

M.A./M.Sc. FINAL GEOGRAPHY

The courses shall be effective from the examinations of session 2008-2009. The courses are grouped under Semester III and Semester IV. The Syllabi for each theory and practical examinations in both the semesters are as under

SEMESTER III

111. Theory (Core) 09: Water Resource Management Time: 3 Hours, M.M: 100

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question no. 1 will be compulsory and short note type consisting of four topics – one from each unit. The remaining eight questions will be from four units- two from each unit. The candidate will be required to attempt one question from each unit.

UNIT I

Water on Earth; Hydrological cycle; Elements of hydrological cycle- -precipitation, evaporation, infiltration, surface run off, urban flooding, Human interference in the hydrological cycle;

UNIT II

Occurrence and assessment of surface water resources; Water resources in oceans and seas; Hydrology of river basin- basin characteristics, discharge ratio, use of river basins-- catchments and command areas

UNIT III

Origin and occurrence of ground water, ground water recharge and utilization, Man induced problems related to ground water; Glacial hydrology and its significance; Nature of glacial and periglacial discharges; Problems associated with the utilization of glacial water- shrinking of glaciers.

UNIT IV

Concept of water balance; Areas of water surplus and water deficit; Conflict for water resources; water pollution; water management; water conservation, water harvesting, water policy rural and urban water supply; Conservation of water resources of India: indigenous and modern.

BOOKS RECOMMENDED:

1. R.J.Chorley: Water ,Earth and Man., Methuen,London ,1967.
2. J.A. Jones: Global Hydrology: Processes, Resources and Environmental Management, Longman, London,1997.
3. J.R.Matter: Water Resources, Distribution, Use and Management, John Wiley, Marylane, 1984.
4. D.K.Todd: Ground Water Hydrology,John Wiley, New york,1959.
5. R.A.Singh and S.R.Singh: Water Management: Principles and Practices, Tara Pub. Varanasi 1972.
6. R.J.Chorley (Ed): Introduction to Physical Hydrology, Methuen, London 1969.
7. H.Bouwer: Ground Water Hydrology, Mc Graw Hill Book Co. New York,1978.
8. K.R.Karant: Ground Water Assessment: Development and Management, Tata Mc.Graw Hill New Delhi 1987.
9. R.L.Rao : India's Water Wealth,Orient Longman,New Delhi,1979.
10. H.M.Ragunath: Hydrology, Wiley Eastern Ltd. New Delhi, 1985.

11. J.V.S. Murty: Watershed Management in India, Wiley Eastern Ltd., New Delhi, 1995.
12. M.M. Yoshino (Ed): Water Balance of Monsoon Asia, University of Hawaii Press, Honolulu.
13. R.J. Reddy: The Text Book of Hydrology, Laxmi Publisher, New Delhi, 1999.
14. T.G.K. Charlu and D.K. Dutt: Ground Water Development in India, Rural Electrification Corporation, New Delhi.
15. E.M. Tideman: Watershed Management: Guidelines for Indian Conditions, Omega, New Delhi.

112. Theory (Core) 10: Theoretical Economic Geography

Time: 3 Hours, M.M: 100

UNIT I

Nature, Scope and recent trends in Economic Geography; Relation of economic geography with economics and other branches of social science; Historical evolution of world economic systems; Classification of the economies of the world (primary, secondary and tertiary); Theories, concepts and models of development, developing and under developed economies.

UNIT II

Concepts of resources; classification of resources-- Natural resources and human resources; Renewable and non –renewable resources; concept of resource adequacy and resource scarcity; conservation of resources; sustainable developed and resource management.

UNIT III

Resource utilization patterns-- Transformation and communication as factors in resource utilization; agricultural activities (Von Thunen's models of agricultural location); Manufacturing industries; Theories of industrial location--Weber, Hoover, Losch, Isard and Smith; Location of tertiary activities- -central place theory of Chris taller.

UNIT IV

Status of quaternary activities in different economic systems-recent trends; Emerging patterns of world trade- Barriers to trade—Dynamics of trade blocks ; Economic development; regional disparities in economic development; economic regions.

BOOKS RECOMMENDED:

1. B.J.L. Berry et al : Geography of Economic Systems, Prentice Hall, Englewood ,Cliff,1976.
2. R.D.Boyce: Bases of Economic Geography, Holt Rinehart and Winston, New York.
3. E.C.Conkling and M. Yeates: Man's Economic Environment, Mc Graw Hill, London..
4. B.W.Hodder and R. Lee: Economic Geography, Field of Geography Series, Mathuen & Co. Ltd. London..
5. J.P.Cole: Geography of World Affairs, Butterworths, London.
6. P.E.Lloyd and P.Dicken: Location in Space, Harper and Row,San Francisco.
7. D.M.Smith: Industrial Geography: An Economic Geographic Analysis, John Wiley & Sons.
8. Thomas J. Wilbanks: location and Well –being, An Introduction to Economic Geography , Harper and Row,San Francisco.

9. W.W.Rostow: The Stages of Economic Growth, Cambridge University Press, London 1960.
10. J.O.Wheeler et al : Economic Geography , John Wiley , New York 1995.
11. T.A.Hartshorne and J.W. Alexander: Economic Geography, Prentice Hall of India, New Delhi, 1994.
12. J.W. Alexander: Economic Geography, Prentice Hall of India, New Delhi, 1974.
13. E.W.Zimmermann: Introduction to World Resources, Harper, New York.
14. G.H.Smith: Conservation of Natural Resources, John Wiley, New York..

113. THEORY (CORE) 11 ENVIRONMENTAL GEOGRAPHY

Time: 3 Hours, M.M: 100

UNIT I

Meaning and Scope of environmental geography; basic principles of environmental geography; composition and types of environment; ecological principles; man –environment relationship.

UNIT II

Ecosystem: concept and components; trophic levels; food chains and food webs; energy flow in the ecosystem; circulation of matter in the ecosystem, geobiochemical cycle, ecosystem productivity, ecosystem stability.

UNIT III

Environmental degradation; Extreme events, hazards and disasters (earthquake, volcanoes, cyclones, floods); Environmental pollution (air, water, solid waste, soil and noise pollution); Environmental pollution in India; Environmental Problems- global warming, ozone depletion, land degradation, reduction in biodiversity.

UNIT IV

Environmental management: concept and approaches; environmental dimension, in planning-sustainable development; environmental consciousness, environmental policy; environmental legislation; environmental impact assessment; disaster management.

BOOKS RECOMMENDED:

1. Association American Geographers: Perspectives on Environment, Washington D.C.
2. A.N.Strahler and A.H.Strahler: Geography and Man's Environment, John Wiley and Sons, New York.
3. C.C.Park: Ecology and Environmental Management, Butterworths, London.
4. D.B.Botkin and E.A.Keller: Environmental Studies, C.E.Mernill Pub. Co. Columbus.
5. J.B.Easts and L.W.Senger: Remote Sensing Techniques for Environmental Analysis, Hamilton Pub. Co. New York.
6. J.B.Hobbs: Applied Climatology, Butterworths, London.
7. L.R.Singh et al: Environmental Management, Allahabad Geographical Society, Allahabad.
8. National Academy of Sciences: Understanding Climatic Changes, Washington D.C.
9. P.A.Furley and W.W.Neway: Man and the Biosphere, Butterworths, London.

