents.

Unit-3

Marine Deposits; Ocean and its Resources – Biotic Resources, Food Resources, Minerals & Energy;

Unit-4

Geopolitics of Oceans with Special Reference to Indian Ocean.

Unit-5

Impact of Development on Marine Environment.

Books Recommended :

1. Singh, Savindra (2007) : Oceanography, Prayag Pustak Bhawan, Allahabad.
2. Lal, D.S. (2003) : Oceanography, Sharda Pustak Bhawan, Allahabad.
3. Gerald, S. (1985) : General Oceanography : An Introduction, New York.
4. King, C.A. (1986) ; Oceanography, C.E. Arnold, London.
5. Thurman, H.B. (1983) : Introductory Oceanography, Longman, London.
6. Upadhyay, D.P. & Singh, R. (2001) : Oceanography (Hindi), Vasundhara Prakashan, Gorakhpur.
7. Murrey, A.F. (1980) : Applied Oceanography, Longman, London.
8. Sharma, R.C. & Vatal, Mira (1995) : Oceanography for Geographers, Chaitanya Pub. House, Allahabad.

Paper – II

Geomorphology: Study of Landforms**Unit-1**

Geomorphic Processes, Weathering, Mass Movement & Resultant Landforms.

Unit-2

Geomorphic Scale, Geomorphic Cycle & Landforms by Fluvial, Arid, Glacial, Periglacial, Underground & Marine Processes.

Unit-3

Polycyclic Landforms; Erosional Surfaces; Uniclinal Structures & Landforms.

Unit-4

Study of Regional Geomorphology – Jammu & Kashmir Region, Chhotanagpur Plateau Region, Deccan Trap, Arawali Region, Rajasthan Desert.

Unit-5

Applied Geomorphology – Geomorphology and Agriculture, Minerals, Energy, Civil Projects.

Books Recommended :

1. Jog, S.R. (ed.) (1995) : Indian Geomorphology, Vol. I & II, Rawat Publications, Jaipur.
2. Sharma, H.S. : (1987) Tropical Geomorphology, Concept, New Delhi.
3. Singh, Savindra (2007) : Geomorphology, Prayag Pushtak Bhavan, Allahabad.
4. King, C.A.M. (1968) : Techniques in Geomorphology, Edward Anrold, London.
5. Chorley, R.J. et.al. (1984) : Geomorphology, Methuen, London.
6. Small, R.J. (1976) : The Study of Landforms, Cambridge University Press, Cambridge.
7. Anhert, F. (1996) : Introduction to Geomorphology, Edward Anrold, London.
8. Sparks, B.W. (1988) : An Introduction to Geomorphology, Longman, London.
9. Melhorn, W.N. & Flemal, R.C. (1981) : Theories of Landforms Development, George Allen Unvin, London.
10. Twidale, C.R. (1976) : Analysis of Landforms, John Wiley. London.

Paper – III (Optional)

(i) Agricultural Geography**Unit-1**

Definition and Scope of Agricultural Geography; Land Capability Classification with Special Reference to India.

Unit-2

Land Use Classification with Special Reference to India. Carrying Capacity of Land; Kostrowicki's Classification of World Agriculture.

Unit-3 Methods of Agricultural Productivity Measurement – Kendall's Ranking Coefficient Method, Weighted Ranking Coefficient Method.

Unit-4

Delimitation Method of Crop Combination Regions by Weaver and Doi; Cropping Intensity and Diversification; Measurement of Level of Agricultural Development.

Unit-5

Impact of Modern Agriculture on Environment; Concept of Agricultural Development, Sustainable Agriculture.

Books Recommended :

1. Misra, R.P. (1968) : Diffusion of Agricultural Innovation, Concept Publication, New Delhi.
2. Singh, B.B. (1979) : Agricultural Geography (Hindi), Gyanodaya Prakashan, Gorakhpur.
3. Pandey, J.N. & Kamlesh, S.R. (2003) : Agricultural Geography (in Hindi), Vasundhara Prakashan, Gorakhpur.
4. Tiwari, R.C. & Singh, B.N. (1994) : Agricultural Geography (Hindi), Prayag Pushtak Bhawan, Allahabad.
5. Kumar, Pramila & Sharma, S.K. (1990) : Agricultural Geography (Hindi), M.P. Hindi Granth Academy, Bhopal.
6. Singh, Jasbir & Dillon, S.S. (1984) : Agricultural Geography, Tata Mc Graw Hill Pub., New Delhi.
7. Hussain, Majid (1998) : Agricultural Geography, Rawat Publications, Jaipur.
8. Negi, B.S. (1980) : Agricultural Geography, kedarnath Ramnath, Meerut.
9. Mohammad, Noor (1980) : Perspectives in Agricultural Geography (Vol. I-IV), Concept Pub. Co., New Delhi.
10. Giri, H.H. (1975) : Land Utilization in Gonda District, Shiwalaya Prakashan, Gorakhpur.
11. Singh, S.N. (1994) : Agricultural Development in India, Kaushal Publications, Shillong.

(ii) Industrial Geography**Unit-1**

Meaning and Scope of Industrial Geography; Industrial Revolution and its Consequences; Trends of Industrialization in India & Abroad.

