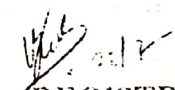


CIRCULAR

UNIVERSITY OF MUMBAI
No.UG 312 of 2004

A reference is invited to the scheme of papers relating to the Master of Arts (M.A.) and Master of Science (M.Sc.) degree courses vide pamphlet No.157 and 175 respectively and to this office Circular No.UG 438 dated 11th September, 2003 and the Head, University Department of Geography, Principals of the affiliated colleges in the faculties of Arts and Science and the Director, Institute of Distance Education are hereby informed that the recommendation made by the Board of Studies in Geography at its meeting held on 15th December, 2003 has been accepted by the Academic Council at its meeting held on 3rd January, 2004 vide item No.4.20 and that in accordance therewith the syllabus in the subject of Geography at the M.A./M.Sc. (Part II) examination has been revised as per Appendix and that the same has been brought into force with effect from the academic year 2004-2005.

Mumbai 400 032
29th July, 2004


for Le REGISTRAR.

To.

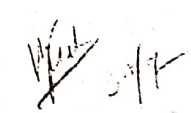
The Head, University Department of Geography, Principals of the affiliated colleges in the faculties of Arts and Science and the Director, Institute of Distance Education.

No.UG 312-A of 2004

29th July, 2004

Copy forwarded with compliments for information to :-

- 1) the Dean, Faculty of Arts,
- 2) the Chairman, Board of Studies in Geography.


for Le REGISTRAR.

Copy to :

The Director, Board of College and University Development, the Controller of Examinations, the Deputy Registrar (Eligibility & Migration Section), the Director of Students welfare, the Personal Assistants to the Vice-Chancellor, the Pro-Vice-Chancellor, the Registrar and the Assistant Registrar, Administrative sub-centre, Ramnagiri, for information.

The Controller of Examinations (10 copies), F. & A.O. (Accounts Section) Fort (2 copies), Record Section (5 copies), Publication Section (5 copies), D.R. (Enrolment, Eligibility & Migration Section) (3 copies), D.R. Statistical Unit (2 copies), D.R. (Accounts Section), Vidyanagari (2 copies), the Director, U.C.C. I.D.E. Bldg., D.R. (Affiliation Section) (2 copies), A.R. A.A. Unit (2 copies). He is requested to treat this as action taken report on the concerned resolution adopted by the Academic Council/Management Council referred to in the above Circular and that no separate A.T.R. will be sent in this connection. A.R., CONCOI (2 copies) BUCIU (1 copy), Dy.Acdt (Unit V) (1 copy), Incharge, Central Computing Facility (1 copy), Receptionist (1 copy), Telephone Operator (1 copy), Secretary, MUASA (1 copy), Superintendent, P.G. Section (2 copies).

UNIVERSITY OF MUMBAI



Revised Syllabus in the subject of Geography for M.A./M.Sc. Part - II

(with effect from academic year 2004 - 2005)

Course Structure in Geography
M.A./M.Sc. Part I
With effect from the Academic Year 2003-2004)

	<u>M.A.</u> Marks	<u>M.Sc.</u> Marks
Paper I: Fundamentals of Geomorphology	75	100
Paper II: Geography of Climato-biotic Interaction	75	100
Paper III: Geography of Socio-cultural and Political Processes	75	100
Paper IV : Spatial Organisation of Economic Activities	75	100
Paper V : Practical I : Tools and Techniques of Spatial Analysis – I	50	50
Paper VI : Practical II : Tools and Techniques of Spatial Analysis –II	50	50

M.A./M.Sc. Part II

Paper VII: Spatial Dimensions of Development	75	100
Paper VIII: Geography of South Asia	75	100
Paper IX & Paper X : Optional Papers	75	100
Paper XI : Practical III : Tools and Techniques of Spatial Analysis– III	50	50
Paper XII : Practical IV : Tools and Techniques of Spatial Analysis – IV	50	50

- Each student shall choose two optional papers from Group A or Group B or Group C.
- Alternatively he/she may select one paper from either Group A or Group B along with one paper from Group C.
- A student could also opt for dissertation in lieu of one of his/her optional papers.

