

M.A. Geography
Rules and Regulations

1. Only those candidate may offer Geography in M.A. who has offered Geography in B.A./B.Sc. Part III.
2. No private candidate shall be allowed to offer Geography in M.A.
3. The candidate has pass in theory and practical separately obtaining at least 36 per cent marks in each.

M.A. (Previous) Geography
Syllabus

Note :

1. These shall be four compulsory theory papers carrying 100 marks each and one practical paper with two sections (a) Cartography and (b) Field work, having 50 marks each.
2. The paper of cartography, carrying 50 marks shall be set and examination shall be conducted with theory examination in the Department of Geography of the University and Colleges.

<u>Papers</u>	<u>Maximum Marks</u>
I. Geomorphology	100
II. Man and Biosphere	100
III. Geography of Resources	100
IV. Geographical Thought – Concepts & Issues	100
V. Practical	100
(a) Cartography	50
(b) Field Work	50

Paper – I : Geomorphology : Study of Landscape **100 Marks**

Meaning, Scope and Fundamental Concepts of Geomorphology; Development of Geomorphology – American School, European School; Progress of Geomorphology in India; Recent Trend of Geomorphology; Earth Movements – Epeirogenesis and Orogenetic, Isostasy, Plate Tectonics.

Basis of Geomorphic Processes : Geomorphic Cycle and Land Forms in Humid, Arid, Glacial and Periglacial Environments, Polycyclic Land Forms, Erosion Surface and Climatic Geomorphology, Models of Land Scape Development – G.K. Gilbert, W.M. Davis, W. Penk, L.C. King, J.T. Hack, Morisawa, Regional Geomorphology of Kashmir Himalaya, Chhatonagpur, Thar Desearth and Deccan Trap.

Morphometric Analysis of Relief – Hypsographic Curve, Altimetry Frequency Curve, Histogram and Climographic Curve, Strahler Method of Drainage Ordering, Frequency and Density of the Drainage.

Applied Geomorphology – Relevance of Geomorphologic Knowledge to Regional Planning, Road and Dam construction, Mining, Urbanization and Natural Hazards.

Books Recommended :

1. Tharnbury, W.D. : Principles of Geomorphology.
2. Warcester : A Text Book of Geomorphology
3. Chorly, R.J. : Spatial Analysis in Geomorphology.
4. Sparks, B.W. : Geomorphology
5. King, L.C. : The Morphology of the Earth.
6. Singh, Savindra – Bhooakrity Vigyan.

Paper - II : Man and Biosphere

100 Marks

Biosphere as a Global Eco-system; Unity and Diversity in the Biosphere; Structure and Function of the Major Ecosystem; Major Biome of the World; Productivity, Stability and Liability of the Ecosystem, Nature of Environmental Crisis.

Man in the Biosphere; The Pleistocene Environment; Emergence of Homo Sapiens and Spread over the Globe; Impact of Technology and Culture on Biosphere; Resource Extraction Technology; Use of Fire; Domestication of Plants and Animals; Use of Fossils Fuels and Resource Conservation Technology; The Impact of Industrial Revolution, Transport, Communication; Space Intensifying Technology (Urbanization); Impact of Green Revolution on the Biosphere.

Man and Environment System –Environment, Development and Culture; Concept of Sustainable Development; Alternative Source of Energy; Technological Alternatives with Special Reference to Bio-technology.

Books Recommended :

1. Agrawal, D.P. : Man and Environment in India Through the Ages.
2. Hoy, J.B. : Man and Earth.
3. Odum, E.P. : Fundamentals of Ecology.
4. Harvey, B. & Hallet, J.D. : Environment and Society.
5. Paul, R. : Man and Environment : Crisis and Strategy of Coise.
6. Southwick, Carles : Global Ecology.
7. CSE : The State of Indian Environment : A Citizen Report.
8. Joy, T. : Bio-geography

9. Singh, Savindra : Environmental Geography (Hindi & English).

Paper – III : Geography of Resource

100 Marks

Geography of Resource – Definition, Nature and Scope; Concept and Classification of Resources; Resources and Development – Culture, Economic and Technological; Concept of Resource Adequacy and Scarcity.

Distribution and Characteristics of Major Natural Resources of the World; Soils, Forest, Water, Power and Minerals – Iron ore, Bauxite, Copper, Tin; Delimitation and Characteristics of Major Resource Regions of the World; Distribution and Characteristics of World Human Resource.