10. R.Arvid: Man and Environment,Penguin.
11. R.J.Bennet and R.J.Chorley: Environmental System- Philosophy, Analysis and Control, Methuen, London.
12. Savindra Singh: Environmental Geography,Prayag Pustak Bhawan,Allahabad
13. T.R.Detwiler: Man's Impact on the Environment,Mc Graw Hill, New York.
14. T.R.Detwiler: and M.G. Marcus: Urbanization and Environment, Duxburg Press, California.
15. Savindra Singh: Paryavaran Bhoogol, Prayag Pustak Bhawan,Allahabad.
16. W.M.Adans: Green Development: Environment and Sustainability in the Third World, Routledge,London,2001.
17. E.P.Odum: Fundamental of Ecology,W.B.Sounders Co. Philadelfia,1971.
18. A.S.Mather and K. Chapman: Environmental Resources,Longman Group Ltd.U.K.,1995.
19. A.Goudie: The Nature of the Environment,Oxford,Basil Black Well,1989.
20. K.Smith: Environmental Hazards: Assessing Risk and Reducing Disaster, Routledge London,1996.

114. THEORY (CORE): 12 URBAN AND REGIONAL PLANNING

Time: 3 Hours, M.M: 100

UNIT I

Concept of planning; Types of planning; Concept of regional planning; Types of regional planning; City as unit of regional planning; Approaches to regional planning; Historical development of regional planning- -developed world and developing world.

UNIT II

Methodology and Techniques of Regional Planning; Analytical techniques and procedural techniques; Principles of regionalisation; Indications of development and data sources; measures of regional development and regional disparities; Planning processes- sectoral and spatial planning; short medium and perspective planning; Multi regional and multilevel planning.

UNIT III

Regional development strategies: Export base theory, convergence theory, Growth poles and growth centres in regional development; Industrial dispersal and backward area development; Identification of planning regions, Regional planning strategies for backward areas-- drought prone area hill area, tribal area and Rural area.

UNIT IV

Role of urban centres in regional planning; urban scenario in India; city regions and their problems; Problems of poorly urbanized areas, strategies for urban planning; metropolitan planning, preparation of master plans, city region planning;

BOOKS RECOMMENDED:

1. R.Abler et al : Spatial Organisation : The Geographers View of the World ,Prentice Hall,Englewood Cliffs,NJ.

2. L.S.Bhat: Regional Planning in India, Statistical Publishing Society, Calcutta 1973.
3. J.Friedmann and W.Alonso: Regional Development and Planning-A Reader,MIT Press,Cambridge,Mass 1967.
4. Arthur Glikson: Regional Planning and Development, Netherland Universities Foundation for International Co-operation, Londlon,1955.
5. E.A.J.Johnson: The Organisation pf Space in Developing Countries, Harward University Press, Cambridge,1970.
6. A.R.Kuhlinski (Ed): Growth Poles and Growth Centres in Regional Planning,Mouton,The Hague,1972.
7. R.P.Misra: et al: Regional Planning: Concepts, Techniques and Policies, University of Mysore, Mysore, 1969.
8. R.P.Misra et al: Multi Level Planning ,Heritage Publishers,Delhi,1930.
9. Peter Hall: Urban and Regional Planning, Penguin Books Ins. New York.
10. J.G.M. Hill Shorts: Regional Planning,University Press,Rotterdam.
11. John Glasson: Regional Planning, Hutchrson, London.
12. R.P.Misra: Development Issues of our time, Concept Pub. Co. New Delhi.
13. J.Alden and R. Morgan: Regional Planning: A Comprehensive View, Leonard Hill Books,Beds 1974.
14. J.Glassen: An Introduction to Regional Planning, Hutchron Educational, London.
15. P.Hall:Cities of Tornorrow, Updated Edition,Blackwell Publishers Ltd.Oxford 1996.

115. PRACTICAL (CORE) 03: REMOTE SENSING AND AERIAL IMAGE PROCESSING

Time: 6 Hours, M.M: 100

The practical examination in Remote Sensing and Aerial Image Processing will comprise two parts. Part I is related to laboratory work (Concepts) of three hours duration and Part II includes laboratory work (Application) of same duration. The practical examination will be conducted by two internal and one external examiners.

PART I: Laboratory work (Concepts) (Time: 3 Hours) : 50 Marks

It will include five questions selecting at least one question from each unit .The candidates will be required to attempt 3 questions.

PART II: LABORATORY WORL (APPLIED)

Time: 3 Hours

MM: 50

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|------------------------------------|------------|
| (a) Laboratory exercises (3 hours) | : 20 marks |
| (b) Viva-Voce | : 10 marks |
| (c) Sessional record work | : 20 marks |

UNIT I

Remote Sensing – definition, types and historical development; Physics of remote sensing- interaction of EMR with atmosphere and earth surface, atmospheric windows, spectral signatures; types and characteristics of platforms and sensors with special reference to Land sat, SPOT and IRS .

UNIT II

History of aerial photogrammetry; photogrammetry--definitions and concepts; aerial cameras and aerial photographs, geometry of aerial photographs, scale of aerial photographs; image

displacement; measurement of height differences; principles of stereo photogrammetry; air photo interpretation; slope, size pattern, tone, texture, shadows, site.

UNIT III

Digital image processings-- definition and concepts; Structure of images; Digital to visual; RGB cube; digital image formats- BSQ, BIL and BIP; Methods of digital image processing – image restoration, image enhancement, image classification, accuracy assessment; Interpretation of SLAR imageries.

UNIT IV

Airphoto and image interpretations and mapping land use and land cover, land evaluation, urban land use, landform and its processes, weather studies and studies of water resources; Remote Sensing and GIS; remote sensing and hazard management; remote sensing and environmental management.

BOOKS RECOMMENDED:

1. F.F. Sabins (Jr) Remote Sensing: Principles and Interpretations, John Wiley and sons, New York, 1987.
2. J.R. Jensen: Digital Image Processing.
3. P.R. Wolf: Elements of Photogrammetry.
4. T.M. Lillesand and R.W. Keifer : Remote Sensing and Image Interpretation, John Wiley and Sons, New York, 1979.
5. American Society of Photogrammetry: Manual of Photogrammetry, 3rd Ed. Virginia 1966.
6. American Society of Photogrammetry: Manual of Remote Sensing, Virginia 1975.
7. T.E. Avery and G.L. Berlin: Fundamentals of Remote Sensing and Airphoto Interpretation, 5th Ed. Mac Millan, Publishing co. New York 1983.
8. P.J. Curran: Principles of Remote Sensing; ELBS Edn. Longman Hong Kong 1988.
9. Robert G. Reeves (Ed): Manual of Remote Sensing (2 vols), The American Society of Photogrammetry.
10. R.N. Colwell (Ed): Manual of Remote Sensing, 2nd Ed. Falls Church Va: American Society of Photogrammetry, 1983
11. J. Campbell: Introduction to Remote Sensing, Guilford, New York.
12. R.M. Hardy: Digital Image Processing of Remotely Sensed Data, Academic Press, New York.
13. C.P. Lo: Applied Remote Sensing, Longman, Scientific and Technical, Harlow, Essex.
14. W.K. Prater: Digital Image Processing, John Wiley, New York, 1978.
15. D.P. Rao (Eds) ; Remote Sensing for Earth Resources, Association of Exploration Geologists, Hyderabad.
16. H. Verrtappen: Remote Sensing in Geomorphology, Elsevier Scientific Publication Co., Amsterdam.