The following is the list of Optional Papers in various groups:

Group A : Physical / Natural Resources Group

1. Tropical Geomorphology
2. Coastal Geomorphology
3. Fluvial Geomorphology
4. Geographical Dimensions of Hydrology
5. Climatology of the Tropics
6. Microclimatology
7. Plant Geography with special reference to tropics
8. Geography of Soils with special reference to tropics
9. Geographical perspective on Ocean Development

Group B : Social and Cultural Group

1. Regional Development and Planning
2. Urban Geography
3. Social Geography
4. Population Geography
5. Geography of Gender
6. Historical Geography
7. Political Geography
8. Cultural Geography
9. Agricultural Geography
10. Industrial Geography
11. Geography of Trade and Marketing
12. Geography of Transport and Communication
13. Geography of Tourism and Recreation
14. Geography of Tribes with special reference to India.

Group C : Interface Group

1. Thematic Cartography
2. Computer Cartography
3. Remote Sensing Techniques in Geographical Studies
4. Geographical Information Systems
5. Advanced Quantitative Techniques in Geography
6. Geography of Resources
7. Geography of Water Resource Management
8. Geography of Energy Resources
9. Geography of Environmental Quality
10. Geography of Health
11. Theoretical Geography
12. Development of Modern Geography
13. Dissertation

Paper VII - Spatial Dimensions of Development

1. Concept of development - Economic growth and development - Ingredients and factors - Spatial and aspatial aspects - Concept of underdevelopment.
2. Salient aspects of development: natural resource and gap in its uses - Types of energy and alternate sources – Technology and society - Environment question in development.
3. Measuring levels of development - Choice of indicators at cross country levels – Spatial and sectoral inequality - Developed and less developed countries.
4. Relevance of economic growth theories - Concept of stages of development – Model of circular and cumulative growth - Growth pole concept - Diffusion and development surface.
5. Regional disparity - Patterns and factors in developed countries - Concept of spread and backwash - Core-periphery concept – Patterns of regional disparity in India..
6. Colonialism, neocolonialism and underdevelopment - Political economy of growth - Theories of dependency - Theory of unequal exchange - Concept of accumulation and uneven development – Relevant Examples.
7. International trade as an economic phenomenon- World trade in mercantile, colonial and post-colonial times- International trade in contemporary period – Trade blocks and their implications –Trade integration among less developed countries.
8. Process of internationalisation of capital and uneven development - Spati organisation and expansion of transnational capital - Multinational Corporations an Indian space-economy – Spatial strategies and settlement systems – Globalisation of the world economy –Impact on socieity, economy and environment.

Text-Books:

1. Harvey, D. (1982): The Limits to Capital, Basil Blackwell.
2. Johnston, R.J. and Taylor, P.J. (eds)(1986):A World in Crisis, Basil Blackwell.
3. Forbes, D.K. (1984): The Geography of Underdevelopment The Johns Hopkins University Press

4. Brewer, A. (1980): Marxist Theories of Imperialism, Routledge and Kegan Paul.
5. Pacione, M. (1988): Geography of the Third World, Routledge.
6. Coates, B.E., Johnston, R.J. & Knox, P.L. (1977): Geography and Inequality, Oxford University Press.
7. Taylor, M.J. and Thirst, N.J. (1981): The Geography of Multinational Corporations Vol. I & II, Croom Helm.
8. Banerjee-Guha, S. (1997): Spatial Dynamics of International Capital, Orient Longman.
9. Armstrong, W. and McGee, T.G. (1985): Theatre of Accumulation, Methuen.
10. Frank, A.G. (1978): Dependent Accumulation and Underdevelopment, The MacMillan Press, London.
11. Mather, A.S. and Chapman, K. (1995): Environmental Resources, Longman Scientific and Technical.
12. Potter, R.B., Binns, T., Elliott, J.A. and Smith, D. (1999): Geographies of Development, Longman.

Books for further reading:

1. Jenkins, R. (1987): Transnational Corporations and Uneven Development, Methuen.
2. Blake, D.H. and Walter, R.S. (1987): The Politics of Global Economic Relations, Prentice Hall.
3. Bagchi, A.K. (1989): The Political Economy of Underdevelopment, Cambridge University Press, 1982, Orient Longman.
5. Archibugi, D. and Michie, J. (eds.) (1997): Technology, Globalisation and Economic Performance, Cambridge University Press.
6. Hoogvelt, A. (1982): Third World in Global Development, Macmillan.
7. Cole, J.P. (1981): Development Gap, John & Wiley and Sons.
8. Kenwood, A.G. and Lougheed, A.L. (1983): The Growth of the International Economy, Allen and Unwin.