Problem of Resource Utilization; Population Pressure on Resources; Concept of Limits to Growth; Agricultural and Industrial Regions of the World; Models in Resource Utilization – Von Thunen, Jonathan, Israd and M.Smith.

Conservation and Management of Resource; Concept, Method and Approaches; Use and Conservation and Management of Resources at Global, National and Regional Level – Forest, Soils and Water; National Policy of India on Natural Resources – Forest and Water; Population Policy and Programmes in India.

Books Recommended :

1. Zimmerman, E.W. : Introduction to World Resources.
2. Stringer, E. & Davis, J.S. : Geography of Resources.
3. Ali, S.A. : Resources or Future Economic Growth.
4. Janaki. V.A. : Economic Geography.
5. Singh, J. : Resource Geography (Hindi).

Paper - IV : Geographical Thought : Concepts and Issues

100 Marks

Main Stages in the Evolution of Geographical Thought; Development of Dualism in Geography – Physical vs Human, Systematic vs Regional; The Fallacy of Dualism; Positivism in Geography; Quantitative Revolution and its Impact; Systems and Models in Geography; Radical Geography; Revival of the Ecological School; The Concept of Earth Surface; Concept of landscape; Concept of Region; Typology of regions; ; Concept of Spatial Organization; Geography as a Science of Relationships; Geography as a Science of Human Welfare; Phenomenology and Geography; Methods Explanation in Geography; Nature of Geographical Theories and Laws; Geography as a General Spatial System Theory; Development of Geographical Research in India; Research Methodology in Geography.

Books Recommended :

1. Ackerman, E.A. : Geography as a Fundamental Research Discipline.

2. Chorey, R.J. (ed.) : Direction in Geography.
3. Harvey, D. : Explanation in Geography.
4. Peet, R. : Radical Geography.
5. Johnston : Geography and Geographers.
6. James, P.E. & Jones C.F. : American Geography : Inventory and Prospect.
7. Minsul, R. : The Changing Nature of Geography.
8. Hartshorne, R. : The Nature of Geography & Perspective on Nature of Geography.
9. Dixit, R.D. : Geographical Thought (Hindi & English).
10. Singh, J. : Bhaugolik Chintan Ke Muladhar.

Paper – V : Practical

100 Marks

Part – 1 : Cartography

- (a) **Statistical Methods** : Collection, Processing and Management of Data; Concept and Methods of Sampling; Correlation – Pearson’s Product Movement(r), Spearman’s rank (ρ) Coefficient of Determination; Regression Analysis Scattered Diagram, Regression Line and Confidences Limit; Residuals and Residuals Mapping; Test of Significance; Chi square and Student T test. **20 Marks**
- (b) **Geological Maps** : Drawing of Cross Section : Inclined, Folded, Faulted Strata, Unconformable Series and Intrusion and Interpretation of Geological History; Nature Relief and Rock Structure. **15 Marks**
- (c) **Aerial Photo Interpretation and Remote Sensing** : Elements and Development of Aerial Photography and Remote Sensing; Determination of Scale of Photographs; Flight Planning; Calculation of Number of Runs & Photo for a given area; Preparation of Stereograms and Identification of Terrain from Stereo pairs; Land Use Analysis and Mapping; Interpretation of Imageries. **15 Marks**

Part - 2 : Field Work –

50 Marks

- (A) **Surveying** **25 Marks**
- (1) Surveying and Plotting of a given area by Telescopic Alidade **8 Marks**
- (2) Profile Leveling and Contouring by Dumpy Level **10 Marks**
- (3) Measurement of Horizontal and Vertical Angle by Theodolite **7 Marks**
- (B) **Survey Camp** : Survey camp in a given area for atleast three days and Surveying and Plotting of Leveling and Contouring. **15 Marks**
- (C) **Records and Viva** **10 Marks**

Books Recommended:

1. Aslam, Mahmood : Statistical Techniques in Geography.
2. Hammod, R. & Mc Cullagh : Quantitative Techniques in Geography.
3. Singh, R.L. & Singh, R.P.B. : Element of Practical Geography.
4. Yadav, H.L. : Fundamentals of Practical Geography (Hindi).
5. Rampal, R. : Aerial Photography and Photogrammetry.
6. Davis : Surveying.
7. Dickinson, G.C. Maps and Air Photos.
8. Monkhouse & Willkinson : Maps and Diagrams.
9. Chauhan, P.R. & Ram Surat : Practical Geography (Hindi).

