



DEPARTMENT OF GEOGRAPHY

UNIVERSITY OF LUCKNOW

M .A. Geography Semester wise Syllabus

M. A – I Semester – I

Paper - I	Evolution of Geographical Thought	100
Paper – II	Geomorphology	100
Paper – III	Population Geography	100
Paper – IV	Agricultural Geography	100
Paper- V	Practical : Advanced Cartography	100

M. A – I Semester – II

Paper - I	Geography of Resources	100
Paper – II	Climatology	100
Paper – III	Urban Geography	100
Paper – IV	Political Geography	100
Paper - V	Practical : (a) Instrumental Survey (b) Educational Tour/Socio Economic Survey	100

M. A – I Semester – III

Paper - I	Regional Planning and Development	100
Paper – II	Oceanography	100
Paper – III	Social and Cultural Geography	100
Paper – IV	Regional Geography of World	100
Paper - V	Practical : Quantitative Techniques and Models in Geography	100

M. A – I Semester – IV

Paper - I	Advanced Geography of India	100
Paper – II	Environmental Geography	100
Paper – III	Geography of Water Resources Or Remote Sensing & GIS	100
Paper – IV	Fluvial Geomorphology Or Geography of Tourism	100
Paper - V	Practical : (i) Research Methodology : 50 (ii) Dissertation : 50	100



DEPARTMENT OF GEOGRAPHY

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SEMESTER-I

PAPER-I : EVOLUTION OF GEOGRAPHICAL THOUGHT

Unit-I

The field of geography : nature, meaning and scope

Fundamental concepts : aerial differentiation, spatial organization and others.

Unit-II

Historical development during ancient and medieval period, Contribution of greeks, Roman, Indian, Arabs and Renaissance.

Unit-III

Modern geographical thought, Contribution of German. French, British, American school of thought, Dualisms and dichotomies in geography : general Vs. regional. Determinism Vs. possibilism.

Unit-IV

Conceptual and methodological development during 20th century : quantitative revolution, location analysis, paradigms, laws and models,

Modern themes in geographical thought : positivism, radicalism, behaviouralism and humanism, Contribution to Indian geography.

Suggested Readings:

1. Abler, Ronald; Adams, John S. Gould, Peter : Spatical Organization : The Geographer's View of the world. Prentice Hall. N.I, 1971.
2. Ali, S.M. : The Geography of Puranas. Peoples of Publishing House, Delhi, 1966.
3. Amedeo, Douglas : An Introduction to scientific Reasoning in Geography, John Wiley, U.S.A. 1971.
4. Dikshit, R. D. (ed.) :The Arts and Science of Geography Integrated Readings, Prentice Hall of India, New Delhi, 1994.
5. Hartshone, R. Perspectives on Nature of Geography, Rand McNally & co. 1959.
6. Husain, M.; Evaluation of Geographical thought, Rawat Publication, Jaipur, 1984.
7. Johnston, R.J.; Philosophy and Human Geography, Edward Arnold, London, 1983.
8. Johnston, R. H.; The future of Geography, Methuen, London, 1988.
9. Mishull, R.; The Changing Nature of Geography, Hutchinonson University Library, London, 1970.



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PAPER-II : GEOMORPHOLOGY

Unit-I

Basics of geomorphology, Fundamental concepts : geological structures and landforms uniformitarianism, polyeyclic landforms, Geological timescale.

Unit-II

Endogenic processes : Continental drift, Plate teetonics, Seismicity, Vuleanicity, Morphological & teaching subdivision of Himalaya.

Unit-III

Exogenic processes : Weathering and erosion, Normal cycle of erosion – Davics and Penck, Glacial, Aeolian, marine and karst processes and related landforms.

Unit-IV

Fluvial processes and related landforms, Drainage pattern and morph metric analysis, Applied geomorphology, Environmental geomorphology.

Suggested Readings:

1. Chorley. R. J.; Spatial Analysis in Geomorphology, Methuen, London, 1972.
2. Cooke, R. U. and Doornkamp, J.C. Geomorphology Environmental Management – A Introduction. Clarendon Press. Oxford, 1974.
3. Fairbridge, R. W. Encyclopedia of Geomorphology, Reinholdts. New York. 1968.
4. Guoudie. A ; The Nature of the Environment Oxford & Blackwell, London, 1993.
5. Garner, H. F. ; The Origin of landscape – A Synthesis Geomorphology, Oxford University Press, London, 1974.
6. Dur, G.H. The Face of the Earth, Penguin Harmondsworth, 1959.
7. Mitchell, C. W., Terrain Evaluation, Longman, London, 1973.
8. Ollier, C. D. Weathering, Longmen, London, 1979.
9. Pitty, A. F. Introduction to Geomorphology, Methuen, London, 1971.
10. Stoddart, D. R. (ed.) Process and Form in Geomorphology, Routledge, New York. 1996.
11. Skinner, B. J. & Porter, S.C.; The Dynamic Earth john Wiely, New York, 1995.
12. Sparks, B. W. Geomorphology, Longman, London, 1960.
13. Sharma, H. S. (ed.) Perspectives in Geomorphology. Concepts, New Delhi, 1980.
14. Singh, S.; Geomorphology, Prayag Publication, Allahabad, 1998.
15. Thornbur, W. D. Principles of Geomorpholgy, john Wiley, New York, 1960.



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PAPER-III : POPULATION GEOGRAPHY

Unit-I

Population Geography : nature, meaning and scope, Sources of population data. Theories of population : classical and modern.