Unit-2

Factors of Location of Industries; Theories of Industrial Location – Weber, Hoover, Losch; Industrial Complexes.

Unit-3

Centralization and Decentralization of Industries, Linkages of Industries; Industrial Regions of World and India.

Unit-4

Distribution and Spatial Pattern of Iron & Steel, Textile, Sugar & Fertilizer Industry; Industries and Economic Development, Problems and Prospects of Industrial Sprawl.

Unit-5

Impact of Globalization on Industrial Development, Industrial Policies and their Implications in Industrialization in India, Sustainable Industrial Development.

Books Recommended :

1. Alexanderson, C. (1967) : Geography of Manufacturing, Prentice Hall, India.
2. Miller, A. (1962) : Geography of Manufacturing, Prentice Hall, New Jersey.
3. Kumar, Pramila & Sharma, S.K. (1985) : Industrial Geography (Hindi), M. P. Hindi Granth Academy, Bhopal.
4. Seth, V.K. (1987) Industrialization in India: Spatial Perspective, Delhi Commonwealth Publication.
5. Sinha, B.N. (1987) : Industrial Geography of India, Oxford Book House, New Delhi.
6. Sharma, V.N. (2001) : Spatial Pattern of Industrial Development in M.P., Radha Publication, New Delhi.
7. Smith, D.M.(1982) Industrial Location : An Economic Geographic Analysis, John Wiley & Sons, New York.
8. Weber, Alfred (1957) : Theory of Location of Industries, Chicago University Press.
9. Kuchhal, S.C. (1997) Industrial Economics of India, Chaitanya Publication, Allahabad.

(iii) Marketing Geography**Unit-1**

Definition, Scope and Evolution of Marketing Geography, Spatial Organization of Markets.

Unit-2

Typology of Markets - Periodic & Regulated Markets, Market as a Service Centre, Hierarchy of Markets and their Role in Economic Development.

Unit3

Development of Marketing System, Market Area Region, Vertical and Horizontal Relations of a Market.

Unit-4

Christaller's Central Place Theory, Impact of Globalization on Marketing, Social Structure and Marketing.

Unit-5

Marketing and Innovation diffusion, Marketing and Rural Development.

Books Recommended :

1. Garnier, J. Beaujau & Delobez, A. (1979) : Geography of Marketing, Longman, London.
2. Shrivastava, V.K. & Dixit, R.S. (1995) : Vipran Bhoogol, Madhya Pradesh Hindi Granth Academy, Bhopal.
3. Bromley, R.J. (1979) : Periodic Markets, Daily Markets and Fares : A Bibliography, Monash Pub.
4. Shrivastava, V.K. (1987) : Geography of Marketing and Rural Development, Inter India Pub. New Delhi.
5. Saxena, H.M. (1984) : Marketing Geography, Starling Publication, New Delhi.

6. Saxena, H.M. (1975) : Geography of Transport & Marketing, S.Chand & Com., New Delhi.
7. Saxena, H.M. (1988) : Rural Markets and Development, Rawat Publications, Jaipur.
8. Shrivastava, V.K. & Chauhan, P.R. (2001): Marketing of Agricultural Produce & Rural Development, Vasundhara Prakashan, Gorakhpur.
9. Shrivastava, Hari Om (1992) : Vipran Bhoogol, Vasundhara Prakashan, Gorakhpur.
10. Berry, B.J.L. (1967) : Geography of Market Centres and Retail Distribution, Prentis Hall, Englewood Cliff.
11. Alvater, E. (1992) : The Future of the Markets, Verso, London.
12. Dixit, R.S. (2004) : Agricultural Marketing in India, Shubhi Publications, Gurgaon.

(iv) Remote Sensing

Unit-1

Definition of Remote Sensing; Evolution of Remote Sensing; Advantages and Application of Remote Sensing in Geographical Studies; Fundamentals of Remote Sensing and Aerial Photography.

Unit-2

Stages of Remote Sensing; Nature of Electromagnetic Radiation, Range of Electromagnetic Radiation; Types of Platforms and Sensors and their Features.

Unit-3

The Salient Features of Satellites and their Images – Land SATs, SPOTs, IRSs, NOAA; Data Acquisition and Processing; Application of Remote Sensing for Resource Survey.

Unit-4

Evolution of Photography Technology; Aerial Camera; Typology of Aerial Photographs; Basic Information for Aerial Photography; Planning for Aerial Photography.

Unit-5

Procedure of Procurement of Remotely Sensed Data in India; Geometry of Photographs; Tilt; Swing; Image Displacement; Stereoscopic View; Elements; Keys; Stages and Procedures of Image Interpretation.