M.A. II Geography

There shall be two compulsory theory paper carrying 100 marks each and two optional papers to be selected one from each group of optional papers. The optional papers have two parts theory of 75 marks and practical of 25 marks. There shall be one compulsory practical carrying total 100 which shall be divided into two sections – cartography of 50 marks and field work of 50 marks. A paper of cartography (paper V-A) will be set and examination shall be conducted with the theory examination in the lab of the Geography department of University and Colleges.

The candidate has to pass the theory and practical separately obtaining at least 36% marks in each.

COMPULSORY PAPERS

Paper I	Climatology & Oceanography	100 Marks
Paper II	Advance Geography of India	100 Marks

OPTIONAL PAPER

Paper III (Group A)

(a) Agricultural Geography

Paper IV (Group B)

(a) Political Geography

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| (b) Population Geography | (b) Transport Geography |
| (c) Industrial Geography | (c) Urban Geography |
| (d) Marketing Geography | (d) Regional Planning |
| (e) Remote Sensing & Photogrammetry | (e) Geographical Information System |
| (f) Rural Settlement | (f) Geography of Health |

Practical

- (a) Cartography** 50 Marks
- (b) Field Study**50 Marks

Paper I : Climatology and Oceanography

(A) Climatology:

Definition, Nature and Scope of Climatology; Heat Balance of the Earth; Air Masses and Fronts; Origin of Monsoon – Recent Concept; Climatic Classifications Given by Koppen, Thornthwaite and Triwartha with their Critical Appraisal; Applied Climatology; Climate and (i) Landforms, (ii) Vegetation, (iii) House Types and (iv) Agriculture; Human Impact on Climate – Green House Effect and Ozone Depletion; Regional and Micro Climatology; Urban Climatology and Heat Islands; Weather Forecasting.

(B) Oceanography:

Definition, Scope and Evolution of Oceanography; Submarine Morphology with special reference to Indian Ocean; Temperature and Salinity in the Oceans; Ocean and Climate Circulation of Oceanic Water – Currents; Marine Deposit; Life in the Ocean – Vegetation and Animals; Ocean and its Resources – (a) Biotic Resources, (b) Food Resources, (c) Minerals Resources, (d) Energy; (e) Transportation and Trade; Geopolitics and Oceans with Special Reference to Indian Ocean; Human Impact on Marine Environment.

Books Recommended:

1. Lal, D.S. - Climatology (Hindi & English), Sharda Pustak Bhawan, Allahabad.
2. Critchfield, H.J. - General Climatology, Prentice Hall of India, New Delhi.
3. Chorely, R.J. & Berry, R.G. - Atmosphere, Weather & Climate (London)
4. Lydolph, P.E. – The Climate of the Earth.
5. Gerald, S. – General Oceanography : An Introduction (New York)
6. King, C.A. (1986) - Oceanography, C.E. Arnold, London.
7. Thurman, H.B. (1983) - Introductory Oceanography, Longman, London.
8. Davis Richard J.A. – Oceanography : In Introduction to Marine Environment.

Paper – II : Advance Geography of India

Geological Evolution & Relief Features – Plains, Plateau & Mountains; Origin of Himalaya; Origin of River Systems Delimitation and Characteristic of Physiographic; Climatic & Agro-Climatic Regions; Geographical Factors behind Federalism and National Integration.

Spatial aspects of Growth and Distribution Population Resource Regions; Population Problems; Agricultural Development : Irrigation, Fertilizer; Green Revolution; Agricultural Regions & New Trends in Indian Agriculture; Mineral Resource Region; Industrial Policies & Trends of Industrialization; Industrial Regions & Industrial Complexes; Problems & Prospects of Industrially Backward Regions.

The Role of Transport Network, Marketing and Banking in Indian Economy; Regional Development Policies in Five Year Planes; Impact of Globalization and Multination on Indian Economy; Regional Pattern of Development and Disparities; Geographical Regionalization of India with special reference to Spate, Spate & R.L. Singh; Problem and Prospects of Resource base and Economic Development Pattern in Hill Region, Desert, Drought Prone Area, Flood Prone Area, Tribal Region.