Unit-II

Population distribution, density and growth, World and their determinants. Concept of under population, over population and optimum population.

Unit-III

Population Composition : age and sex, literacy, rural-urban, occupational structure (India), Population dynamics : measurements of fertility and mortality, Migration ; types, causes, effect and pattern.

Unit-IV

Population resource regions, Human development index and its components ; Population policies in development and developing countries with special reference to India.

Suggested Readings:

1. Builasborrow, Richard F. and Daniel Hogan, Population and Deforestation in the Humid Tropics International Union for the Scientific study of population, Begium, 1999.
2. Bogue, D. J. Principles in Demography, John Wiley, New York, 1969.
3. Bose, Ashish et. all.; Population India's Development (1947-2000); Vikash Publication House, New Delhi, 1974.
4. Census of India . India : A state Profile, 199.
5. Chandra, R. C. Geography of Population Concepts. Determinants and Patterns, Kalyani Publishers, New York. 2000.
6. Clarke, John I.; Population geography, pergamon Press, Oxford, 1973.
7. Crook, Nigel : Principal of population and Development, Permon Press, New York, 1997.
8. Garnier, B. J. Geography of Population, Longman, London, 1970.
9. Kochhar, Rajesh. The vedic People : Their History and Geography Orient Longman Ltd. New Delhi. 2000.
10. Mamoria, C. B. India's population Problems, Kitab Mahai New York, 1981.
11. Mitra Ashok, India's Population Problems, kitab Mahal and Control Vol. I & II , Abhinav Publications, New Delhi, 1978.
12. Premi, M. K. India's Population : Heading Towards a Billion, B. R. Publishing Corporation, 1991.
13. Srinivasan, K. and M. Vlassoff, Population Development Nexus in India, Challenges for the new Millennium, Tata McGraaw Hill, New Dilhi, 2001.



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PAPER-IV : AGRICULTURAL GEOGRAPHY

Unit-I

Nature, scope, significance and development of agriculture geography, Approaches to the study of agriculture geography, Methods and types of cultivation.

Unit-II

Determinants of agricultural land use : land holding and land tenure systems, land reforms, intensity of cropping, diversification, efficiency and productivity, crop combination regions of India.

Unit-III

Theories of agricultural location based on several multi-dimensional factors, Von thunes's theory of agricultural location and its recent modifications, Whittlessey's classification of agriculture regions, land use and land capability.

Unit-IV

Agricultural in India : green revolution, white revolution, Food deficit and food surplus regions, Nutritional index, Specific problems in Indian agriculture and their management, Dry land agricultural, Agricultural Policy in India.

Suggested Readings :

1. Bayliss Smit, T. P.; The Ecology of Agricultural Systems, Combridge university Press, London, 1987.
2. Berkry, B. J. L. et. all.; The Geographic of Economic Systems. Prentice Hall York, 1976.
3. Brown L. R. .; The Changing World Food Prospects- The Nineties and Beyond Watch Institute, Washington D. C., 1990.
4. Dyson, T.; Population and Food- Globai Trends and Future Prospects, Routledge, London, 1996.
5. Gregor, H. P. Geography of Agriculture, Prentice Hall, New York, 1970.
6. Grigg. D. B.; The Agricultural Systems of the World, Combridge, Univrsity Press, New York, 1974.
7. Hartshorn, T, N. and Alexander, J. W. Economic Geography, prentice Hall, New York, 1988.
8. Mannion. A.M.; Agriculture and Environment Change, John Wiley, London, 1995.
9. Morgan W. B. and Norton, R.J.C.; Agricultural Geography Mathuen, Lodon, 1971.
10. Morgan, W.B. Agriculture In the Third World – A spatial Analysis Westview Press, Boulder, 1978.
11. Sauer, C. O. Agricultural Origins and Dispersals, M.I.T. Press Mass, U.S.A., 1969.
12. Singh, J. and Dhillon, S.S.; Agricultural Geography, Tata Mc McGraw Hill Pub. New Delhi, 1988.
13. Tarrant, J. R.; Agricultural Geography, Whiley, New York, 1974.



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PAPER-V : PRACTICAL : ADVANCED CARTOGRAPHY

Unit-I : Introduction to Cartography

Slope Analysis- Wentworth's Method, G.H Smith's Methods, Raisz and Henry method and Robinson's methods. Introduction of Geological maps, Geological cross section. Block Diagrams – One and Two point perspective.

Unit-II Map Projection

Bonne's and Polyconic projection, Mercators and sinusoidal Projections. Zenithal Projections – Zenithal equal area projection (Polar case), Zenithal Sterographic projection (equatorial case) Gnomonic projection (equatorial case)

Unit-III

Mapping of spatial data : mapping of point data – graduated mapping, mapping of line data – flow line mapping of area data, mapping of volume data-choropleth mapping, dasymetric mapping, isopleth mapping, dot mapping, multivariate mapping.

Unit-IV

Elementary photography and air photo interpretation, General equipment used in aerial photo interpretation, Interpretation of aerial photographs & satellite imagery. Geographical information systems.