SEMESTER IV

116 Theory (Core) 13: TECHNIQUES OF SPATIAL ANALYSIS

Time: 3 Hours, M.M: 100

UNIT I

Types of spatial data: Scales of measurement; methods of data collection and compilation – census, sample survey; Analysis of point pattern: Mean centre, standard distance, nearest neighbour analysis, quadrant count method, population potential.

UNIT II

Analysis of line pattern: Transport network- cyclometric number, LB.V. index; Drainage Network-Bifurcation ratio, length ratio, drainage density, drainage texture; Slope index; Area-Height diagram, Hypsometric curve, clinograph, slope analysis.

UNIT III

Scatter diagram, correlation by Spearman's Rank Difference and Karl Pearson's Product Moment Methods, regression analysis; Theory of probabilities distribution; Sampling-- Sampling frame and procedure, standard error and sample size.

UNIT IV

Hypothesis testing- Chi-square test, binomial test, t test, Mann-Whitney U test, Analysis of variance; Multivariate Analysis; Basic principles and elements of factor analysis and principal component analysis; Gravity potential model; Trend surface analysis – simulation model, diffusion models.

BOOKS RECOMMENDED:

1. David Unwin: Introductory Spatial Analysis, Methuen, London, 1981.
2. S. Gregory: Statistical Methods and the Geographer, Longman, London, 1978.
3. R. Hammend and P.S. Cullagh: Quantitative Techniques in Geography: An Introduction, Clarendon Press, Oxford, 1974.
4. J.P. Cole and C.A.M. King: Quantitative Geography, John Willey, London, 1968.
5. R.J. Johnston: Multivariate Statistical Analysis in Geography, Longman, London, 1973.
6. G.B. Norcliffe: Inferential Statistics for Geographers Huntchinson, London.
7. B. Blackwell: Statistical in Geography, Basil Blackwell Ltd., 1988.
8. O.D. Durcan et al: Statistical Geography, Free Press of Glen co New York, 1961
9. L.J. King: Statistical Analysis in Geography, Prentice Hall, Englewood Cliffs, N.J.
10. Aslam, Mohmood: Statistical Methods in Geographical Studies, Rajesh Publication, Delhi, 1997.
11. J.A. Mathewa: Quantitative and Statistical Approaches to Geography, Rawat, Jaipur, 1981.
12. A.H. Robinson et al: Elements of Cartography, John Willey and Sons, New York, 1995.
13. R.L. Singh: Elements of Practical Geography, Kalyani Pub. New Delhi.
14. R.C. Tiwari and Sudhakar Tripathi: Abhinav Prayogatmak Bhoogol, Prayag Pustak Bhawan, Allahabad.

117-118 Theory (Optional) Group A

Students have to either opt for Group A or Group B. Out of the Group they have to select their course for their study.

1.TROPICAL GEOMORPHOLOGY

Time: 3 Hours, M.M: 100

UNIT I

Scope and significance of tropical geomorphology; The Tropical Environment: Climatic elements and its effects, Nature of rocks and their impacts on relief, Natural vegetation and its impact on relief in tropics-morphogenetic regions; Weathering in tropics: processes and types- Duricrusts and laterites, Character of tropical soils.

UNIT II

Mass movement on tropics and their effect in geomorphic evolution slope development and slope stability; Movement of materials down slope; Structural landforms of tropics- doms, tors, scarps- Deccan trap landforms.

UNIT III

Fluvial processes in the tropics- tropical valley forms in humid and arid areas, tropical deltas and estuaries; Tropical coastal landforms- erosional and depositional; Arid landforms- inselberg, pediment, pediplain, landscape of the Thar Desert.

UNIT IV

Human Activities in tropical areas- deforestation action, agricultural and industrial development, urbanization; Methods and techniques of evaluation of tropical landforms- mapping and identification; soil loss evaluation; Fragile environment of tropical regions; Conservation strategies for tropical ecosystem.

BOOKS RECOMMENDED:

1. K.R.Dikshit, V.S.Kale and M.N.Kaul: India Geomorphological Diversities,Rawat Publication,Jaipur,1994
2. I. Douglas and J. Spancer: Environmental Changes and Tropical Geomorphology,George Allen and Urwin,London,1985
3. A. Fariran and L.K.Jeje: Humid Tropical Geomorphology,Longman London,1983
4. A.Kellman and R. Tack berry: Tropical Environments,Routledge,London,1997
5. H.S. Sharma: Tropical Geomorphology, Concept, New Delhi,1987
6. M.F.Thomas: Tropical Geomorphology -A Study of Weathering and Landform Development in Warm Climate, Mc Millan,London,1974
7. J.Tricart: The Landforms of the Humid Tropics,Forests and Savannas,Longman,London,1972
8. J.Tricart and A. Cailleux: Introduction to Climatic Geomorphology, Longman Green Ltd.London,1972
9. C.R.Tridale: Analysis of Landform, John Wiley,London,1976
10. H.S.Sharma (Ed) Indian Geomorphology,Concept,New Delhi,1991
11. S.R.Jog (Ed) : Indian Geomorphology,Vols I & II, Rawat Publications, Jaipur,1995
12. Savindra Singh: Geomorphology,Prayag Pustak Bhawan,Allahabad

1. MONSOON CLIMATOLOGY

UNIT I

Extent of Monsoon Climate; Classical Monsoon, areas of South Asia; Heat budget of the tropics- Role of tropics in the general circulation of the atmosphere; Driving forces-Jet Streams and their influence; Air masses of the tropics and their characteristics; Air masses over South Asia and their seasonal variations.

UNIT II

The Monsoon- Genesis and development of tropical monsoons; Mechanism of the Indian Monsoon; Theories of the origin of monsoon- thermal concept, dynamic concept, role of Jet Streams Tibet Plateau eleriso, Southern oscillations; Forecasting Indian Monsoons.

UNIT III

Tropical Disturbances- Cyclones, Thunderstorms, Tornadoes- their characteristics, frequencies and paths; Cyclones in the Bay of Bengal and the Arabian Sea; Tracking of tropical disturbances; Classification of tropical climates-Regionalisation of India based on the scheme of Koppen, Thonthwaite and Penman; Water balance: areas of surplus and deficit; Droughts and famines Drought prone areas of India; Floods in India.

UNIT IV

Agro- Climatic regions of India; Human impact on monsoon climate; Desertification in monsoon lands; Man-made climate: urban and industrial centres and related problems; Climatic approach to housing design- surface and building materials and their impact-House Types in the Ganga Valley in relation to climate.

BOOKS RECOMMENDED:

1. J.G. Lockwood: World Climatology and Environmental Approach, Edward Arnold, London,1974 .
2. S.Neuwal: Tropical Climatology,John Willey and Sons Ltd. New York,1977.
3. M.A.Garbell: Tropical and Equatorial Meteorology, Sir Isaac Pitman and Sons Ltd.
4. C.S.Ramage: Monsoon Meteorology, Academic Press,U.K.,1971.
5. H.Riehl: Tropical Meteorology,Mc Graw Hill Co. U.K.,1954.
6. G.T. Trewartha: The Earth's Problem Climates, Methuen & Co. Ltd.London,1962.
7. V.S.Datye et. al. (Ed.) Explorations in the Tropic, Prof. K.R.Dikshit, Felicitation Volume, Pune,1987.
8. V.P.Subrahmanyam: Contributions to Indian Geography, Part III –General Climatology, Heritage Publication,. New Delhi,1983 .
9. A.R.Subrahmanyam: Climatic Variability in India, Annals of NAGI,12-1-2.1992.
10. M.M.Yoshino (Ed) : Water Balance of Monsoon Asia, University of Tokyo, Press Tokyo,1971
11. W.Bach,J.Pankrath and W. Kellogg: Man's Impact on Climate, Elsevier Scientific Publishing Co. New York ,1979
12. J.R. Mather: Climatology: Fundamentals and Applications, Mc Graw Hill Book Co. New York ,1974
13. Savindra Singh: Climatology,Prayag Pustak Bhawan,Allahabad,2006
14. D.S.Lal: Climatology,Sharda Pustak Bhawan,Allahabad

2. GEOGRAPHICAL DIMENSIONS OF HYDROLOGY

UNIT I

Hydrology: Scope and content, basic concepts; Hydrological cycle; Man's interference on hydrological cycle; Elements of Hydrological cycle- precipitation, evaporation, infiltration, surface runoff; Hydrology of a river basin- basin characteristics, discharge potentials, utilization, constraint-Examples from India.