Books Recommended :

1. Avery, T. E. and Berlin, G.L. (1992) : Interpretation of Aerial Photograph and Cartography.
2. Avery, T. E. and Berlin, G.L. (1992) : Fundamentals of Remote Sensing and Air photo Interpretation, Mc Millan, N. York.
3. American Society of Photogrammetry (1983) : Manual of Remote Sensing, Falls Church, VA.
4. Barrett, E.C.& Curtis, L.F. (1992) : Introduction to Environmental Remote Sensing, Chapman & Hall, New York.
5. Lilles and Keifer, R.W. (2000) : Remote Sensing and Image Interpretation, John Wiley & Sons, Inc. New York.
6. Sharma, H.S. (2003) : Remote Sensing for Resource Survey, Concept Publication, New Delhi.
7. Chaunial, D.D. (2001) : Remote Sensing and G.I.S. (in Hindi), Sharda Pustak Bhawan, Allahabad.
8. George Joseph (2005) : Fundamentals of Remote Sensing, New Delhi.
9. Jensen, J.R. (2000) : Remote Sensing of the Environment, Dorling Kundersley Publishing Inc.
10. Cracknell, A.P. and Hayes, L.W.B. (1993) : Introduction to Remote Sensing, Taylor & Francis, London.
11. Verma, S.S. et.al (2007) : Application of Geomatics for Natural Resource Appraisal and Management, Dept. of Geography, D.D.U.Gorakhpur University, Gorakhpur

Paper – IV (Optional)

(i) Population Geography

Unit-1

Definition, Scope and Approaches of Population Geography; Development of Population Geography; Sources of Population Data – Their Reliability and Comparability.

Unit-2

Population Dynamics; Factors Influencing Distribution and Density of Population; World Patterns of Population; Growth of Population – Theories and World Pattern; Population Explosion.

Unit-3

Growth and Distribution of India's Population; Demographic Transition Theory; Population Composition – Age and Sex Composition, Occupational Structure.

Unit-4

Literacy, Urbanization etc.; Migration – Types, Laws, Causes and Consequences; Concept of Optimum, Over and Under Population.

Unit-5

Population Resource Region of the World; Population Policies of India; Population Planning with Special Reference to India.

Book Recommended :

1. Trewartha, G.T. (1969) : A Geography of Population : World Patterns, John Wiley & Sons, New York.
2. Chandna, R.C. (2003) : A Geography of Population, Kalyani Pub., New Delhi.
3. Sundaram, K.V. (1985) : Population Geography, Heritage Publishers, New Delhi.
4. Panda, B.P. (1991) : Population Geography (in Hindi), Madhya Pradesh Hindi Granth Academy, Bhopal.
5. Hiralal (2000) : Jansankhya Bhoogol, Radha Publications, New Delhi.
6. Tripathi, R.D. (2008) : Jansankhya Bhoogol Avam Janakiki, Vasundhara Prakashan, Gorakhpur.
7. Agrawal, S.N. (1977) : India's Population Problems, Mc Graw Hill, New Delhi.
8. Chandna, R.C. & Sidhu, M.S. (1980) : An Introduction to Population Geography, Kalyani Pub., New Delhi.

9. Beaujeu, Garnier (1978) : Geography of Population, Longman, London.

(ii) Rural Development

Unit-1

Concept of Rural Development, Models of Rural Development, Dualism in Development and Integrated Area Development.

Unit-2

Appraisal of Rural Development under Five Year Plans, Infrastructure for Rural Development – Irrigation, Transport and Marketing; Rural Development Schemes.

Unit-3

People's Participation and Panchayati Raj in Rural Development, Role of Administrative and Political Nexus in Rural Development, Implementation of Rural Development Programmes.

Unit-4

Rural-Urban Divide and Continuum, Core and Periphery Relation, Problems of Rural Areas, Causes & Consequences of Rural Population Migration in India.

Unit-5

Priority in Rural Development in India, PURA, Sectoral Imbalances in Rural Development.

Books Recommended :

1. Arora, R.C. (1999) : Integrated Rural Development, S. Chand & Company, New Delhi.
2. Bhadauria, B.P.S. (1988) : Rural Development Strategy and Perspective, Anmol Publication, Delhi.
3. Dubey, Bechan (1990) : Integrated Rural Development (Hindi), Mishra Trading Company, Varanasi.
4. Dak, T.M. (1987) : Social Inequalities and Rural Development, National Publishing House, New Delhi.
5. Misra, R.P. & Sundaram, K.V. (1988) : Rural Area Development : Perspective and Approaches, Sterling Publishers, New Delhi.
6. Mishra, R.P. (1987) : Rural Development – Capitalist and Socialist Paths, Concept, New Delhi.
7. Sharma, S.K. (1990) : Integrated Rural Development : Approaches, Strategy and Perspectives, Abhinav Publication, New Delhi.
8. Singh, S.K. (2002) : Rural Development Policies & Programmes, Northern Book Centre, New Delhi.
9. Chauhan, P.R. (1996) : Regional Disparities in the Levels of Development, AMGI, Gorakhpur.
10. Singh, Katar (1990) Rural Development : Principles, Policies and Management, Sage Publications, New Delhi.
11. Desai, Basant (1988) : Rural Development VI Vols., Himalaya Publishing House, Mumbai.

(iii) Indian Ocean Region

Unit-1

Delimitation and Salient Physical and Cultural Features of Indian Ocean Region; Economic Bases of Indian Ocean Region.

Unit-2

Impact of Colonialism on Economy of Indian Ocean Region; Geo-Strategic & Geo-Economic Significance and Potentiality of Indian Ocean Region.

Unit-3

Pattern of Economic Development : Agriculture and Industries; International Trade Pattern, Centripetal and Centrifugal Forces.

Unit-4

Globalization and its Impact on Indian Ocean Region; Regional Inequality and Pattern of Development.