Lab. / Written work : 80 marks
Record and & Viva – voce : 20 marks

Suggested Reading:

1. Clendinning, J. Principles and use of Surveying Instruments 2nd edition, Blockie, A, 1958.
2. Clendinning, J. Principles of Surveying end edition, 1960.
3. Hotine, Major M. The re-trinagulation of Great Britain, Empire Survey review, 1935.
4. Mishra, R. P. and Ramesh A, ; Fundamentals of Cartography Revised Edition, Concepts publication, New Delhi.
5. Monkhouse, Maps and diagrams Methuen, 1971.
6. Negi Balbir, Singh Practical Geography, Third revised Ed. Kedar Nath and Ram Nath Meerut and Delhi, 1994.
7. Sandover, J. A. Plane Surveying, Arnold, 1961.
8. Singh & Karamjita – Map Work and Practical Geography, Central Book Dept. Allahabad, 1972.
9. Singh, R. L. and Dutt. P. K. Elements of practical Geography, Students Friends, Allhabad, 1968.



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SEMESTER II

PAPER-I : GEOGRAPHY OF RESOURCES

Unit-I

Basics of resource Geography : Definition, concept, nature and scope of resource geography approaches to resource geography, concepts and classification of resource, Resource appraisal.

Unit-II

World Resource : Natural and Human resources concepts, utilization : optimum, underuse, misuse and overuse of resources.

Natural Resources - Land, Soil, Water, vegetation, mineral and power

Human Resources - population as a resource, world distribution of population, appraisal of quantity and quality of human resource.

Unit-III

Stages of resource development : agriculture and industries, major industrial regions of the world. Theories and models ; weber, losch and Isard.

Unit-IV

Resource planning, delineation of resource regions, Resource conservation and world energy crises.

Books.

1. Zimmerman, E. W. World Resource and Industries.
2. Smith G. H. (ed.) Conservation of Natural Resource.
3. Burton & Kates, R.W. Reading in Resource.
4. Mamilton, I Resource and Industries.
5. Negi, B.S. (1997) Geography of Resource, Meerut,



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PAPER – II : CLIMATOLOGY

Unit-I

Basics of climatology, Composition and structure of the atmosphere. Atmospheric pressure, Distribution and general circulation of winds, Temperature, Insolation and heat budget of earth.

Unit-II

Atmospheric moisture: humidity, evaporation, condensation, Precipitation: formation, types, world pattern of precipitation, Airmasses: origin, growth and classification, Fronts: characteristics, Weather condition and origin of tropical and temperate cyclone.

Unit-III

EI- Nino, La –Nina, Southern oscillation.

Climatic classification: classification of Koppen, Thornthwaite, Major climatic regions of the World.

Unit-IV

Climatic changes: evidence of climatic changes. Anthropogenic urban climate change, Global warming, Ozone depletion, Acid rain, Weather forecasting.

Suggested Readings:

1. Barry, R.G. and Chorley, P.J.: Atmosphere, Weather and Climate, Routledge, London and New York, 1968.
2. Critchfield, J.H.: General Climatology, Prentice Hall, India, new Delhi, 1993.
3. Das, P.K.: Monsoons National Book Trust, New Delhi, 1987.
4. Fein, J.S. and Stephens, P.N.: Monsoon, Wiley Interscience, 1987.
5. India Met. Deptt.: Climatological Tables of Observatories in India, Govt. of India, 1968.
6. Lal, D.S.: Climatology, Chaitanya Publications, Allahabad, 1986.
7. Lydolph, P.e.: The Climate of the Earth, Rowman, 1985.
8. menon, P.a.: Our Weather, N.B.T., New Delhi, 1989.
9. Peterson, S.: Introduction to meteorology, McGraw Hill Book, London, 1969.
10. Robinson, P.J. and Henderson S.: Contemporary Climatology, Henlow, 1999.
11. Thompson, R.D. and Perry, A. (ed.): Applied Climatology, principles and Practice, Routledge, London, 1997.
12. Kumar, B and Singh, R.B. Urban Development and Anthropogenic Climate Change, Mahak Pub, New Delhi, 2001.
13. Sen Roy., S. and Singh, R. B. Climate Variability, Extremes Events and Agricultural Productivity in mountain Resgion, Oxford & IBN Pub, New Delhi, 2002.



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PAPER-III : URBAN GEOGRAPHY

Unit-I

Urban geography: meaning, nature and scope, Origin and growth of urban settlements, Process of urbanization, Classification of urban settlements.

Unit-II

Ecological growth: Theories of internal structure of cities: concentric zone model, sector model, multiple nuclei model, Functional Morphology, Urban influences: umland and Rural Urban fringes.

Unit-III

Study of Regional Urban Patterns : Central place theory of Christaller and Losch, Growth pole theory of Perroux, Urban function : basic and non basic function, Metropolitan city and changing urban function. Rank size rule, Primate city

Unit-IV

Contemporary urban issues; urban poverty, housing, slum, Study and preparation of Master plan of selected cities

Suggested Readings:

1. Alam, S.M.: Hyderabad - Secunderabad Twin Cities Asia Publishing House. Bombay, 1964.
2. Berry, B.J.L. and Horton F.F. Geographic Perspectives on Urban Systems. Prentice Hall, Englewood Cliffs, New Jersey, 1970.
3. Carter: The Study of urban Geography, Edward Arnold Publishers, London, 1972.
4. Dickinson, R.E.: City and Region, Routledge, London, 1964.
5. Dwyer, D.J. (ed.): The City as a Centre of Change in Asia, University of Hong Kong Press, Hongkong, 1971.
6. Gibbs, J.P.: Urban Research Methods D. Van Nostrand Co. Inc. Princeton, New Jersey, 1961.
7. Hall P.: Urban and Regional Planning, Routledge, London, 1992.
8. Houser, Philip M. and Schnore Leo F. (ed.): The Study of Urbanization, Wiley, New York, 1965.
9. James, P.e. and Jones C.F. (eds): American Geography, Inventory and Prospect, Syracuse University Press, Syracuse, 1954.
10. Kundu, A.: Urban Development and Urban Research in India: Khanna Publication, 1992.
11. Mayer, H.M. Kohn C.F. (eds): Readings in Urban Geography, University of Chicago Press, Chicago.
12. Mumford, L.: Culture of Cities, McMillan & Co., London, 1958.
13. Nangia, Sudesh : Delhi Metropolitan Region: A Study in Settlement Geography, Rajesh Publication, 1976.
14. Ramchandran. R., Urbanization and Urban system in India, New Delhi, Oxford Publication, 1988.
15. Singh R. B., (ed.) Urban sustainable in the context of Global Change, oxfors & IBN Pub. New Delhi, 2000.



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PAPER-IV : POLITICAL GEOGRAPHY

Unit-I

Nature, scope, subject matter and recent development in political geography, Major schools of thought.

Unit-II

Themes in political geography: state, nation, nation-state and nation-building, Frontiers and boundaries,

Unit-III

Federalism and other forms of governance, India's relation with its neighbours, conflicts and cooperation, Electoral Geography.

Unit-IV

Heartland and rimland theories, Geopolitical significance of Indian Ocean, Political geography of SAARC region.

Suggested Readings:

1. Alexander, L.M. World Political Patterns Ran McNally, Chicago, 1963.
2. De Blij, H.J. and Glassner, Martin Systematic Political Geography, John Wiley, New York, 1968.
3. Dikshit, R.D. Political Geography: A Contemporary Perspective. Tat McGraw Hill New Delhi, 1996.
4. Dikshit, R.D. Political Geography: A Century of Progress. Sage, New Delhi, 1999.
5. Sukhwai, B.L. Modern Political Geography of India Sterling Publishers, new Delhi, 1968.
6. Taylor, Peter, Political Geography Longman, London, 1985.
7. Fisher Charles A.: Essays in Political Geogrphy, Methuen, London, 1968.
8. Pounds N.J.G.: Politial Geography, McGraw Hill, new York, 1972.
9. John R. Short: An Introduction to Political Geography Routledge, London, 1982.
10. Moddle, A.E.: Geography behind Politics Hutchinson, London, Latest Edition.
11. Prescott. J.R.V.: The Geography of Rontiers and Boundaries Aldine, Chicago.
12. Deshpande C.d.: India-A Regional Interpretation Northern Book Centre, New Delhi. 1992.
13. Panikkar K.M.: Geographicl Factors in Indian History: 2 vols. Asia Publishing House, Bombay, 1959.



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PAPER –V : PRACTICAL

(A) FIELD WORK BASED ON INSTRUMENTAL SURVEY : 50 Marks

Unit-I

Importance of field instrument survey-scope and purpose, principles and application of selected survey instruments. Plane table: plan preparation, resection - two point problem; three point problem; tracing paper method, trial and error method and geometrical method.

Unit-II

Prismatic compass: Open and closed traverse, elimination error, Bowditch method. Sextant and Clinometer. (Height / Depth Measurement)

Unit-III

Dumpy level: traverse survey, contour plan preparation.

Unit-IV

Traingulation Survey-Theodolite: preparation of base map by the use of surveying instruments.

Suggested Readings:

1. Clendinning, J. Principles and use of Surveying Instruments. 2nd edition. Blockie. A. 1958.
2. Clendinning J. Principles of Surveying end edition, 1960.
3. Hotine, Major M. The re-triangulation of Great Britain, Empire Survey review, 1935.
4. Misra, R.P. and Ramesh A: Fundamentals of Cartography Revised Edition, Concept Publication, New Delhi.
5. Monkhouse. Maps and diagrams Methuen, 1971.
6. Negi Balbir Singh. Practical Geography. Third revised Ed. Kedar Nath and Ram Nath. Merrut and Delhi, 1994-95.
7. Sandover, J.A. Plane Surveying. Arnold, 1961.
8. Singh & Karanjita - map work and Practical (Geography, Central Book Dept. Allahabad, 1972.
9. Singh, R.L. and Dutt. P.K. Elements of Practical Geogrphy, Students, Friends, Allahabad, 1968.



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PAPER -V : PRACTICAL

Section (B) : Educational tour & its report in brief based on physical / socio-economic survey **30 Marks**

Record Work & Viva-voce **20 Marks**



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SEMESTER-III

PAPER-I : REGIONAL PLANNING AND DEVELOPMENT

Unit-I

Concept of planning, Types of planning, Concept of regional planning, Region: types of region, Methods of delineation of different types of region.

Unit-II

Regional planning theories: Growth pole theory, Spatial diffusion theory, Cumulative-causative model. Human development index and its indicators, Regional disparity in India.

Unit-III

Planning regions of India, Planning for command area development; Watershed management; Drought prone, Hill and tribal area development.

Unit-IV

Concept of multi-level planning, Decentralised planning, People participation in planning process, Panchayati raj system, Environmental issues in regional planning, Planning for sustainable development.