Book Recommended :

1. R.L. Singh and Others – India : A Regional Geography
2. R.C. Tiwari, - Geography of India
3. J. Singh – A Comprehensive Geography of India
4. P.R. Chauhan & Mahatam Prasad - Geography of India
5. Spate – India and Pakistan
6. R.P. Mishra – Regional Development Planning in India
7. B.L. Sukhawal – Political Geography in India
8. R. Tirth and Gopal Krishan – Geography of India

Optional Paper – III (Group A)

(a) Agricultural Geography

Theory 75 marks

Definition and Scope of Agricultural Geography; Approaches to the study of Agricultural Geography; Origin' Dispersal, Development of Agriculture; Principles of Agricultural Location; Land Capability & Land Use Classification with Special Reference to India; Agricultural Efficient and Productivity Measurement; Crop-Combination Regions – Method of Delimitation by Weber and Doi; Crop-Combination Regions of India; Agricultural Intensity and Diversification; Agricultural Typology; Determination and Distribution; Measurement of Level of Agricultural Development; Impact of

Modern Agriculture on Environment; Green Revolution in India; Concept of Sustainable Agriculture; Planning of the Agricultural Land Use; Food Security in India.

Practical 25 marks

1. Techniques of Land Use Survey.
2. Agricultural Efficiency Measurement.
3. Carrying Capacity.
4. Measurement of Agricultural Intensity.
5. Land Use Planning of a given area.

Books Recommended :

1. Singh, B.B. - Krishi Bhoogol, Gorakhpur.
2. Singh, Jasbir – Agricultural Geography, Tata Mc Graw, New Delhi
3. Pandey, J.N. & Kamlesh, S.R. - Krishi Bhoogol, Gorakhpur.
4. Symons, Lt. - Agricultural Geography.
5. Kumar, P. & Sharma, S.K. - Krishi Bhoogol, Gorakhpur. Bhopal
6. Singh, B.N. - Krishi Bhoogol.

(b) Population Geography

Theory 75 marks

Population Geography - Definition, Scope and Approaches; Development of Population Geography; Population Geography vs. Demography; Sources of Population Data – Their Reliability and Comparability; Population Dynamics; Factors Influencing Distribution and Density of Population; World Patterns of Population; Growth of Population – Theories and World Pattern; Population Explosion; Growth and Distribution of India's Population; Measurements of Birth and Death Rates; Demographic Transition Theory; Population Composition – Age and Sex Composition, Occupational Structure, Literacy, Urbanization etc.; Migration – Types, Laws, Causes and Consequences; Concept of Optimum, Over and Under Population; Population Resource Region of the World; Population and Food Supply; Population Policies in Developed and Developing Countries; Trends of Family Planning; Food Production and Green Revolution in India; India's Population Policy; Population Planning with Special Reference to India.

Practical 25 marks

1. Preparation of Population Distribution Maps – Simple Dot, Multiple Dot, Sphere method.
2. Density Maps by Choropleths and Isopleths.
3. Exercise on Growth Pattern and Growth Model of World/India.
4. Analysis of Fertility Index.
5. Construction of Compound and Superimposed Pyramids.

6. Population Projection by Graphical, Mathematical and Logarithm Methods.
7. Interpretation of Population Maps of National Atlas of India (NATMO)
8. Analysis Population in Relation of Resource Use.

Book Recommended :

1. Chandna, R.C. - A Geography of Population (Hindi & English) Kalyani, New Delhi.
2. Clarke, J.L. - Population Geography.
3. Demko, G.J. (et.) - Population Geography : A Reader
4. Garnier, B.J. - Geography of Population.
5. Yadav, Hira Lal - Jansankhya Bhoogol, New Delhi.
6. Trewartha, G.T. – A Geography of Population.
7. Zelinsky, W. (ed.) – Geography and a Growing World.
8. Dubey, K.K. & Singh, M.B. – Population Geography (Hindi) Jaipur
9. R. D. Tripathi- Jansankhya Adhyayan

(c) Industrial Geography

Theory 75 marks

Definition and Scope of Industrial Geography; Recent Trends in Industrial Geography; Industrial Location Factors; Linkage in Industries; Industrial Location Theories – A. Weber, I.M. Hoover, Loschand Isard; Bases of Identification of Industrial Regions; Industrial Regions of U.S.A., Japan, U.K. and West Europe.

Industrialization in India – Industrial Development and Policies, Industrial Regions and Complexes; Impact of Globalization and Problems of Industrialization; Environmental Impact of Industrialization; Tourism as an Industry; Elements of Touris; Tourism in Uttaranchal and Eastern U.P.

Practical 25 marks

1. Analysis of Industrial Intensity – Location Quotient, Location Co-efficient, Location Curve.
2. Measurement of Industrial Development in a given region.
3. Study of an Industrial Complex/Estate regarding linkages and environmental problems.
4. Industrial Planning in a given region based on local resources.