Unit-5

State of Environment in Indian Ocean Region; Relationship of International Economic Bloc with Indian Ocean Region.

Books Recommended :

1. Buchanan, K. (1964) Profiles of the Third World, Pacific Viewpoint.
2. Ginsberg, H.J. (1961) Atlas of Economic Development, Chicago.
3. Thomas, W.L. (1956) Man's Role in Changing the Face of the Earth, Chicago.
4. Stamp, L.D. (1960) Our Developing World, Longman, London.
5. Singh, Jagdish & Singh K.N. (2005) Hind Mahasagar Tatiya Pradesh, Gyanodaya Prakashan, Gorakhpur.
6. Singh, Tara Devi (2000) Hind Mahasagar Tatiya Kshetra, Tara Publication, Varanasi.
7. Sidhu, K.S. (1983) : The Indian Ocean : A Zone of Peace, Harnam Publication, New Delhi.
8. Mishra, K.P. (1974) : International Politics in Indian Ocean, Orbis Winter.
9. Singh, K.R. (1977) : Indian Ocean : Big Power Presence and Local Response, New Delhi.

(iv) Geographical Information System

Unit-1

Definitions, Scope and Development of GIS, Component of GIS, Functional Elements of GIS.

Unit-2

GIS Hardware & Software, Spatial & Non-Spatial Data, Data Structure-Raster & Vector, Data Handling in GIS – Geometric Rectification.

Unit-3

Data Input & Editing, Topology Creation, Errors in GIS, Spatial Data Analysis – Raster – Vector Based, DEM & its Application.

Unit-4

Database Structure – Hierarchical Network, Relational & Object Oriented, DBMS, RDBMS.

Unit-5

Concept of GPS & Its Application, GIS Application in Planning & Disaster Management.

Books Recommended :

1. Kang – Tsung Chang (2007) Introduction to GIS, Tata Mc Graw Hill.
2. Bhatia, J.B. (2008) Remote Sensing & GIS, Oxford.
3. Burrough, P.A. (1986) Principles of GIS for Land Resource Assessment, Oxford.
4. C. P. Lo, Albert K.W. Yeung (2002) Concept & Techniques of GIS, Prentice Hall.
5. Longley, Goodchild, Maguiv & Rhind (2001) Geographic Information System & Science, Jhon Wiley & Sons.
6. Robert Laurini & Duck Thomson (1999) : Fundamentals of Spatial Information System,
7. Bruce E. Davis (1996) GIS : A Visual Approach, Onward Press.
8. Burrough & Mc Donnell (1998) Principles of Geographical Information System, Oxford, London.

Paper – V
Cartography

- (i) **Statistical Methods** : Collection, Processing and Management of Data; Measurement of Scale; 15 Marks
Concept and Methods of Sampling; Correlation – Pearson’s Product Movement(r), Spearman’s rank (rho), Coefficient of Determination; Regression Analysis and Confidence Limit; Residuals and Residuals Mapping; Test of Significance; chi square and Student t test.
- (ii) **System Analysis** : Measurement of Spatial Pattern and Inequality – Z score, Lorenz Curve and 15 Marks
Gini’s Coefficient, Location Quotient, Coefficient of Localization & Localization Curve, Nearest Neighbor Analysis, Network Analysis, Graph Techniques and Degree of Connectivity, Shape Analysis, Gravity Model, Retail Gravitation.
- (iv) **Cartograms** - Climatic Diagrams Rainfall Dispersion Diagram; Water Budget; Ergo-graph – 20 Marks
Climatic and Circular; Thematic Cartograms – Choropleth, Isopleth, Chorochromatic Diagram; Multiple Dot, Spherical Diagram, Traffic Flow, Land Utilization Maps

Note- In Cartography paper six questions (two questions from each section) will be asked, in which one question from each section will be compulsory.

Books Recommended :

1. Monkhouse, F.J.and Wilkinson, H.R. (1966) : Maps and Diagrams, Methuen, London.
2. Robinsion A., Sale, R, and Morission J. : Elements of Cartography, John Wiley and Sons, New York.
3. Chauhan, P.R. (2005) : Prayogatmak Bhoogol, Vasundhara Prakashan, Gorakhpur.
4. Tiwari, R.C. & Tripathi, S. (2001) : Abhinav Prayogatmak Bhoogol, Prayag Pushtak Bhawan, Allahabad.
5. Mahmood, Aslam (1998) : Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
6. Yadav, H.L. (1994) : Matratmak Bhoogol, Radha Publications, New Delhi.
7. Berry, B.J.L. & Marble, D.F. (1968) Spatial Analysis : A Reader in Statistical Geography, Prentice Hall, Englewood.
8. King, L.J. (1969) : Statistical Analysis in Geography, Longman, London.
9. Shirvastava, V.K. & Prasad, M. (2007) : Statistical Methods in Geography (in Hindi), Vasundhara Prakashan, Gorakhpur.
10. Haggett, P. & Chorley, R.J. (1969) : Network Analysis, Edward Arnold, London.
11. Gregory, S. 1968) : Statistical Methods and Geographers, Longman, London.
12. Duncan, O.D. et.al. (1961) : Statistical Geography, Free Press of Glen Co., New York.
13. Taylor, P.J. (1977) : Quantitative Methods in Geography, Hughton Miffin Co., Boston.