9. George, S. (1988): A Fate Worse than Debt, Grove Weidenfeld.
10. Chapman, K.(1979): People, Pattern and Process, Arnold Heinemann.
11. Adams, W.M.(1990): Green Development, Environment and Sustainability in the Third World, Routledge, London.
12. Sachs Wolfgang, (ed.)(1997): The Development Dictionary, Orient Longman.

Paper VIII Geography of South Asia

1. South Asia as a territorial entity – Geological evolution – Relief and drainage – Climate, soils and vegetation – Inter-relation and regional variations.
2. Nature and patterns of distribution and exploitation of key resource types – Major issues in resource mobilization and infrastructure development – Spatio-temporal linkages, gaps and related imbalances – Environmental, economic and socio-political dimensions.
3. Agricultural systems in South Asia and issues of development – Colonial and post-colonial trends – Aspects of commercialisation, modernization and its impact – Food production and related agricultural policies – Changing Cropping Pattern -Contemporary crisis in agriculture.
4. Genesis and trends of industrial and urban growth – Pre and post-independence periods – Perspective of Industrialisation -Structural linkages and regional patterns – Problems of industrial development and urbanisation – Contemporary patterns - Relevant examples.
5. People and the cultural mosaic – Spatial pattern and density – Regional socio-cultural formations - Ethnicity, language and religion – Politics of culture and resultant patterns.
6. Dynamics of post-colonial nation-state – Partition, displacement and emergence of independent nations – Differential Roles of Centres of Political and Economic Activities - Civil society and governance – Quality of life and index of social-economic well-being – Regional variations.
7. Trade and trade relations – Historical review - Nature and patterns of intra-regional and international trade – Dynamics of world affairs - Trade integrations and related characteristics of trade in post-independence period – Significance of SARC and SAPTA – Contemporary trade policies and issues of development.
8. Inter-regional interaction – Issues of the bordering states – Regional integration – South Asia and global powers – Impact of globalisation.

Text Books

1. Farmer, B.H.(1993): An Introduction to South Asia (2nd edition) Routledge Publications, London.
2. Johnson, B.L.C.(1981): South Asia (2nd edition) Heinemann Educational Books Ltd., Exeter.
3. Spate, O.H.K. and Learmonth, A.T.A.(1967): India and Pakistan: Land, People and Economy, Methuen, London.
4. Stamp, L.D.(1958): Asia - A Regional and Economic Geography, Methuen & Co. Ltd., Essex Street - Strand, W.C.2.
5. Tirtha, R. (1996): Geography of India, Rawat, Jaipur.
6. Singh, J. (1997): Agricultural Development in South Asia: A Comparative Study i the Green Revolution Experiences, National Books Organisation, New Delhi.
7. Mollinga, P.A.(2000):Water for Food and Rural Development: Approaches and Initiatives in South Asia, Sage, New Delhi.
8. Sukhwai, B.L. (1971): India - A Political Geography, Allied Publishers, Bombay.
9. Vidyarthi, L.P. (1979): Patterns of Culture in Southern Asia.
10. Srinivasan, K. and Vlanol, M. (2001): 'Population-Development Nexus in India: Challenges for the New Millenium, Tata McGraw.
- 11.Gonsalves, F. and Jetly, N. (1999): The Dynamics of South Asia: Regional Co-operation and SAARC, Sage, New Delhi.
12. Bjorkman (1987): The Changing Division of Labour in South Asia, Manohar, New Delhi.
13. Schwartzberg, J.E. (ed.)(1978): A Historical Atlas of South Asia, University of Chicago Press, Chicago.

Books for further reading:

1. Ahmed, K.S. (1964): Geography of Pakistan, Oxford University Press, Karachi.
2. Ahmed, K.S. (1975): An Economic Geography of Bangladesh, Vikas, New Delhi,
3. Cook. E.K.(1951): Ceylon: Its Geography, Its Resources and Its People, St.

Martin, New York.