Suggested Readings:

1. Abler, R., et al.: Spatial Organization: The Geographer's View of the World. Prentice Hall, Englewood Cliffs, N.J., 1971.
2. Bhat, L.S.: Regional Planning in India, Statistical Publishing Society, Calcutta, 1973.
3. Bhat, L.S. et al.: Micro-Level Planning: A Case Study of Karnal Area, Haryana, K.B. Publications, new Delhi, 1976.
4. Chorley, R.J. and Haggett, P.: Models in Geography, Methuen, London, 1967.
5. Christaller, W.: Central Places in Southern Germany, Translated by C.W. Baskin. Prentice Hall, Englewood Cliffs, New Jersey, 1966.
6. Friedmann, J. and Alonso, W.: Regional Development Policy - A Case Study of Venezuela. M.I.T. Press Cambridge, Mass, 1966.
7. Friedmann, J. and Alonso, W.: Regional Development and Planning - A Reader, MIT, Press, Cambridge, Mass. 1967.
8. Gosal, G.S. and Krishan, G.: Regional Disparities in Levels of Socio-Economic Development in Punjab, Vishal Publications, Kurukshetra, 1984.
9. Government of India, Planning Commission: Third Five Year Plan, Chapter on Regional Imbalances in Development, New Delhi, 1961.
10. Indian Council of Social Science Research: Survey of Research in Geography, Popular Prakashan, Bombay, 1972.
11. Johnson, E.A.J.: The Organization of Space in Developing Countries. Harvard University Press, Cambridge, 1970.



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12. Kuklinski, A.R. (ed.): Growth Poles and Growth Centres in Regional Planning. Mouton. The Hague, 1972.

PAPER-II : OCEANOGRAPHY

Unit-I

Basic oceanography, Surface bottom relief: Pacific Ocean, Atlantic Ocean and Indian Ocean.

Unit-II

Physical and chemical properties of sea water; Interlink between atmospheric circulation and circulation patterns in the oceans, Thermohaline, Waves and Tides.

Unit-III

Ocean current: cause, types, currents of Pacific, Atlantic and Indian Ocean, Effects of ocean currents, El Nino La Nina .

Unit-IV

Ocean deposits: types and distribution, Coral reefs and atolls, Theories of their formation and coral bleaching, Tsunami, Sea level changes: causes, evidence and impact.

Suggested Readings:

1. Davis Richard J.A.: "Oceanography - An Introduction to the Marine Environment" Wm. C. Brown Iowa. 1986.
2. Duxbury, C.A. and Duxbury B.: An Introduction to the World's Oceans. C. Brown Iowa 2nd ed. 1996.
3. Garrison, T.: "Oceanography - An Introduction to Marine Science. Books/Cole, Pacific Grove, USA, 2001.
4. Gross, M. Grant: Oceanography, A View of the Earth, Prentice Hall Inc. New Jersey, 1987.
5. King, C.A.M. Oceanography for Geographers, 1962.
6. Sharma, R.C. "The Oceans" Rajesh N. Delhi, 1985.
7. Singh, R.B. Natural Hazards and Disaster Management, Rawat Publication, Jaipur, 2006
8. Ummerkutty, A.N.P. Science of the Oceans and Human Life, NBT, New Delhi, 1985.



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PAPER III : SOCIAL AND CULTURAL GEOGRAPHY

Unit-I

Social geography: nature, meaning and development.

Philosophical bases of social geography (positivism, structuralism), Social structure and social processes.

Unit-II

Elements of social geography: ethnicity, tribe, dialect, language, caste and religion. Socio-cultural regions of India, Linguistic elements in India.

Unit-III

Cultural geography: nature, meaning and development, Culture: definition, elements and components, Culture areas and cultural realm.

Unit-IV

Racial elements in India's population, Tribes of India (Jaunsar Babar, Bhil, Gond, Toda Naga), Tribes of world (Eskimo, Pigmy, Bushman).

Suggested Readings:

1. Ahmad, Aijazuddin, Social Geography, Rawat Publication, New Delhi, 1999.
2. De Blij. H.d. Human Geography. John Wiley and Son, New York.
3. Dreze Jean, Amartya Sen, Economic Development and Social Opportunity, Oxford University press, New Delhi, 1996.
4. Dubey, S.C.: Indian Society, National Book Trust, New Delhi, 1991.
5. Gregory, D. and UJ. Larry. (eds.) Social relations and Spatial Structures, McMillan, 1985.
6. Haq, Mahbulul: Reflection on Human Development. Oxford University Press. New Delhi.
7. Maloney, Clarence: People of South Asia, Winston, New York, 1974.
8. Planning Commission, Government of India: Report on Development of Tribal areas. 1981.
9. Rao, M.S.A.: Urban Sociology in India. Orient Longman, 1970.
10. Schwartzberg Joseph: An Historical Atlas of South Asia. University of Chicago Press. Chicago, 1978.
11. Sen, Amartya and Dreze Jean, Indian Development Selected Regional Perspectives. Oxford University Press, 1996.
12. Smith, David: Geography: A Welfare Approach. Edward Arnold, London, 1977.
13. Sopher, David: An Exploration of India. Cornell University Press. 1980.
14. Subba Rao. personality of India: Pre and Proto Historic Foundation of India and Pakistan, M.S. University, Baroda, Vadodara, 1958.



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PAPER-IV : REGIONAL GEOGRAPHY OF THE WORLD

Unit-I (Asia)

Physiography, water resources, natural vegetation, major agricultural and mineral resources, industrial regions of North America.

Unit-II (North America and South America)

Physiography, water resources, natural vegetation, major agricultural and mineral resources, industrial region of North America and South America.

Unit-III (Africa & Oceania)

Physiography, water resources, natural vegetation, major agricultural and mineral resources, industrial development of Africa and Oceania.