Semester IV

Paper – I
Research Methodology

Unit-1

Meaning and Objectives of Research; Types of Researches; Assessment; Evaluation and Descriptive Research; Fundamental and Applied Research; Mode of Geographical Explanation.

Unit-2

Scientific Method in Geography; Research Process – Problems Identification; Review of Literature; Specification of Aims and Objectives; Formulation of Hypotheses – Research Questionnaire and Sample Design.

Unit-3

Nature and Source of Data; Methods of Collection of Data – Sampling, Questionnaire Preparation and Selection of Respondents, Processing and Analysis of Data; Standard Scores.

Unit-4

Measurement of Relationship; Correlation, Regression and Residual Mapping, Standard Error of Estimate; Test of Significance; Testing of Hypotheses.

Unit-5

Significance of Report Writing: Types, Methods and Steps of Writing of a Research Report; Formatting and Precautions in Report Writing.

Books Recommended :

1. Kothari, C.R. (1982) : Research Methodology in Social Sciences, Inter India Pub., New Delhi.
2. Mishra, R.P. (1985) : Research Methodology, Concept Publishing Co., New Delhi.
3. Mishra, H.N. & Singh, V.P. (2002) : Research Methodology in Geography, Rawat Publications, Jaipur.
4. Mishra, R.P. & Ramesh, A. (1999) : Fundamentals of Cartography, Concept Pub. Co., New Delhi.
5. Stoddart, R.H. (1982) : Field, Techniques and Research Methods in Geography, Kendall Hunt, Dubuque.
6. Davis, P.C. (1985) : Data Description and Presentation, Oxford, London.
7. Flowerdew, R. et.al. (1997) : Methods in Human Geography : A Guide for Students Doing a Research Project, Longman, Harlow.
8. Rogerson, P.A. (2001) : Statistical Methods in Geography, Sage, London.
9. Tandon, B.C. (1997) : Research Methodology in Social Sciences, Chaitanya Pub., Allahabad.

Paper – II

Regional Geography of India**Unit-1**

Concept of Region and Regional Geography, Types of Region, Methods of Regionalization.

Unit-2

Regionalization of India – Attempts of Regionalization with reference to Stamp, Spate, R.L. Singh and C.D. Deshpande, Bases of Delimitation of Macro, Meso and Micro regions of India.

Unit-3

Problems and Prospects of Development of Kashmir Himalaya, Punjab Plain, Middle Ganga Plain.

Unit-4

Problems and Prospects of Development of Marusthali, Malwa Plateau, Chhotanagpur Plateau, Malabar Coast, Resource Bases, Problems & Prospects of Tribal Regions,

Unit-5

Problems & Prospects of Drought Prone Areas, Flood Prone Areas, Hill Areas and Metropolitan Areas.

Books Recommended :

1. Tiwari, R.C. (2008) : Geography of India, Prayag Pustak Bhawan, Allahabad.
2. Chauhan, P.R. & Prasad, M. (2001) : Bharat Ka Brihat Bhoogol, Vasundhara Prakashan, Gorakhpur.
3. Singh, R.L. & Others (1971) : India – A Regional Geography, NGSI, Varanasi.
4. Spate O.H.K. & Learmonth, A.T.A. (1965) : India and Pakistan, Methuen, London.
5. Kundu, A. & Raza, M. (1990) Indian Economy : Regional Dimension, Spectrum Publishers, New Delhi.
6. Jean, Drize & Sen, Amartya (2000) : India – Economic Development and Social Opportunity, Oxford, New Delhi.
7. Singh, Jagdish : (1997) India – A Comprehensive Geography, Gyanodaya Prakashan, Gorakhpur.
8. Khuller, D.R. (2006) : India – A Comprehensive Geography, Kalyani Pub. New Delhi.
9. Sundram, K.V., Misra, R.P. & Rao, V.L.S.P. (1971) : Spatial Planning for Tribal Region, Institute of Development Studies, Mysore.

Paper – III (Optional)

(i) Political Geography**Unit-1**

Meaning, Scope and Development of Political Geography; Approaches to the Study of Political Geography with special Study of Functional and Unified Field Theory Approaches.

Unit-2

The Concept of Nation and State; Spatial Factors and Anatomy of State : Core Area and Capitals; Frontiers and Boundaries.

Unit-3

Global Strategic Views with particular emphasis on ideas of Mahan, Mackinder, Spykman and Deseveresky.

Unit-4

Origin and Success of Federalism in India; Elements of Electoral Geography; Geopolitical Setting of India.

Unit-5

Geopolitical Problems of India in Relation to its Neighbours; Significance of Indian Ocean; Regional Co-operations – SAARC, ASEAN, European Union.