UNIT II

Ground Water Hydrology-origin, occurrence, movement, discharge, utilization, recharge; Man induced problems related to ground water; Glacial Hydrology- potential, discharge, utilization, problems, examples from India.

UNIT III

Hydrology in monsoon, savannas, desert and polar areas; limestone hydrology; Urban hydrology; Surface and ground water resources of India- potentials, utilization and problems; Water utilization; Concept of water balance; Water pollution rural and urban areas.

UNIT IV

Areas of water surplus and water deficit; Over and under utilization of water resources; Privatization of water resources; Water conflict wars; Water conservation: Present and future perspectives; Watershed development; Water legislation, water harvesting: Traditional and modern methods; water conservation programmes in India.

BOOKS RECOMMENDED

1. R.J.Chorley: Water, Earth and Man, Methuen, London, 1967.
2. R.J.Chorley: Introduction to Physical Hydrology, Methuen, London, 1967.
3. J.A.Jones: Global Hydrology: Processes, Resources and Water Management, Longman, London, 1997.
4. J.R.Matter: Water Resources: Distribution, Use and Management, John Wiley, Marylane
5. D.K.Todd: Groundwater Hydrology, John Wiley, New York.
6. H. Addison: Land, Water and Flood, Chapman and Hall, London, 1961.
7. H. Bouwer: Ground water Hydrology, Mc. Graw Hill Book Co. New York, 1978.
8. K.R.Karant: Groundwater Assessment: Development and Management, Tata Mc Graw Hill, New Delhi, 1987.
9. K.L.Rao: India's Water Wealth, Orient Longman, New Delhi, 1979.
10. J.V.S.Murthy: Watershed Management in India; Wiley Eastern Ltd. New Delhi, 1995.
11. R.J.Reddy: The Textbook of Hydrology, Laxmi Publication New Delhi, 1999.
12. T.G.K.Charlu and D.K.Dutt: Ground Water Development in India, Rural Electrification Corporation, New Delhi, 1982.
13. R.A.Singh and S.R.Singh: Water Management: Principles and Practices, Tara Pub. Varanasi.
14. E.M.Tideman: Watershed Management: Guidelines for Indian Conditions, Omega, New Delhi.
15. S.K.Sain: The Flood Problem in India, Birala Institute of Scientific Research, Economic Research Division, New Delhi.
16. A.A.Sokolar and T.B. Chapman (Eds): Methods for Water Balance Computations: An International Guide for Research and Practice, The Unesco Press, Paris, 1974.

A. (4)BIO-GEOGRAPHY

UNIT I

Biogeography: Nature, Scope, Significance, Approaches, History, Recent Development; Concept of Ecology, Ecosystem, Succession and Ecological Adaptation.

UNIT II

Historical Evolution of Plants and animals; pattern and causes of plant and animal distribution; Major plant formations of the tropics- forests, grasslands, deserts, mangroves; Biogeographical regions of world and India.

UNIT III

Biodiversity: concept and significance; Biodiversity and global climatic change; Plaeobotanical and plaeo climatological records of environmental change in India; Biogeography of the seas and islands.

UNIT IV

Conservation of wildlife and forests, soil conservation of forestation, reforestry, social forestry, National forest policy of India; International and national efforts for conserving biological resources; Biosphere reserves; Tropical forest Action Plan.

BOOKS RECOMMENDED:

1. M.J.Bradshaw: Earth and Living Planet, ELBS, London,1979.
2. C.B.Cox and P.D. Moore: Biogeography: An Ecological and Evolutionary Approach, 5th Edition . Blackwell,1993.
3. J.B.Hogt: Man and the Earth,Prentice Hall,USA,1992.
4. R.J.Huggett: Fundamentals of Biogeography, Routledge,USA,1998.
5. B.M.Bansereau: Bio-geography-An Ecological Perspective, Ronald Press, New York, 1957.
6. T.Joy: Bio-geography: A Study of Plants in the Ecosphere, Oliver & Boyd, Edinburgh,1977.
7. M.S.Masi (Ed): Bio-geography of India,The Hogue,1975.
8. C. Martin: Plant Geography,Methuen, London,1975.
9. H.S.Mathur: Essentials of Bio-geography,Any Printers,Jaipur,1998.
10. N.Pears: Basic Bio-geography, Education,Longman, London,1985.
11. H Robinson: Bio-geography,Mc Donald, London,1982
12. G.H.Smith: Conservation of Natural Resources,Wiley & Sons, London,1962.
13. H.A.Viles: Bio-geomorphology, Oxford Basil Blackwell, 1988.
14. S.S.Negi: Biodiversity and its Conservation in India: Indus Publishing Co. New Delhi,1993.
15. J.H.Brown and A.C.Gibson: Biogeography, St. Louis, Mesby,1983.
16. B.Seddon: Introduction to Bio-geography, Duckworth, London,1971.

A. (5) NATURAL HAZARDS MANAGEMENT

UNIT I

Types of natural hazards-Earthquake, Tsunamis, Volcanic eruptions, Landslides, Avalanches, Floods, famines and Droughts, Cyclones, Distribution of natural hazards; Hazard prone areas of the world and India; Man's role in natural hazard.

UNIT II

Natural Hazards in India: Seismic zones, Tsunamis, Landslides prone areas, Flood prone areas, Drought prone areas; Damager due to natural hazards in India; Some natural hazards of recent history-Earthquake-Koyna, Utterkashi, Bhuj; Tsunamis of 2005. Landslides in the Garhwal Himalays; Floods of the Ganga valley; Cyclones along Orissa Coast; Drought prone areas of India.

UNIT III

Management of Natural Hazards- Prediction of natural hazards; Control measures for natural hazards; Planning for natural hazards- (a) long-term policy.

Recommended Books:

1. C.Enbleton: Natural Hazards and Global Change,I.T.C. Journal,1989,3/4,pp. 169-178.
2. W.J.Petak and A.D.Atkinson: Natural Hazard Risk Assessment and Public Policy, Spinger-Verlay,New York,1982.
3. L. Tianch: Landslide Hazard Mapping and Management in China, ICIMOD,Nepal,1996.
4. K.S.Valdiya: Environmental Geology,Tata Mc Graw Hill Co.Ltd.New Delhi,1987.
5. Q.Zareba and V. Mance : Landslides and their Control, Elsevier Amsterdam,1969.
6. G.F.White (Ed): Natural Hazards: Local ,National,Global, Oxford University Press,London,1974.
7. H.K.Gupta: Dans and Earthquakes,Elsever, Amsterdam,1976.
8. I.Burton et al: The Environment as Hazard, O.P.U. New York,1978.
9. B.A.Bolt et al (Ed):Geological Hazards,Spinger Verlay,New York,1950.