Unit-IV (Europe)

Physiography, water resources, natural vegetation, major agricultural and mineral resources, industrial regions of Europe.

Suggested Readings:

1. Ahmad, K.s.: Geography of Pakistan, Oxtord University Press, Karachi, 1964.
 2. Ahmad, N.: An Economic Geogrphy of bangladesh. Vikas New Delhi, 1975.
 3. Chiao-min Hsieb: Atlas of China. McGraw Hill, New York, 1973.
 4. Chiao-min Hsieb: China: Ageless Land and Countless People. Van Nostrand, New York, 1967.
 5. Dobby, E.H.G.: Southeast Asia. University of London Press, London, 1960.
 6. Farmer, B.H.: An Introduction to South Asia. Methuen & Co., Ltd., London, 1983.
 7. Farmer, B.H.: Ceylon, Oxford University Press, London, 1963.
 8. Fisher, W.B.: Middle East: A Physical, Social and Regional Geogrphy. Dutton, New York, 1963.
 9. Johnson, B.L.C.: South Asia, heinemann Education Book Ltd., London. 1982.
 10. Karan, P.P.: The Himalayan Kingdom. Van Nostrand, New York, 1962.
 11. Kolb, A.: East Asia, Methuen and Co. Ltd., London, 1981.
 12. Nolte, Richard H. (ed.): The Modern Middle East, Atherton Press, new York, 1963.
 13. Ooi, Jin-Bee: Land, people and Economy in Malaya. Longmans, London, 1963.
 14. Spate, O.H.K., and Learmonth, A.T.A.: India and Pakistan and Ceylon Methuen & Co. London, 1967.
 15. Spencer, Joseph & Thomas, William L.: Asia East by South A Cultural Geography, John Wiley & Sons, New York, 1971.
 16. Trewartha, G.T.: Japan: A Physical and Cultural Geography. University of Wisconsin press, Madison, 1965.
- Wolmington, M.W.: Middle East: Centre of Supply. University Press, London, 1971.



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PAPER-V

PRACTICAL : QUANTITATIVE TECHNIQUES AND MODELS : (80+20)

Unit-I

Frequency distributions, Measures of central tendency - Mean, Median, Mode, Dispersion, Grouped and ungrouped data, Standard deviation.

Unit-II

Probability: Theory of probability - law of addition and multiplication. Sampling: basic concept and types, Sample units and design, Sampling frame and procedures, Standard error.

Unit-III

Correlation analysis: Karl Pearson's product moment and Spearman's rank correlation, Correlation coefficient.

Unit-IV

Regression analysis: properties, Least square method, Chi-square test. Models – Gravity, Potential etc.

Lab. / Written work : 80 marks

Record and & Viva – voce : 20 marks

Suggested Readings:

1. David Unwin Introduction spatial Analysis, Methuen, London, 1981.
2. Gregoy, S., Statistical Methods and the Geography, Longman London, 1978.
3. Hammond, R. and P. S. McCullagh, Quantitative Techniques in Geography An Introduction, Clarendon Press Oxford, 1974.
4. John. P. Cole and Cuchlaine A. M. King, Quantitative Geography. John Weley, London 1968.
5. Maurice Yeats, An Introduction to Quantitative Analysis in Human Geography, Mac Graw Hill, New York, 1974.
6. Peter Haggett, Andrew D. Cliff & Allan Prey, Location Methods Vol. I and II Edward Arnold, London, 1977.
7. Yeats, M., An Introduction to Quantitative Analysis in Human Geography, Mc Graw hill, New York, 1974.



DEPARTMENT OF GEOGRAPHY

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SEMESTER – IV

PAPER – I : ADVANCED GEOGRAPHY OF INDIA

Unit-I

India : site and situation, physiographic subdivision, geology, drainage, Mechanism of Indian monsoon, Climatic divisions, Biodiversity.

Unit-II

Population: Growth with special reference to the post-independence period, Socio-economic implications of explosive growth, Human settlement (rural and urban). Urban policy of India

Unit-III

Soil and natural vegetation, Agriculture: main characteristics and problems of Indian agriculture. Major crops of India (wheat, rice, tea), Agricultural regions and agro-climatic regions of India, River valley projects.

Unit-IV

Mineral and energy resources of India, Major industries of India (textile, sugar, iron & steel), Industrial regionalization with special reference to Hoogly, Chota Nagpur, Transport, International trade, Major ports.

Suggested Readings:

1. Dishpans, C.D.: India - A Regional Interpretation Northern Book, Centre New Delhi, 1992.
2. Farmer, B.H.: An Introduction to South Asia Methue, Lol. Den. 1983.
3. Govt. of India, Reference Annual, 2001, Pub., Div., New Delhi, 2001.
4. Govt. of India, national Atlas of India, NATMO Publication, Calcutta.
5. Govt. of India, The Gazetteer of India. Vol. I & II, part I-A (i) and (ii) New Delhi, 1966.
6. Learmonth, A.T.A. et (allied) man and Land of South Asia Concept, New Delhi.
7. Mita, A. Levels of regional Development India Census of India, Vol. Part I-A (i) and (ii) New Delhi, 1967.
8. Routray, J.K. Geography of REgional Disparity Asian Institute of Technology, Bangkok, 1993.
9. Safi, M. Geography of South Asia McMillan and Co., Calcutta, 2000.
10. Singh, R.L. (ed.): India: A Regional Geogrophy, national Geographical Society, India, Varanasi, 1971.
11. Spate, O.H.K. and Learmonth, A.T.A. India and Pakistan Land, People and Economy methuen & Co., London, 1967.
12. Valdiya, K.s. Dyanamic Himalaya, University Press, Hyderabad, 1998.
13. Wadia, D.N: Geogrophy of India, McMillan & Co., London, 1967.