Book Recommended :

1. Glassner, M.L. & Blij, H.J.de (1968) : Systematic Political Geography, John Wiley, New York.
2. Kasperson, R.E. & Minghi, J.V. (1971) : Structure of Political Geography, London.
3. Busted, M.A. (1980) : Developments in Political Geography, London.
4. Dikshit, R.D. (1989) : Political Geography : A Contemporary Perspective, Tata Mc Graw Hill, New Delhi.
5. Dikshit, S.K. (2007) : Rajnitik Bhoogol Avam Bhurajnit, Vishwavidyalaya Prakashan, Varanasi.
6. Carlson, L. (1971) : Geography and World Politics, Prentice Hall, New Jersey, 1971.
7. Pounds, N. J.G. (1977) : Political Geography, Mc Graw Hill, New York.
8. Dwivedi, R.L. (1980) : Political Geography, Chaitanya Publishing House, Allahabad.
9. Taylor, P. (1985) : Political Geography, Longman, London, 1985.
10. Johnston, R.J. (1982) : Geography and the State, Mac Millan, London.
11. Sinha, Manorama (1995) : Political Geography, Horizon Publication, Allahabad.
12. Sukhwai, B.L. (1985) : Modern Political Geography of India, Sterling Publication, New Delhi.
13. Chauhan, P.R. (1996) : Rajnitik Bhoogol, Vasundhara Prakashan, Gorakhpur.
14. Adhikari, S. (2005) : Political Geography of India, Sharada Pustak Bhawan, Allahabad.

(ii) Transport Geography**Unit-1**

Definition, Scope and Fundamental Concepts of Transport Geography; Transport Network System – Patterns of Movements.

Unit-2

Transport Modes, Hierarchy of Networks; Bases of Spatial Interaction – Complementarity, Intervening Opportunity and Transferability; Concept of Accessibility.

Unit-3

Relative Importance of Different Modes of Transport – Road, Rail, Air and Water; Evolution of Transport Network Model - Road, Rail, Air and Water with Special Reference to Taffee, Morrill and Gould.

Unit-4

Major Transport Routes of the World; Structure of Transport Network; Urban Transport and Network System.

Unit-5

Pattern of Transport System in India; Transport and Regional Development; Transport Policy and Planning.

Books Recommended :

1. Taffee, E.J. & Gauthier, H.L. (1973) Geography of Transportation, Prentice Hall.
2. Hurst, Elliot (1973) Transport Geography – Readings and Comments, Mc Graw Hill Book Co. New York.
3. Kansky, J. (1963) Structure of Transport Network, University of Chicago, Deptt. of Geography.
4. Singh, J. (1969) Transport Geography of South Bihar, N.G.S.I., B.H.U.
5. Singh, K.N. (1990) Transport Network in Rural Development in Eastern U.P., I.R.E.D., Gorakhpur.
6. Singh, K.N. (2005) Parivahan Bhoogol, Gyanodaya Prakashan, Gorakhpur.
7. Jain, J.K. (1997) Transport Economics, Chaitanya Pub. House, Allahabad.
8. Raza, M. & Agrawal, Y. (1986) Transport Geography of India, Concept Pub., New Delhi.
9. Robinson, H. & Banford, C. (1978) Geography of Transport, Mc Donald & Evans, London.
10. White, H.P. & Senior, M.L. (1983) Transport Geography, Longman, London.
11. Houle. B.S. (1973) Transport and Development, Mc Millan, London.

(iii) Geography of Health

Unit-1

Meaning, Scope, Significance, Development, Methods and Techniques of Geography of Health, Geographical factor affecting human health & diseases - Physical, Social, Economic and Environmental.

Unit-2

Vital & Health Indices; Classification of Diseases – Genetic, Communicable & Non-communicable, Occupational and Deficiency Diseases; Geography of Hunger and Malnutrition.

Unit-3

Pattern of Distribution of Major Diseases in the World; Ecology, Etiology and Transmission of Major Diseases – Cholera, Malaria, Tuberculosis, Hepatitis, Cancer, AIDS and STDs and their Regional Patterns with special reference to India.

Unit-4

Disease Diffusion Models and Health Care Accessibility Models; Health Care System – International Level – WHO, UNICEF & Red Cross; National Level – Government and NGO's.

Unit-5

Health Planning and Policies in India; Family Welfare; Immunization, National Disease Eradication & Health for all.

Books Recommended :

1. Cliff, A. & Haggett, P. (1989) : Atlas of Diseases Distribution, Basil Blackwell, Oxford.
2. May, J.M. (1970) : The World Atlas of Diseases, National Book Trust, New Delhi.
3. May, J.M. (1959) : Ecology of Human Diseases, M.D. Pub., New York.
4. Mc Glashan, N.D. (1972) : Medical Geography, Methuen, London.
5. Pyle, G. (1979) : Applied Medical Geography, Winston Halsted Press, Siver Spring, M.D. USA.
6. Akhtar, Raise (1971) : Environment and Health, New Delhi.
7. Learmonth, A.T.A. (1978) : Pattern of Disease and Hunger : A Study in Medical Geography, David & Charles, Victoria.
8. Akhtar, Raise & Learmonth, A.T.A. (1979) : Geographical Aspect of Health and Disease, New Delhi.
9. Shrivastava, Saroj (1993) : Medical Geography of Saryupar Plain, IRED, Gorakhpur.
10. Singhi, G.C. (1999) : Medical Geography (Hindi), Vasundhara Prakashan, Gorakhpur.
11. Bose, Kausik (2006) : Ecology, Culture, Nutrition, Health and Diseases, Kamla Raj Enterprises.
12. Singh, Rita (1998) : Vedic Medicine, Anmol Publication Pvt. Ltd., New Delhi.
13. World Health Organization (2003) : The World Health Report, Geneva.