A. (6) GEOGRAPHY AND ECO-SYSTEM

UNIT I

Ecosystem concept and its components- functions, trophic levels, niches, energy and nutrients, hydrological cycle, food chains and food webs, ecological succession and equilibrium

UNIT II

Major ecosystems of the world: Tropical and temperate forest ecosystem, boreal ecosystem, grassland ecosystem, desert ecosystem, island ecosystem, mountain ecosystem, aquatic ecosystem; Population growth in the different ecosystems and its effects on environment; Carrying capacity of the earth, Land resources and World food security.

UNIT III

Man-environment relation ship: resource use and ecological imbalance; Human activities and disruption of different ecosystems; Human impact on vegetation, animals, soils, waters, climate and atmosphere, Bio diversity and its conservation; Preservation and conservation of ecosystem through resource management.

UNIT IV

Environmental management: Principles, standards, environmental impact assessment, Environmental Authority and quality of life; Environmental legislation- Environmental

conferences (Stockholm conference, the Earth Summit), Environmental laws in India; Social Consequences of pollution.

BOOKS RECOMMENDED:

1. E.J. Kormendy : Concepts of Ecology, Prentice Hall, 1989.
2. Nobel and Wright: Environmental Science; Prentice Hall New York 1996.
3. E.P.Odum: Fundamentals of Ecology, W.B.Saunders, Philadelphia,1971.
4. I.G. Summons: Ecology of Natural Resources, Edward Arnold, London..
5. R.L.Smith:Man and his Environment: An Ecosystem Approach : Harper and Raw, London 12.
6. Savindra Singh: Environmental Geography,Prayag Pustak Bhawan,Allahabad.
7. UNEP: Global Environmental, Outlook,U.N.Pub.1983.
8. R.C.Chandna: Environmental Awareness,Kalyani Pub. New Delhi.
9. W.G.Ernost (Ed): Earth System, Processes and Issues, Cambridge University Press U.K.,2000.
10. P.A.Trick Sborne: Tropical Ecosystems and Ecological Concepts, Cambridge University Press,UK, 2000.
11. Andrew Goudie: The Human Impact on the Natural Environment,IV Edn Blackwell, Oxford 1993.
12. A.Agrawal and S.Sen: The citizen's Fifth Report, Centre for Science and Environment, New Delhi,1999.
13. E. Bodkin: Environmental Studies, George Bragiller,New York,1958.
14. R.R.Duport (Ed): Environmental Management: Problems and Solutions, Lewis Pub. Boca Raton,S.A. 1998
15. 15sL.R.Singh et al: Environmental Management, Allahabad Geographical Society, Allahabad, 1983.

GROUP B:

Students have to select three courses from the following for their study:

B. (1) URBAN GEOGRAPHY

UNIT I

Meaning and Scope of Urban Geography, Changing Paradigms of Urban Geography, Approaches to the study of Urban Geography, Development of Urban Geography in India, Theories of Urban Origin, early urban hearths, The forms of industrial and post-modern city, Urbanization cycle and stages of urban development model, Types of urbanization regions.

UNIT II

National urban systems, Functional Typology, central place theory, urban settlement spread theories, Urban hierarchy and rank size, its applicability rule

UNIT III

Ecological models of Burgess, Hoyt, Harris and Ullman, Maun, Vance and white interval structure of city in South Asia, Political, economy perspective, rural-urban fringe and concept of city region and its delimitation

UNIT IV

Third world Urbanization and Theories of urbanization, Peripheral, exo and implosion urbanisation, Urban economy and informal sector in Third World city; Third World Urban Problems-Pollution, Slums and Squatter settlements, Urban Poor, Urban Planning of B.T.L. Berry, Coupling of garden city and new Town, Sustainable Development of Cities.

BOOKS RECOMMENDED

1. Harold Carter: The Study of Urban Geography, Edward Arnold, London, 1972.
2. H.M. Mayer and C.F. Kohn : Readings in Urban Geography, University Press, Chicago, 1959.
3. A. Fredrick: Urban Geography: A Social Perspective, Praeger Inc. New York.
4. D.T. Herbert and C.J. Thomas: Urban Geography_ A First Approach, John Wiley, New York.
5. L.S. King and R.G. Goilledge: Cities, Space and Behaviour, Elements of Urban Geography, Prentice Hall, New Delhi.
6. H.N. Misra (Ed): Urban Geography, Heritage.
7. R.M. Northam: Urban Geography, John Wiley, New York.
8. R.J. Short: An Introduction to Urban Geography, Routledge and Kegan Paul, London, 1984.
9. R.J. Johnston: City and Society, Hutchinson, London.
10. D.T. Herbert: Urban Geography: As Social Perspective, David and Charles, Newton and Abbot, 1977.
11. J.H. Johnson: Urban Geography: An Introductory Analysis, Pergamon Press, London, 1972.
12. R.L. Singh: Urban Geography in Developing Countries, National Geographical Society of India, Varanasi.
13. B.J.L. Berry and F.F. Horton: Geographic Perspectives on Urban Systems, Prentice Hall, Englewood Cliffs, New Jersey, 1970.
14. R. Ramachandran: Urbanization and Urban Systems of India, Oxford, New Delhi, 1993.
15. P.L. Knox and P.J. Taylor: World Cities in a World System, Cambridge University Press, 1995, UK.

16. D.Harvey: Social Justice and the City, Arnold, 1973.
17. J.L.Abu and R.Hay (Jr) : Third World Urbanization, Maarouta Press, 1977.
18. J. Gugler (Ed) : The Urbanization of the Third World, Oxford University Press, 1988.
19. S.Sassen: The Global City, Princeton University Press, 1991.
20. P.Marcuse and R.V. Kempen (Eds): Globalizing Cities: A New Spatial Order, Blackwell.
21. N.Smith: The New Urban Frontier, Routledge.
22. R.Simmonds and G. Hack: Global City Regions, Spon Press, 2000.
23. Om Prakash Singh: Nagariya Bhoogol, Tara Prakashan, Varanasi.
24. S.C.Bansal: Nagariya Bhoogol, Minakshi Prakashan, Meerut.
25. R.C.Tiwari: Adhivas Bhoogol, Prayag Pustak Bhawan, Allahabad..

B (2). POLITICAL GEOGRAPHY

UNIT I

Meaning, Scope and recent development in political geography; approaches to the study of political geography; major schools of thought; concept of state and nation; spatial factors of state; buffer state, core area, ecumene, capital city, frontiers and boundaries.

UNIT II

Concepts of geostrategy; world geopolitics in changing perspectives- colonialism, decolonisation, neo-colonialism, federalism; strategic bases and military alliances; non-aligned movement; geostrategic ideas of Mahan, Mackinder, Spyman, Cohen and Seversky and their relevance in the modern world.

UNIT III

Geopolitical significance of the Indian ocean, Role of third world countries; political geography and regional co-operation; geopolitical study of USA, SE Asia, S.W.Asia, S.Asia and Africa.

UNIT IV

Nature and scope of electoral geography; Geography of elections with special reference to India; Changing Political map of India; Interstate issues (like river disputes and riparian claims), insurgency in border states; emergence of new states terrorism.