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PAPER-II : ENVIRONMENTAL GEOGRAPHY

Unit-I

Concept: ecology and ecosystem, Geography and ecology, Ecosystem: form and function, Trophic level, Ecological pyramids, Energy flow, Food chains.

Unit-II

Circulation of elements (nutrients) in ecosystem (biogeochemical cycle), Biomes.

Unit-III

Environmental degradation, type causes and consequences, Environmental pollution: concept, pollutants and types (air, water, soil, solid waste and noise pollution).

Unit-IV

Biodiversity and its conservation, Preservation and conservation of the ecosystem through resource management, Environmental legislation, The Stockholm conference, The Earth Summit, Kyoto Protocol, Environmental laws in India (the wild life act, water act, forest act, environmental protection act).

Suggested Readings:

1. Agarwal, DP.: Man and Environment in India Through Ages, Book & Books, 1992.
2. Bradshaw, M.J.: Earth and Living Planet, ELBS, London, 1979.
3. Cox, C.D. and Moore, P.D.: Biogeography: An Ecological and Evolutionary Approach 5th Edn. Blackwell, 1993.
4. Gaur, R.: Environment and Ecology of Early Man in Northern India, R.B. Publication Corporation, 1987.
5. Hoyt, J.B.: Man and the Earth, Prentice Hall, U.S.A. 1992.
6. Huggett, R.J.: Fundamentals of Biogeography, Routledge, U.S.A. 1998.
7. Illies, J.: Introduction to Zoogeography, McMillan, London, 1974.
8. Khoshoo, T.N. and Sharma, M. (eds.) Indian Geosphere-Biosphere Har-Anand Publication, Delhi, 1991.
9. Lapedes, D.N. (ed.): Encyclopedia of Environmental Science. McGraw Hill, 1974.
10. Mathur H.S.: Essentials of Biogeography, Anuj printers, Jaipur, 1998.
11. Pears, N.: basic Biogeography. 2nd ed. Longman, London, 1985.
12. Simmon, I.g.: Biogeography, Natural and Cultural, Longman, London, 1974.
13. Singh, R. B. (ed.) Environmental Geography, Heritage Pub., New Delhi, 1990.
14. Tivy, J.; Biogeography: A Study of Plants in Ecosphere 3rd ed. Oliver an Boyd, U.S.A., 1992.



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PAPER-III (A) : GEOGRAPHY OF WATER RESOURCES

Unit-I

Geographical importance of water and distribution of world's water resources (surface and subsurface), Hydrologic cycle: precipitation, potential evapotranspiration and interception losses, runoff.

Unit-II

Agricultural use of water: soil water - crop relationships, water balance and drought, water harvesting techniques, soil water conservation, Water logging, salinity and alkalinity of soil, Over exploitation of ground water, Water quality parameters and water pollution.

Unit-III

Industrial use of water: demand for water in the industrial sector of India, Municipal use of water: general trends in water supply to the urban and rural communities in India, Internal navigation, Hydel power and recreation, Problems of water resource management, Floods and Drought management.

Unit-IV

Conservation and planning for the development of water resources - social and institutional considerations, Integrated basin planning, Conjunctive use of surface and ground water resources, Watershed management, Inter-state river water disputes.

Suggested Readings:

1. Agarwal, Anil and Sunita Narain; Dying Wisdom: Rise, Fall and Potential of India's Traditional Water Harvesting System. Centre for Science and Environment, New Delhi. 1997.
2. Govt. of India, Ministry of Agriculture Report of the Irrigation Commission, Vol I to IV, New Delhi, 1972.
3. Gulhati, N.D. Development of Inter-State Rivers: Law and Practice in India. Allied Pub., Bombay, 1972.
4. International Water Resource Association and Central Board of Irrigation & Power: Water for Human Needs, Vols. I to V Proceedings of the Second World Congress on Water Resources, 12-16 December, New Delhi, 1975.
5. Krutilla, John V. and Eckstein, O.: Multiple Purpose River Development: Studies in Applied Economic Analysis. John Hopkin's Press, Boston, 1958.
6. Law. B.C. (ed.) Mountains and Rivers of India IGU National Committee for Geogrphy, Calcutta, 1968.
7. Rao, L.K.: India's Water Wealth, Orient Longman, New Delhi, 1979.
8. Kates R.W. and Burton, I. (ed.): Geography, Resources and Environment, Ottawa, 1980.
9. Tideman, E.M.: Watershed Management Guidelines for Indian Conditions, Omega, New Delhi, 1996.
10. Todd, D.K.: Ground Water Hydrology, John Wiley, New York, 1959.
11. U.S.D.A.: The Year Book of Agriculture: Water, Oxford and I.B.H. Publishing Co., New Delhi, 1955.
12. Verghese, B.G.: Water of Hope: Integrated Water Resource Development and Regional Cooperation within the Himalayan - Ganga-Brahmaputra-Barak Basin. Oxford.



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PAPER-III (B) : REMOTE SENSING AND GEOGRAPHICAL INFORMATION SYSTEM

Unit-I

Remote Sensing : Meaning and scope : Development of Remote Sensing, relevance of remote sensing in geographical studies, components and process of remote sensing, sources of energy, energy interaction with atmosphere and earth surface, remote sensing platforms and sensors.