Books Recommended :

1. Alezender, G. – Geography of Manufacturing (1967)
2. Miller, E. – Geography of Manufacturing, Prentice Hall.
3. Fridrich, J. Alfred Webger’s Theory of Location of Industries.
4. Riley, R.C. _ Industrial Geography, London.
5. Smith, D.M. – Industrial Geography.
6. Hooever, E.M. – Location in Space Economy.
7. Kumar, Pramila & Sharma, S.K. – Audhogik Bhoogol, Bhopal.
8. Lora, R.M. – Audhogi Bhoogol
9. Sharma, V.N. – Industrial Development and Planning in India.

(d) Marketing Geography

Theory 75 marks

Definition and Scope Marketing Geography ; Central Place Theory and its Modifications; Elements of a Market Place – Sellers and Consumers, Goods and Services, Business Establishments, Channels of Distribution – Wholesale, Retail and Services; Skinners Classification of Markets; Market Periodicity and Market Cycle their Spatio-temporal Synchronization; Rural and Urban Markets; Marketing Structure in Different Regional Settings; Marketing and Social Structure; Rural Marketing and Development; Market Studies in India.

Practical 25 marks

1. Techniques of Study – Cartographic and Statistical Methods, Questionnaire Method.
2. Analyses of data-consumer and trader frequency graphs, correlation between number and type of shops, shop openings and shop opening days.
3. Structure of Shops.
4. Measurement of Spatio-temporal Synchronization.
5. Delimitation of market area region.

6. Identification of Market cycle from a given map of market days.
7. Determination of hierarchy of markets using 'SODA' method.
8. Study of a market place through field work under the following heads; origin and development, temporal and spatial location, Determinates of market size, Elements of layout, spatial characteristics and functions, Market area region, Globalization of Relating, WTO Free Market Economy-Human Dimensions.

Books Recommended :

1. Berry, B.J.L. – Geography of Market Centres and Retailing, Prentice Hall.
2. Saxena, H.M. – Marketing Geography, Jaipur.
3. Skinner, G.W. – Marketing and Social Structure in Rural China, Journal of Asian Studies, Vol. 24.
4. Yadav, H.R. – (ed. Yadav, H.L.) Retailing in Saryupar Plain (Hindi), Radha Publications, New Delhi.
5. Davies, R.L. - Marketing Geography.
6. Shrivastava, V.K. – (ed) Commercial Activities in South Asia, Concept Publications, New Delhi.
7. Shrivastava, V.K. & Dixit, R.S., Biparan Bhoogol.

(e) Remote Sensing and Photogrammetry

Theory 75 marks

- (a) Remote Sensing :** Definition, Scope and Development of Remote Sensing; Techniques in India and abroad; Advantages, Use of Remote Sensing in Geographical Studies; Fundamentals of Remote Sensing and Aerial Photography – Nature of Electromagnetic Radiation, Range of Electromagnetic Spectrum for Remote Sensing; Types of Platforms and Sensors; Main Characteristics of Satellites and their Images – LANDSAT, ERTS, SPOT, IRS, Remote Sensing; Data Acquisition and Processing; Use of Remote Sensing for Resource Survey.
- (b) Aerial Photography :** History of Aerial and Space Photography; Aerial Camera; Typology of Aerial Photographs; Photographic Mosaic; Basic Information for Aerial Photography; Planning, Operational Procedures, Output of Photography; Procedure of Procurement of Aerial Photographs in India.
- (c) Photogrammetry and Image Interpretation :** Geometry of Photographs, Tilt, Swing, Image Displacement, Stereoscopic View, Mosaicing, Ratification, Fundamentals of Image Interpretation, Elements; Image Interpretation Keys, Stages and Procedures of Image Interpretation.

Practical 25 marks

Photogrammetry – Stereovision, Orientation of Photo under pocket and Mirror Stereoscope, Point Transfer, Flight line and Matches Line, Construction of Stereogram, Stereo triplet and mosaic Measurements of Aerial Photographs – Scale, distance, Height and are making of base Map with the help of Aerial Photographs, Delimitation of Physical and Cultural Homogeneous region on the Photographs and their Mapping.

Books Recommended :

1. Avery, T. Bugene - Interpretation of Aerial Photograph and Cartography.
2. Yadav, Hiral Lal – Fundamentals of Practical Geography.
3. Monkhouse & Willikinson – Mapa and Diagrams.
4. Raise – World Cartography.
5. Dickinson, G.C. – Maps and Airphotos.
6. Makel, Savage & Zorn – Slope Measurements & Estimates from Aerial Photographs.
7. I.T.C. Exercise Book of Photogrammetry and Photo Interpretation.
8. Gautam (ed.) Technical Development & Geography.
9. Ram Pal - Photogrametry.
10. Sharma – Remote Sensing for Resources Survey.