(iv) Geography of Tourism

Unit-1

Concept, Nature, Scope & Approaches; Elements of Tourism; Evolution of Tourism Studies; Multiplier Effect of Tourism.

Unit-2 Cultural, Environmental, Socio-cultural & Economic Impact of Tourism; Types of Tourism – Cultural, Adventure, National & International.

Unit-3

Role of Infrastructure in Promotion of Tourism – Transport & Communication, and Markets; Information Technology; Travel Agents & Tour Operators.

Unit-4

Major Tourist Circuits of the World; Evolution & Growth of Tourism in India; Trend of Tourism in India, Major Tourist Circuits & their Salient Features.

Unit-5

Tourist Organizations : Domestic and International; Problems & Prospects of Tourism in India; Planning & Management of Tourism.

Books Recommended :

1. Robinson, H. (1976) A Geography of Tourism, Macdonald and Evans, London.
2. Milton, D. (1993) Geography of World Tourism, Prentice Hall, New York.
3. Hall, C.M. & Page, S.J. (1999) The Geography of Tourism & Recreation, Environment, Place & Space Routledge, London.
4. Bhatia, A.K. (1989) Tourism Development, Principles & Practices, Sterling, Bangalore.
5. Cris, Ryan (1991) Recreational Tourism : A Social Science Perspective, Routledge London.
6. Garg, N.K. (1996) Tourism & Economic Development, Avishkar, Jaipur.
7. Bhardwaj, D.S. & Chaudhary, M. (1997) Contemporary Issues in Tourism, Himalaya Pub., Mumbai.

Paper – IV (Optional)

(i) Urban Geography**Unit-1**

Meaning, Scope and Development of Urban Geography; Factors of Urban Growth – Ancient, Medieval and Modern Period.

Unit-2

Origin and Location of Modern Urban Settlements; Models of Urban Growth – Concentric Zone, Sectoral and Multinucle; Conurbations and Megalopolis.

Unit-3

Umland and Urban Fringe; Functional Classification of Urban Centres; Urban Hierarchy and Rank Size Relationship.

Unit-4

Morphology of Urban Settlement; Demographic Structure and Characteristics of Urban Population in India, Trends of Urbanization.

Unit-5

Occupational Pattern, Urban Amenities, Urban Land Use Problems, Problems of Cities and their Planning.

Books Recommended :

1. Tayler, G. (1964) Urban Geography, Methuen, London.
2. Mayer, H.M. & Kohn, C.F. (1967) : Reading in Urban Geography, Central Book Depot, Allahabad.
3. Rao, B.P. and Sharma, N. (2000) Urban Geography (in Hindi), Vasundhara Prakashan, Gorakhpur.
4. Bansal, S.C. (2008) Urban Geography (in Hindi), Meenakshi Prakashan, Meerut.
5. Singh, Ujagir (1974) Urban Geography (in Hindi), Uttar Pradesh Hindi Granth Academy, Lucknow.
6. Yadav, C.S. (1992) Urban Planning and Policies, Concept Publishing Company, New Delhi.
7. Karan, M.P. (1991) Urban Geography (in Hindi), Kitab Ghar Acharya Nagar, Kanpur.
8. Singh, O.P. (1979) Urban Geography (in Hindi), Tara Publication, Varanasi.
9. Singh, R.L. (1955) Banaras : A Study in Urban Geography, Nand Kishore & Sons, Varanasi.
10. Alam, S.M. (1965) Hyderabad-Secundrabad : A Study in Urban Geography, Allied Publishers, Mumbai.
11. Mandal, R.B. (2000) Urban Geography : A Textbook, Concept Publishing Company, New Delhi.

(ii) Regional Planning**Unit-1**

Concept, Scope and Purpose of Regional Planning; Theories of Regional Development – Economic Base Theory, Central Place Theory.

Unit-2

Concept of Growth Centre; Growth Centre Strategy for Regional Planning; Core – Periphery Relation.

Unit-3

Definition and Delimitation of Planning Regions; Planning Regions of India; Regional Planning for Rural Development with Special Reference to Eastern U.P.

Unit-4

Definition and Types of Infrastructure and their Role in Regional Development – Irrigation, Power, Transport and Marketing.

Unit- 5

Regional Planning as a Development Strategy since Independence in India.

Books Recommended :

1. Mishra, R.P. et.al. (1980): Multi Level Planning, Heritage Publishers, Delhi.
2. Mishra, R.P. et. Al. (1987): Regional Development Planning in India : A New Strategy Vikas Pub., New Delhi.
3. Mishra, R.P. (1992): Regional Planning: Concepts, Techniques, Policies and Case Studies, Concept Pub., New Delhi.
4. Alonso, W. & Friedmann, E. (1970): Regional Development and Planning, Longman, London.
5. Glassen, John (1978) : An Introduction to Regional Planning, Hutchinson, Educational, London.
6. Srivastava, V.K., Sharma N. & Chauhan, P.R. (2002): Pradeshik Niyojan Avam Santulit Vikas, Vasundhara Prakashan, Gorakhpur.
7. Dubey, K.K. & Singh. M.B. (1988): Pradeshik Niyojan, Tara Publication, Varanasi.
8. Ojha, R.N. (1987): Pradeshik Niyojan, Kitabghar Acharya Nagar, Kanpur.
9. Ginsburg, N.S. (1959): The Regional Concept and Planning, Regional Planning UNO, New York.
10. Bhat, L.S. (1973): Regional Planning in India, Statistical Publishing Society, Kolkata.
11. Glikson, Arther (1985): Regional Planning and Development, London.
12. Singh, J. (1981): Central Places & Integrated Development in a Backward Economy, Gorakhpur.