Aerial Photogrammetry and aerial photographs : Techniques, process, Interpretation and use

Unit-II

Satellite Remote sensing : Important Remote sensing satellites and their characteristics. Satellite data acquisition geometric and radiometric correction of data satellite Imagery interpretation of remote sensing data, visual and digital interpretation techniques, ground truth collection (Survey), image enhancement techniques, supervised and unsupervised classification.

Application of Remote Sensing in Geographical studies : Use of satellite remote sensing in resource mapping land use mapping & monitoring and preparation of resource inventories

Unit-III

Geography and Geographic Information System : Definition and development of GIS, Elements of GIS, Computer Environment for GIS. Spatial Data : Elements and types of spatial data, GIS data format for computer environment, Raster and vector data structures, Data conversion. GIS Technology : map Projection and cartography : coordinate systems, Geo-referencing of spatial data, Data input into GIS, Basic principles of computer assisted cartography.

Unit-IV

GIS Database : Creation of spatial and non-spatial data base, Database management systems, Data integration and analysis in GIS, spatial modeling, Digital Elevation Models. Integration of GIS with remote sensing and Global Positioning System (GPS).

Application of GIS : Application of GIS in the development of different types of information system, decision support system, Environment planning, resource management, disaster management and urban planning with sample studies.



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PAPER-IV (A) : FLUVIAL GEOMORPHOLOGY

Unit-I

Fluvial geomorphology and geography, Hydrological cycle and subcycle, Drainage pattern evolution and channel changes with time.

Unit-II

Fundamentals of river mechanics: types of flow and flow discrimination, forces acting in channels, low regimes, sediment load of streams, sediment transport.

Unit-III

Hydraulic geometry of streams at a station and down stream channel, Thalweg, Causes of concavity, Channel patterns, Equilibrium profile – straight, meandering and braided. Drainage basin: form and process, Drainage: basic morphometry.

Unit-IV

Applied fluvial geomorphology; Human adjustment to flood plain, Alluvial fans and deltaic environment (case studies). Effects of reservoirs on fluvial systems. Remote sensing and GIS application to fluvial environments.

Suggested Readings:

1. Chorley R.J. (ed.) Introduction of Fluvial Processes Methuen and Co. London, 1973.
2. Coates D.R. and Vitek J.I. : Thresholds in Geomorphology. George Allen Unwin. London 1980.
3. Gregory K.J. : River Channel Changes. John Wiley and Sons, New York, 1977.
4. Gregory K.J. and Walling, D.E.: Drainage Basin: Forms and Process - A Geomorphological Approach, John Wiley and Sons. New York, 1985.
5. Kingston D.: Fluvial Forms and Processes Edward Arnold, London, 1984.
6. Leopold C.B. et al.: Fluvial Processes in Geomorphology: Freeman, London, 1964.
7. Morisawa M. (ed.) Fluvial Geomorphology. George Allen and Unwin. 1981.
8. Cleick, P.H. (ed.): Water in Crisis Oxford University press, New York, 1993.
- Morisawa M.: Streams - Their Dynamics and Morphology. McGraw Hill, New York, 1968.



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PAPER-IV (B) : GEOGRAPHY OF TOURISM

Unit-I

Concept of tourism : meaning and definition of tourism, Geographical factor influencing tourism, Elements of tourism, Tourism as an industry.

Unit-II

Indian tourism: regional dimensions of tourist attraction, Promotion of tourism, Problems of tourism in India.

Unit-III

Infrastructure and support system – accommodation, other facilities and amenities, Indian hotel industry.

Unit-IV

Impacts of tourism: physical, economic and social, Positive and negative impacts, Environmental laws and tourism, Impact of globalization on tourism, Ecotourism.

Suggested Readings:

1. Chorley R.J. & Haggett, P.: Models in Geography Methuen & Co. London, 1967.
2. Singh, Tesrir. Contribution to Indian Geography, Geography of Tourism, Heritage Pub., New Delhi.
3. Kuniyal, J. C. etol. Tourism in Kullu Valley _ An Environment Assessment, Bishen Singh & M. P. Singh Publication Dehradun, 2004.
4. Middleton, Victor T. C. Sustainable Tourism, Oxford. 1998
5. Seaton, A. V. (ed.) Tourism the state Art, wiley, New York, 1994.



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PAPER V : PRACTICAL

Marks

- (I) **Introduction to research methodology : CONTENTS under preparation : 50**
- (II) **Project report / Dissertation. 50**

Suggested Readings:

1. David Unwin, Introductory Spatial Analysis. Methuen, London, 1981.
2. Gregory, S. Statistical methods and the Geographer, London, 1978.
3. Hammond R. and P.s. McCullagh Quantitative Techniques in Geogrphay: An Introduction, Clarendan Press, Oxford, 1974.
4. John P. Cole and Cuchlaine A.M. King, Quantittive Geography, John wiley, London, 1968.
5. Johnston R.J., Multivariate Statistical Analysis in Geogrphay, Longman, London, 1973.
6. Koutsoyiannis, Theory of Econometrics, McMillan, London, 1973.
7. Maurice Yeats, An Introduction to Quantitative Analysis in Human Geography, McGraw Hill, New York, 1974.
8. Peter Haggett, Andrew D. Cliff, & Allan Frey, Location Methods Vol. I & II, Edward Arnold, London, 1977.