(f) Rural Settlement Geography

Theory 75 marks

Nature, Scope, Significance and Development of Rural Settlement; Approaches to Settlement Geography; Types and Pattern of Rural Settlement; Histrogenesis, Spatio-temporal Dimensions and Morphogenesis of Rural Settlement; Site, Shape, Size and Spacing of Rural Settlement; Morphology and Functions; Cause of Rural Urban Nexus; Spatial Relation of an Indian Rural Settlement; Rural House Type; Rural Service Centres and Planning of Rural Settlement.

Practical 25 marks

1. Interpretation, Survey and Mapping of Rural Settlement.
2. Types and Patterns of Rural Settlement.
3. Village Morphology.
4. Planning of Rural Settlement.

Books Recommended :

1. Chisolum M-Rural Settlement and Law Use.

2. Clout - Rural Geography : An Introductory Survey.
3. Hudson, F.S. – Geography of Settlement.
4. Lal, H. – City and Urban Fringe, Concept, New Delhi.
5. Mandal, R.B. – Introduction to Rural Settlement.
6. Singh, R.L., Singh, K.N. – Readings in Rural Settlements Geography.
7. Tiwari, R.C. – Adhewas Bhoogol, Allahabad.

Optional Paper – IV (Group B)

(a) Political Geography

Theory 75 marks

Nature and Scope, Development of Political Geography; Approaches to the Study of Political Geography with special reference to German, British and American Schools; The State and Nation; Anatomy of States : Core Areas and Capitals Frontiers and Boundaries; Functions and Classifications; Approaches to the study of Political Geography with special reference to Functional and unified field theory approaches; Global Strategic views with particular emphasis on ideas of Mahan, Mackinder, Spykman & Deseveresky; Impress of Politics upon Landscape; Elements of Electoral Geography; Contemporary International Problems and Problematic Areas; political organization and the 'Non Align Movement'.

Geopolitical setting of India, Origin and Success of Federalism in India in view of its Politico Administrative Structure; Geographical Problems of India in Relation to its Neighbours, SAARC. The pattern of Languages and Religions of India and their Political significance.

Practical 25 marks

1. Cartographic Representation of India's Global and Strategic Position under Land, Sea and Air Power Setting.
2. Analysis of size and shape of Administrative units and National and Local Level in View of Administrative Efficiency and Planning.
3. Application of Cartographic & Statistical Technique in Electoral Geography of given area.

Book Recommended :

1. Glassner, M.I. & Blij H.J.De : Systemic Political Geography, New York.
2. Kasperson, R.E. & Minghi, J.V. : Structure of Political Geography, London.
3. Busted, N.A. : Developments in Political Geography.
4. Dergman, E.F. - Modern Political Geography, London.
5. Dixit, R.D. : Political Geography : A Contemporary Perspective, New Delhi.
6. Shrivastava, R.M. – Rajnitik Bhoogol, Allahabad.

7. Chauhan, P.R. : Rajnitik Bhoogol, Gorakhpur.
8. Dixit, S.K. : Rajnitik Bhoogol, Gorakhpur.
9. Dixit, S.K. – Electoral Geography, Varanasi.
10. Dwivedi, R.L. : Political Geography, Allahabad.

(b) Transport Geography

Theory 75 marks

Definition and Scope of Transport Geography; Evolution of Transportation – Pre Industrial Era, Ninetieth Century, Twentieth Century; Characteristic and Relative Significance of Different Means of Transport; Evolution of Transport Network Model with special Reference to Taaffe, Morrill and Gould; Structure of Transport Network; Concept of Accessibility and Locational Utility; Bases of Spatial Interaction – Complementarity, Intervening Opportunity; Transferability; Concept of Gravity Potential Model and Spatial Interaction. Theories Related to Freight Determination. Transport System in India (i) Rail (ii) Road (iii) Waterway (iv) Air Transport; Major Transport Routes of the World; Concept of Accessibility; Transport and Regional Development' Transport Planning.

Practical 25 marks

1. Analysis of the structure and spatial variation of Transport Network of Traditional and Graph theoretic method. (Cyclomatic, Alpha, Beta and Gamma), Accessibility matrix.
2. Application of Gravity Potential Model Showing Transport Interaction.
3. Traffic Flow Analysis on the Bases of given flow data.
4. Connecting and detour incidences.
5. Degree of circuits.
6. Transportation Planning for a given region under specific assumption.