BOOKS RECOMMENDED

1. B.L.Sukhwai: Modern Political Geography of India, Sterling Publication Pvt.Ltd., 1968.
2. J.R.V.Prescott: Political Geography, Mc Graw Hill New York.
3. H.J.de Bliir: Systematic Political Geography, John Wiley, New York, 1968.
4. L. Carlson: Geography and World Politics, Prentice Hall, New Jersey, 1971.
3. R.D.Dikshit: Political Geography-A Perspective, Tata Mc Graw Hill Pub., New Delhi, 1996.
4. N.J.G.Pounds: Political Geography, Mc Graw Hill, New York..
5. R.L.Dwivedi: Political Geography, Chaitanya Pub. Allahabad.
6. R.D.Dikshit: Political Geography -A Century of Progress, Sage, New Delhi, 1999.
7. P.Taylor:: Political Geography, Longman, London, 1985.
8. J.R.Short: An Introduction to Political Geography, Routledge London, 1982.
9. E.F.Bergman: Modern Political Geography, WMC Brown.Co. Dubuque, Iowa, 1975.
10. A.J.Nijman: The Geopolitics of Power and Conflict, Belhaven Press, 1993.
11. R.J.Jonston: Geography and the State Macmillan.
12. R.E.Norris and L.L.Haring: Political Geography, Bell and Howell, 1980.

13. R.D.Dikshit: Rajnitik Bhoogol ,Tata,Maga Hill,New Delhi.
14. S.K.Dikshit: Rajnitik Bhoogol,Vasundhara Prakashn,Gorakhpur.
15. Manorma Sinha: Political Geography,Herizon Publication,Allahabad.
16. Manorma Sinha: Electoral Geography of India,Adheyan Publication,New Delhi.
17. R.D.Dikshit:Rajnitik Bhoogol,Tata Mc Graw Hill, New Delhi.
18. S.K.Dikshit: Rajnitik Bhoogol ,Vasundhara Prakashan ,Gorakhpur.

B. (3) AGRICULTURAL GEOGRAPHY

UNIT I

Nature, Scope, Significance and development of agricultural geography; Approaches to the study of agricultural geography-commodity, systematic, regional and systems; origin and dispersal of agriculture –major agricultural hearths; Diffusion of agricultural innovations; Recent trends in Agriculture.

UNIT II

Determinants of agriculture- physical, economic, political, technological, Socio-cultural; land reforms, land use survey; Selected agricultural concepts and their measurements-cropping pattern, crop concentration, cropping intensity, degree of commercialization, diversification and specialization, efficiency and productivity, crop combination regions, agricultural development; Green revolution- its impact and consequences.

UNIT III

Theories of agricultural location;Von Thunen's model and its modification- Sinclair's approach; Concept of agricultural region: Whittle Sey's classification of agricultural regions; Agricultural regions and agro-climatic regions of India and their characteristics; land use and land capability classification: methods and applications.

UNIT IV

Agriculture in India: Land use and shifting cropping pattern; New trends in Indian agriculture- Green revolution, white revolution; Food deficit and food supply regions; nutritional index; Problems of India agriculture, agricultural policy in India; Contemporary issues: nutrition and hunger, food security, drought and food security, agriculture and environmental degradation; Sustainable agricultural development

BOOKS RECOMMENDED

1. T.P.Bayliss Smith: The Ecology of Agricultural Systems, Cambridge University Press, London, 1987.
2. H.P.Gregor: Geography of Agriculture, Prentice Hall,New York,1970.
- 3 W.B.Morgon and R.J.C.Norton: Agricultural Geography, Methuen, London,1971.
1. J.Singh and S.S.Dhillon: Agricultural Geography,Tata Mc Graw Hill Pub. New Delhi,1988.
2. J.R.Tarrant: Agricultural Geography ,Wiley, New York,1974.
3. M.Hussain: Agricultural Geography, Inter India Publications, Delhi,1979.
4. B.W.Inberg: Agricultural Geography, Oxford University Press,1985.
5. L.Symons: Agricultural Geography,G.Bells,London,1967.
6. D.Grigg: An Introduction to Agricultural Geography, Hutchinson Publication, London.
7. D.B.Grigg: The Agricultural Systems of the World, Cambridge University Press,New York,1974.

8. A.M.Mansion: Agriculture and Environment Change, John Wiley, London,1995.
9. Carl Sauer: Agricultural Origin and Dispersals American Geographical Society, New York,1952.
10. L.R.Brown: The Changing World food Prospects: The Nineties and Beyond, World Watch Institute,Washington DC,1990.
11. T.Dyson: Population and Food-Global Trends and Future Prospects, Routledge, London,1997.
12. W.B.Morgan: Agriculture in the Third World- A Spatial Analysis, Westview Press, Boulder,1978.
13. B.B.Singh: Krishi Bhoogol, Gyanoday Prakashan,Gorakhpur.
14. Pramila Kumar evm S.K.Sharma: Krishi Bhoogol,Hindi Granth Academy ,Bhopal.
15. R.C.Tiwari evm B.N.Singh : Krishi Bhoogol ,Prayag Pustak Bhawan.

B. (4) INDUSTRIAL GEOGRAPHY

UNIT I

Nature, Scope and recent developments in industrial geography; Factors of industrial location; centralization and decentralization of industries; horizontal, vertical and diagonal linkages of modern industries.

UNIT II

Theories and Models of industrial location: Weber, Losch, Isard and Hoover; Critical review and application of industrial location theories; Distribution and spatial pattern of major industries- iron and steel, textiles, chemicals, petro –chemicals, automobiles, electronics; Major industrial regions of the world.

UNIT III

Historical review of Indian industrialisation since 1947; Evolution of industrial regions in India; Development of small scale and cottage industries; Interregional disparities in Industrial development in India; Multinational corporations and India's industrial scenario; Industrial policy of India.

UNIT IV

Problems of industrial development; Industrial development and environmental degradation; Industries and economic development, Impact of globalisation on industrial development; Industrial decentralization and its impact on urban fringe; Changing industrial policy; sustainable industrial development.

BOOKS RECOMMENDED

1. 1, M Pacione: Progress in Industrial Geography, Croom Helm, 1985.
2. C Alexanderson: Geography of Manufacturing, Prentice hall, Bombay,1967.
3. J.W.Alexander: Economic Geography, Prentice Hall, Englewood Cliffs,1988.
4. A.Miller: Geography of Manufacturing, Prentice Hall, Englewood Cliffs, New Jercey, 1962.
5. 5.Alfred Weber: Theory of Location of Industries, Chicago University Press, Chicago, 1957.
6. 6.E.M.Hoover: The Location and space Economy, Mc Graw Hill, New York,1948.
7. 7.W.Isard: Methods of Regional Analysis, The Technology Press of M.I.T. & John Wiley & Sons,New York,1956.

8. 8.D.M.Smith: Industrial Location: An Economic Geographic Analysis, John Wiley & Sons,1982.
9. 9.I.M.Clarke: The Spatial Organisation of Multinational Corporation, Croom, Helm,U.K.,1985.
10. 10.Banerjee and S.Guha: Spatial Dimensions of International Capital: Study of Multinational Corporations in India, Orient Longman,1997.
11. 11.H.D.Watts (Ed) (1980): Large Industrial Enterprise: Some Spatial Perspectives, Croom Helm,1980.
12. 12.M.R.Chaudhari:Indian Industries, Oxford Book House,1976
13. 13.V.K.Seth: Industrialization in India: Spatial Perspective, Delhi Commonwealth Publications,1987.
14. 14.B.N.Sinha: Industrial Geography of India.