(iii) Natural Hazards & Disaster Management

Unit-1

Meaning and Concepts of Hazards and Disaster, Human Induced Disaster Classification, Concept of Hazard Analysis.

Unit-2

Risk Analysis and Vulnerability Analysis, Disaster Cycle. Natural Hazard: Typology – Geomorphic/Geological and Meteorological Hazards, Causes, Characteristics and Impacts.

Unit-3

Disaster Management: Meaning and Concept, Concept of Risk Reduction and Disaster Mitigation.

Unit-4

Role of UNO in Disaster Management, Disaster Management in India

Unit-5

Disaster Management: Policies and Approaches, Major Disasters and their Management in India.

Book Recommended :

1. Burton, I. et.al. (1978) Environment as Hazards, O.P.O., New York.
2. Petak, W.J. and Atkinson, A.D. (1982) Natural Hazards Risk Assessment and Public Policy, Springer, Verlay, New York.
3. White, G.F. (ed) (1974) Natural Hazards, Local, National and Global, Oxford University Press, London.
4. Bolt, B.A. et.al. (ed.) (1950) Geological Hazards, Springer, Verlay, New York.
5. Roy, P.S. et.al. (2000) Natural Disaster and their Mitigation, ITC Publication.

(iv) Advanced Cartography :

Unit-

Nature and Scope of Cartography, Development of Cartography- Greek, Roman, Ancient India, Medieval and Recent period.

Unit-2

The Spheroid and Coordinate System-UTM, UPS, and state Plane Co-ordinates; Map Scale and Projections-Classification, Basic Attributes and Choice; Data Ordering, Representation and Compilation ; Map construction-Positive, Negative and Complex Art Work.

Unit-3 Compiling of the Maps from other Maps by Mechanical and Digital Methods; Maps Design and Layout; Lettering, Graphics and Typography; Mechanics of Map Construction, Thematic and Complex Mapping; Cataloging and Storage of Maps.

Unit-4

Processing of Cartographic Data, Symbolization- Quantitative and Qualitative Data; Application of Aerial Photo Interpretation and Remote Sensing for Cartography, GIS and GPS for Survey and Map Making.

Unit-5

Computer Assisted Cartography; Map Reproduction; Indexing of International Toposheets and India and Adjacent Country Series Toposheets.

Books recommended:

1. Bygott, J. (1967) : An Introduction to Map Work and Practical Geography, University Tutorial, London
2. Lawrence, G.R.P. (1971) : Cartographic Method, Methuen, London
3. Debenham, F. (1936) : Map Making, M.S. Mill & Co. New York
4. Raise, E. (1946) : General Cartography, Mc Graw Hill, New York.
5. Monkhouse, F.J. and Wilkinson, H.R. (1966) : Maps and Diagrams, Methuen, London.
6. Robison A., et.al (1978) : Elements of Cartography, John Wiley and Sons, New York.
7. Singh, R.L., Singh, R.P.B. (1991) : Elements of Practical Geography, Kalyani Pub., New Delhi.
8. Birch, T.W. (1968) : Surveying and Mapping, Oxford University Press.
9. Yadav, H.L. (2001) : Prayogatmak Bhoogol, Radha Pub., New Delhi.
10. Brown, L.A. (1949) : Maps and Map Makers, Batsford, London.
11. Dickinson, G.C. (1969) : Maps and Air Photographs, Edward Arnold, London

Paper – V

Practical

- A- Field Study Tour-** (Outside of the Ganga Plain) and detailed field observation with sample survey. 25 Marks
Preparation of a report using sketches, diagrams & photographs of visited area.
- B- Project Report** – Based upon the field survey of an area given by the Head/Chairman of the Department. 15 Marks
- C- Practical Record & Viva-Voce** 10 Marks

Books Recommended:

1. Singh, R.L. et.al. (1991) : Elements of Practical Geography, Kalayani Publisher, New Delhi.
2. Yadav, H.L. (2001): Prayogatmak Bhoogol, Radha Publications, New Delhi.
3. Chauhan, P.R. (2003): Prayogatmak Bhoogol, Vasundhara Prakashan, Gorakhpur.
4. Sharma, J.P. (2003) : Prayogik Bhoogol, Rastogi Publications, Meerut.
5. Tiwari, R.C. and Tripathi, Sudhakar (2001): Abhinav Prayogatmak Bhoogol, Prayag Pushtak Bhawan, Allahabad.
6. Monkhouse, F.J. & Wilkinson, H.R. (1966) : Maps and Diagrams, Methuen, London.
7. Singh, L.R. (2001) : Practical Geography, Sharda Pustak Bhawan, Allahabad.