Books Recommended :

1. Hurst, Elliot - Transport Geography : Comments and Readings.
2. Kansky, J. – The Structure of Transport Network.
3. Roloinson, R. – The Geography of Transport.
4. Singh, Jagdish - The Transport Geography of South Bihar.
5. Singh, K.N. - Transport Network Analysis in Geography.

(c) Urban Geography

Theory 75 marks

Meaning, Scope and Development of Urban Geography; Factors of Urban Growth – Ancient, Medieval and Modern Period; City as Centre of Change; Origin and Location of Modern Urban Settlement; the Models of Urban Growth – Concentric Zone, Sectoral and Multinucle; Conurbations and Megalopolis; Urban Umland and Urban Fringe; Functional Classification of Urban Centres; Urban Hierarchy and Rank Size Relationship; Morphology of Urban Settlement; Indian Urban Scenario – Demographic Structure and Characteristics of Urban Population, Trend of Urbanization, Occupational Pattern, Urban Amenities, Urban Land Use Problems, City Problems and Urban Planning; the Role of Geographer in Town Planning; Special Study of KAVAL Towns of U.P. – Residential Problems, Morphological Characteristics and Functional Characteristics.

Practical 25 marks

1. Population Projection and Population Growth Forecasting.
2. Delimitation of Umland and Urban Fringe.
3. Study of Typical Master Plans.
4. Study of Typical Morphology
5. Functional Classification of Towns.
6. Town Planning.
7. Selection of Sites for Town and their Planning.

Books Recommended :

1. Smailes – The Geography of Town.
2. Dichinson – West European Cities.
3. Murphy – The American Cities.
4. Mayers and Kohn – Reading in Urban Geography.
5. Tayler, G. - Urban Geography.
6. Loomfield – Cities and Towns.
7. Singh, H.H. – Kanpur : A Study in Urban Geography.
8. Lal, H. – City and Urban Fringe : A Case of Bareilly.
9. Bansal, S.C. – Nagreey Bhoogol, Varanasi.
10. Singh, O.P. - Nagreey Bhoogol, Lucknow.
11. Singh, U. - Nagreey Bhoogol, Allahabad.
12. Tiwari, R.C. - Adhivas Bhoogol, Allahabad.
13. Rai, S. – Urbanizations in Haryana (Hindi), Delhi.

(d) Regional Planning

Theory 75 marks

Philosophy, Concept, Scope and Purpose of Regional Planning; Theories of Regional Development – Economic Base Theory, Inter Regional Trade, Central Place Theory; Planning Processes – Sectoral & Temporal Approaches to Regional Planning at Micro, Meso and Macro Levels; The Concept of Growth Centres, Growth Centre Strategy for Regional Planning; Concept of Rural Economy and Core–Periphery Relationship; Delimitation of Planning Regions; Planning Regions of India; Regional Planning for Rural Development with Special Reference to Eastern U.P.; Role of Innovation Diffusion; Significance and Role of Infrastructural Elements viz. – Irrigation, Power, Transport Communication and Marketing in Regional Planning; Spatial Organization for Regional Development; Metropolitan Regions and Approaches to their Planning in India; Regional Planning as a Development Strategy since Independence in India.

Practical 25 marks

1. Study of river valley project areas and integrated planning exercise.
2. Identification of Growth Centres.
3. Planning of Infrastructural Elements.
4. Preparation of Development Plans to Local Levels.
5. Metropolitan of Regional Planning.
6. Delimitation of Planning Regions.

Books Recommended :

1. Freeman, W. – Geography and Planning.
2. Alonso and Friedman - Regional Development and Planning.
3. Mishra, R.P. - Regional Development Planning.
4. Issard, W. – Methods of Regional Analysis.
5. Singh, J. – Central Places and Spatial Organization in a Backward Economy.
6. Abercromble, P. – Town and Country Planning.
7. Enayat Ahman - Regional Planning with Special Reference to India.
8. Srivastava, V.K., Sharma N. & Chauhan, P.R. (2002) : Pradeshik Niyojan awan Vikas.
9. Ojha, R.: Pradeshik Niyojan, Kanpur.
10. Dubey, K.K. & Singh. M.B. : Pradeshik Niyojan, Varanasi.
11. Pandey, J.N. Sansadhari Sanrachan Awan Upyog – Purvi U.P.