B. (5) GEOGRAPHY OF TRADE AND MARKETING

UNIT I

Geography of Trade and marketing-Scope, Content and Contemporary trends; Origins of trade and marketing forms of exchange in simpler and complex societies; Evolution of international trade and structuring of the world economy- patterns in mercantile, colonial and post industrial periods;

UNIT II

Theoretical perspective on trade and marketing- doctrine of free trade and trade barriers; classical, neoclassical and contemporary versions of international trade theory; concepts of unequal exchange; spatial dynamics of international trade- pre-war and post-war trends; Trade integrations of developed and developing countries; Rise of international and supranational institutions and related changes in world trade-WTO and international trade- impact on environment, economy and society.

UNIT III

Development of marketing systems, Classification of markets-rural, urban, intra-urban, periodic markets; market hinterlands, consumer behaviour, functional hierarchy of market; economic, political and social dimensions of market.

UNIT IV

Globalisation and contemporary issues of trade and marketing; Role of MMCS in restructuring of markets; Interface between global to local trade and marketing; Interact trading and marketing; Trade policy in developed and developing countries with special emphasis on India

BOOKS RECOMMENDED

1. E.C.Coskling and R.C.Thoman: : Geography of International Trade, Prentice Hall, Englewood Cliffs, 1967.
2. B.J.L.Barry et.al.: Geography of Economic Systems, Prentice Hall, Englewood Cliff.
3. James E. Vince (Jr): The Merchants World -The Geography of Wholesaling, Prentice Hall Inc.Englewood Cliff,1970.
4. B.J.L.Berry: Geography of Market Centres and Retail Distribution, Prentice Hall Inc.Englewood Cliff,1967.
5. J.Beauju- Garsier and A.Delobez: Geography of Marketing.Longman, London,1979.

6. E.Altwater: The Future of the market, Verso, London,1992.
7. R.Eckersley(Ed): Markets, the State and the Environment,Macmillan,London
8. B.Harris: State and Market, Concept, New Delhi,1984.
9. B.M.Hockman and M.M.Kostecki: The Political Economy of World Trading System: from GATT to WTO, Oxford University Press,New York
10. S.S.Acharya and N.L.Agrawal: Agricultural Marketing in India,Oxford and I.B.H. Publishing Co.,1999
11. S.Page: How Developing Countries Trade ,Routledge,London
12. W.Pereira and J. Sea Brook: Global Parasites,500 Years of Western culture, Earthcare Books,Mubai,1984
13. A.M.M.Hoogvelt: Globalisation and the Post Glovial World: The New Political Economy of Development, Macmillan London, 1997.
14. H.M.Saxena: Marketing Geography, Rawat Publications, Jaipur, 1990.
15. H.M.Saxena: Rural Markets and Development, Rawat Publications, Jaipur,1988.
16. C.M.Good: Rural Markets and Trade in East Africa, Chicago University Press,1970.

B. (6) GEOGRAPHY OF TRANSPORT AND COMMUNICATION

UNIT I

Meaning, Objective, Scope and development of transport geography; Relevance of transport geography in planning and development; Factors associated with the development of transport and communication system: physical, economic, social, cultural and institutional; relative significance of different mode of transport and communication.

UNIT II

Structural properties of transport network- Accessibility and flow models, network structure, graph theoretic measure, measurement of accessibility, models of network change, Linear programming and gravity models, Theories related to freight rate structure; bases of spatial interaction, complementary intervening opportunity and transferability.

UNIT III

Functioning of transport network systems- Patterns of movement and transport modes, hierarchy networks, movement geometry; Post eighty revolution in communication and I.T.sector- Role of international organisations- Globalisation and associated aspects; Transport and Communication interface; Economic organisation and patterns of transport and communication system.

UNIT IV

Transport policy and planning; Transport and communication development in developing countries; Urban transport and communication system; vehicular pollution and congestion; Transport and Communication development in mega cities of India; Planning rural transport and communication system in India; Sustainable development of transport and communication systems.

BOOKS RECOMMENDED

1. E.J.Taffee and H.L.Gauthier: Geography of Transportation, Prentice Hall ,1973.
2. E. Thurst: Transport Geography- Comments and readings, Mc Graw Hill,New York,1974.

3. J.C.Lowe and S. Moryadas: The Geography of Movement, Houghton Mifflin, Boston, 1975.
4. A.Gatrell: Distance and Space: A Geographical Perspective, Clarendon Press, Oxford, 1983.
5. A.Hay: Transport for the Space Economy, Mac Millan,London.
6. R.Abler,D. Janelle, A.Philbrick and J. Sommer: Human Geography in a Shrinking World , Press ,Duxvurg,1975.
7. G.C.Stable (Ed): Telegraphy, International Institute of Communication, London,1993.
8. N.Law and B. Gleeson: Making Urban Transport Sustainable, Palgrave-Macmillan, 2003.
9. M. Raza and Y. Aggarwal: Transport Geography of India, Concept, New Delhi,1986.
10. S. Munshi: Geography of Transportation in Eastern India under the British Change, Centre for Studies in Social Sciences, Monograph 1, Bagali, Kolkata, 1980.
11. B.S.Houle: Transport and Development, Mc Millan, London,1973.
12. P.Golaing and P.Harris (Eds): Beyond Cultural Imperialism Sage Publications, London,1997.
13. H.Robinson and C.Ganford: Geography of Transport ,Macdonald & Evans, London,1978.
14. H.P.White and M.L.Senior: Transport Geography, Longman,London,1983.
15. P.Haggett and R.J.Chorley: Networks Analysis, Edward Arnold,London,1968.
16. E.L.Ullman: American Commodity, Flow University of WashingtonPress,1957.

B. (7) GEOGRAPHY OF TOURISM AND RECREATION

UNIT I

Leisure, recreation and tourism- definitions and relationships; Meaning, scope and development of geography of tourism and recreation; approaches to the study of geography of tourism; conceptual foundations and models of tourism.

UNIT II

Tourism Types: Cultural, etho- coastal and adventure tourism, national and international tourism; globalization and tourism; Tourism as an industry-structural components and characteristics; Impact of tourism- environmental, economic, socio-cultural.

UNIT III

International pattern of Tourism; major tourist circuits and nodes; Some case studies- Philippines, France, Netherlands, New Zealand, Nepal,;Tourism development in India- origin and evolution, spatial pattern, problems and polices, impact on society and environment.

UNIT IV

Planning of Tourism –conflicting issues of development, urban and rural dimensions, concepts of green tourism, eco- tourism, Sustainable tourism; state contribution in tourism development; Community participation; role of foreign capital and impact of globalization in tourism.

BOOKS RECOMMENDED

1. H.Robinson: A Geography of Tourism, Macdonald and Evans, London,1976.
2. D.Milton: Geography of World Tourism, Prentice hall ,New York,1993.
3. C.M.Hall and S.J.Page: The Geography of Tourism and Recreation, Environment, Place and Space, Routledge,London,1999.