(e) Geographical Information System

Theory 75 marks

Definitions, Development and Objectives of GIS; Component of GIS; Functional Clements of GIS-data Equisation; Pre-Processing, Data Management, Product Generation; Current Issues and Recent Trends in GIS; Computer Fundamentals for GIS - Hardware & Software; Spatial & Non-Spatial Data; Data Structure – Raster & Vector; Concept of Data Base; Databace Structures – Hierarchial, Network, Relational, DBMS, RDBMS, Data Handling in GIS – Data Source, Georeferencing, Data Input-Verification and Editing; Topology Creations, Normalization & Output; Errors in GIS; Spatial Data Analysis – Raster – Vector Based; Network Analysis, DEM & its Application; Concept and Application of Remote Sensing and GPS in GIS, GIS Application in Planning & Disaster Management.

Practical 25 marks

1. Computer Assisted Cartography Using a GIS Software.
2. GIS Project Design.
3. Database Creation.
4. DEM Generation.

Books Recommended :

1. Burrough, P.A. - Principles of GIS for Land Resource Assessment.
2. Burrough, P.A. & Mc Donnel – Principles of Geographical System.
3. Haywood, I. Correlium, S. Caxer, S. – An Interoduction to Geographical Information System.
4. Lauxim, R. & Thomson, D. – Fundamentals of Spatial Information System.

5. Longley, P.A. Goodchild, M.F. etc. – Geographical Information System and Science.
6. Brice E. D. - GIS : A Visual Approach.
7. Jonson, J.N.R. – Introduction to Digital Image Processing : A Remote Sensing Perspective.

(e) Geography of Health

Theory 75 marks

Meaning, Scope, Significance, Development, Methods and Techniques of Geography of Health; Geographical Factors Affecting Human Health & Diseases – Physical, Social, Economic and Environmental; Vital & Health India Ces; Classification of Diseases Genetic, Communicable & Non-communicable Occupational and Deficiency Diseases; Geography of Huger and Malnutrition; 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 study with special reference to India; Disease Diffusion Models and Health Care; Accessibility Models; Health Care – International Level – WHO, UNICEF & REDCROSS; National Level – Government and NGO's, Health Planning and Policy in India Family Welfare, Immunization, National Disease Eradication & Health for all.

Practical 25 marks

1. Models in the Geography of Health.
2. Mapping of Diseases in U.P. – Malaria, Cholera, Tuberculosis, Encephalitis & Nation Disorder.
3. Comparative Study of Rural & Urban Health.
4. Disease and their Relation with Environment.
5. Mapping of Health Care Facilities.

Books Recommended :

1. Cliff, A. & Hagget, P. – Atlas of Disease Distribution.
2. May, J.M. – Study in Disease Ecology.
3. May, J.M. – Ecology of Human Disease.
4. Forste, D.H. – Health, Disease and Environment.
5. Pyle, G.P. – Applied Medical Geography.
6. Mishra, R.P.L. – Medical Geography of India.
7. Rais, Akhter – Environment and Health.
8. Learmonth, A.T.A. – Disease Ecology.
9. Hunter, J.M. – Geography of Health and Disease.

10. Raise, A. and Learmonth, A.T.A. – Geographical Aspect of Health and Disease.

Paper – V

Practical Geography

A. Cartography 50 Marks

- (a) **Cartograms** - Climatic Diagrams Rainfall Dispersion Diagram; Water Budget; Ergo-graph – Climatic and Circular; Thematic Cartograms – Choropleth, Isopleth, Chorochromatic Diagram; Multiple Dot, Spherical Diagram, Traffic Flow, Land Utilization Maps.
20 Marks
- (b) **Map Projections** : Meaning, Classification and Choice of Projections; Construction and Characterization of Projection – Lambert’s Conical, Polyconic, Galls, Mercator’s Gnomonic Equatorial Zenithal, Stereographic Equatorial Zenithal, Orthographic Equatorial Zenithal, Sinusoidal, Mollweide and their interrupted cases, International U.T.M. 15 Marks
- (c) **System Analysis** : Measurement of Spatial Pattern and Inequality – Z score, Lorenz Curve and Gini Coefficient, Location Quotient, Coefficient of Localization & Localization Curve Nearest Neighbor Analysis, Network Analysis, Graph Techniques and Degree of Connectivity, Shape Analysis, Gravity Models, Retail Gravitation.
15 Marks

B. Field Work

50 Marks

- (a) Field Study tour (Outside of the Ganga Plain) and detailed field observation using sample survey, sketch, diagrams and photographs and preparation of report of visited area.
25 Marks
- (b) Project Report – Based upon the field survey of a area give by Head/Chairman of the department. 15 Marks

C. Record and Viva

10 Marks

Books Recommended:

Same as M.A.I