4. G.Shaw and A.M.Williams: Critical Issues in Tourism: A Geographical Perspective, Blackwell ,Oxford,1994.
5. R.K.Kaul: Dynamics of Tourism and Recreation, Inter India, New Delhi,1985.
6. D.Pearce: Tourism Today-A Geographical Analysis, Longman Scientific and Technical, New York,1987.
7. A.K.Bhatia: Tourism Development, Principles and Practices, Sterling, Bagalore,1989.
8. Ryan Cris: Recreational Tourism,A Social Science Perspetive, Routledge,London,1991.
9. C.M.Hall and S.J.Page: Tourism in South and South East Asia; Issues and Cases, Butterworth Heinemann,Oxford,2001.
10. N.K.Garg: Tourism and Economic Development, Avishkan, Jaipur,1996.
11. P.C.Sinha: International Encyclopaedia of Tourism Management, Vol.1-12,Anmol, New Delhi
12. D.S.Bhardwaj and M.Chaudhary: Contemporary Issues in Tourism, Himalaya ,Mumbai,1997
13. C.Huster and H.Green : Tourism and the Environment: A Sustainable Relationship,Routledge,London,1995.
14. E.Inskeep: Tourism Planning: An Integrated and Sustainable Development Approach, Van Nostrand and Rein hold, New York,1991.
15. J. Lee: Tourism and Development in the Third World, Routledge, London,1988.

B. (8) GEOGRAPHY OF HEALTH

UNIT I

Nature, Scope and development of Geography of Health; Distinction between Geography of Health and medical science; Geographical factor affecting human health and diseases –Physical factors (relief, climate, soil and vegetation), social factors (population density, literacy, social customs and poverty), economic factors (food and nutrition, occupation, standard of living), environmental factors (urbanization and congestion, water, air, and noise pollution and solid waste)

UNIT II

Classification of diseases: genetic, communicable and non-communicable; occupational and deficiency diseases; WHO classification of diseases; pattern of world distribution of major diseases-malaria, tuberculosis, cardiovascular, cancer and AIDS

UNIT III

Ecology, etiology and transmission of major diseases: cholera, malaria, tuberculosis, hepatitis, leprosy, cardiovascular, cancer, AIDS and STDS; Spread of diseases and their causes; Deficiency, disorders and problems of mal nutrition in India.

UNIT IV

Healthcare Planning: (i) International level-WHO, UNICEF, Red Cross (ii) National Level-Government and NGOS; Health care planning and policies: availability, accessibility and utilization of health care services; Primary health care; family welfare, immunization, national disease eradication and health for all programme; Health care policy in India

B. (9) GEOGRAPHY OF CRIME AND TERRORISM

UNIT I

Meaning, Scope and development of Geography of Crime; Indian contribution to the Geography of Crime; Approaches to the study of Geography of Crime; Sources of data on crimes; Reliability of crime data.

UNIT II

Crime –definition and types; causes of crime-physical, economic, social; spatial dimension of crimes, crimes in developed countries; crimes in developing countries with special references to India, seasonality of crimes; crime and poverty, crime and illiteracy.

UNIT III

Urban and rural crimes; crime towards women, children and weaker section of the society; crime as social pollution; Role of police in crimes; Role of political system and judiciary in crimes.

UNIT IV

Terrorism- definition and types; Rise of international terrorism; terrorism and economic and social deprivation; Role of religion in terrorism, Terrorism in India; Controlling crimes and terrorism-international and national efforts and strategy; Rehabilitation of criminals and terrorists.

RECOMMENDED BOOKS:

1. K.D.Harries: The Geography of Crime and Justice,Mc Graw Hill,New York.
2. W.A.Bonger: An Introduction to Criminology,Methuen,London.
3. S.L.Boggs: .urban Crime Pattern,Honter and Row,New York.
4. J.L.Gillin: Criminology and Pesology,Janathan Cape,London,1937.
5. E.C.Lover:The Roots of Crime ,Imago,London,1960.
6. A.S.Gupta: Crime and Police in India,Sahitya Bhawan,Agra.
7. C.R. Walter: The Crime Problem,Bombay.
8. M.M.Lavariya: Aparadh Shastra,Delhi.
9. G.Shah: Aparadh: Karan Aur Nivaran,Banares.
10. R.S.Chandel: Aparadh Samasya Aur Samadhan: Kitabghar,Delhi.
11. D.S.Baghel: Aparadh Shastra: Vivek Prakashan,Delhi.
12. Bhartiya Dard Sashita: Law Book Agency, Allahabad.
13. U.P.Police: 9, Clive Road,Lucknow.

20.Practical (Core) 04: GIS and Computer Assisted Cartography

Time: Six Hour

MM :100

This paper of practical of GIS and Computer Assisted Cartography will be conducted by two internal and one external examiners. The syllabi for practical and field study comprise four parts as follows:

	MM	Time
Part I : Cartographic and Laboratory work	: 40	3 Hours
Part II : Field Techniques	: 20	3 Hours
Part III : Field Excursion and Report	: 20	
Part IV : Sessional Records and Viva-Voce	: 20	

The Cartographic and Laboratory work will consist of six questions selecting at least one question from each section of the syllabus and the candidate has to attempt from questions selecting not more than one question from each section.

UNIT I

FUNDAMENTALS OF GIS: Concepts and definitions; Evolution and development of GIS; Computer environment for GIS; Elements of spatial data and their graphical representation- Thematic maps; Scales and symbolisation; Map projections; spatial data models and data structure in GIS environment-modelling surfaces, networks' terrain' relief and time –virtual maps.

UNIT II

GIS Technology: Co-ordinate system-basic principles of cartography and computer assisted cartography for GIS; Remote Sensing data as a data source for GIS; Integration of GIS and Remote Sensing-GPS and GIS technology; Creation of location and attribute data bases-Vector and raster formats-digitizing and scanning-data editing and validation-geocoding.

UNIT III

Data analysis and manipulation; measurement in GIS-classification, overlay analysis and intergradation of data-buffering- shortest path-interpolation- analysis of surfaces and networks; Modelling physical and environmental processes and human activities; visualisation and mapping-forms of output: map, tables, report-Cartographic principles and techniques of graphic representation-inbuilt tools and facilities in a GIS package.

UNIT VI

GIS as decision support system; Application of GIS technology in utilities management and other fields-GIS in land information system, urban management, environmental of management and emergency response system; Adoption of GIS technology in India; GIS project designing and implementation, Future prospects of GIS

BOOKS RECOMMENDED:

1. S.Aronoff: Geographic Information Systems: A Management Perspective, D.D.L.Publication,Ottawa,1989.
2. P.A.Burrough: Principles of Geographic Information Systems for Land Resource Assessment, Oxford University Press, New York,1986.
3. D.R.Fraser,Taylor : Geographic Information Systems,Pergaman Press,Oxford,1991.
4. D.J.Peuquet and D.F.Marble: Introductory Readings in Geographic Information Systems, Taylor & Francis, Washington,1990.
5. J.Star and J Estes: Geographic Information Systems: An Introduction, Prentice Hall, England Cliff. New Jersey,1994.
6. Marks S. Monmonier: Computer- Assisted Cartography, Prentice Hall, Englewood Cliff,New Jersey,1982.
7. I.Heywood et al: An Introduction to Geographical Systems, Pearson Education, Ltd.New Delhi, 2002.
8. Christopher B. Jones: Geographical Information Systems and Computer Cartography, Addison Wealey Longman Ltd. England,1997.
9. David Martin: Geographical Information Systems: Socio-Economic Application, IInd Edition, Routledge London & New York,1996.
10. William E. Huxhold: An Introduction to Urban Geographic Information Systems, Oxford University Press,New York.

11. John Pickles (Ed) 1995: Ground Truth: The Social Implications of Geographical Information Systems, the Guilford Press, New York,1995.