4. Baldwin, M.F.(1991): Natural Resources of Sri Lanka: Condition and Trends, Colombo.
5. Richard P. and Stontjesdijk, E. (): Agriculture in Ceylon until 1975, Development Centre of the Organisation for Economic Co-operation and Development.
6. Nabi, I., Naved, H. and Shahid, Z. (1986): The Agrarian Economy of Pakistan – Issues and Policies, Oxford University Press.
7. Shrivastava.O.S.(1995): National and Interstate Development of Agriculture in India, Pointer, Jaipur.
8. Nafis, A. (1976): The New Economic Geography of Bangladesh, Vikas.
9. Wickramasinghe, V.(2001): Energy for Economic Development in South Asia: Present Status, Future Requirements and Potential For Regional Co-operation in South Asia Economic Journal, Vol.2, No.2, July-December 2001.
10. Deshpande, C.D. (1992): India : A Regional Interpretation, Northern Book Centre, New Delhi.
11. Singh, R.L.(1971): India - A Regional Geography, National Geographical Society of India, Varanasi.
12. Robinson, F. (ed.)(1989): The Cambridge Encyclopaedia of India, Pakistan, Bangladesh and Sri Lanka, Cambridge University Press.

Paper XI – Tools and Techniques of Spatial Analysis III

1. Remote Sensing Techniques: Principles and applications – Aerial photographs: types, geometrical properties and image characteristics – Principles involved in identification of features on photographs – Stereo-pairs and interpretation of simple physical and cultural landscapes – Principles of satellite remote sensing: merits and limitations – Identification, mapping and interpretation of landuse/landcover categories using imageries – Other applications – Conjunctive use of aerial photographs and satellite imageries.
2. Geographical Information System: concepts and definitions – Components of GIS database – Introduction to a GIS package: MapInfo – Familiarity with inbuilt tools and facilities - Creation of location database – Raster and vector formats of data – Scanning and image processing of base map: digitizing, creating overlays – Creation of attribute database– Geocoding and linking– Manipulation and mapping – Construction of thematic maps using different techniques – Querying

the database for decision support – Utility and limitations.

3. Field work, Journal and Viva: Report writing based on Field visits and Field work

Text Books

1. Burrough, P.A. (1986): Geographical Information Systems for Land Resources Assessment, Clarendon Press, Oxford.
2. Clarke, K.C. (1995): Getting Started with Geographical Information System, Prentice-Hall, Inc. N.J.
3. Jhanwar, M.L. and Chouhan, T.S. (1998): Remote Sensing and Photogrammetry: Principles and Applications, Vol. I and II, Vigyan Prakashan, Jodhpur.
4. Martin, D. (1996): Geographic Information System: Socio-economic Applications, 2nd Edition, Routledge, London and New York.
5. Sabins, F. F. (1978): Remote Sensing: Principles and Interpretation, W.H. Freeman & Co., San Francisco.
6. Snobble, J. K. (1970): Stereoscopic Aerial Photographs for Earth Science, Selvi Bundett Co., New Jersey, Selvi Bundett Co., New Jersey.

Books for further reading

1. Christopher, J. (1997): Geographical Information Systems and Computer Cartography, Addison Wesley Longman Limited, England.
2. Chouhan, T.S. and Joshi, K.N. (): Applied Remote Sensing and Photo-Interpretation, Vigyan Prakashan, Jodhpur.
3. Lo, C.P. (1986): Applied Remote Sensing, Longman Scientific and Technical, Harlow, Essex.
4. Muralikrishna, I.V. (1992): Remote Sensing Applications and GIS : Recent Trends Tata McGraw Hill Publishing Co. Ltd., New Delhi.
5. Reddy, A.M. (2001): Text-book of Remote Sensing and Geographical Information Systems, 2nd Edition, B. S. Publications, Hyderabad.
6. Sully, G.B. (1970): Aerial Photo Interpretation, Belhaven House Ltd., Ontario.

Paper XII – Tools and Techniques of Spatial Analysis IV

1. Inferential statistics: basic principles – Testing of hypothesis : main stages – Chi square, correlation as tests of significance: spatial analysis – Partial correlation – Linkage analysis – Simple regression : derivation and interpretation of results – Regression residuals: mapping and interpretation.
2. Analysis and explanation of spatial patterns and processes: Critical appreciation and interpretation of thematic maps – Themes and techniques of thematic atlases – Interpretation of NATMO and other published maps.
3. Techniques of spatial analysis in development studies- Dimensions of development and choice of indicators – Construction and interpretation of ratios, indices and diagrams – Levels of development and regionalisation – Design and construction of maps and interpretation.

Text Books

1. Yeates, M.(1974): An Introduction to Quantitative Analysis in Human Geography, McGraw Hill Book Co., New York.
2. Taylor, P. J. (1977): Quantitative Methods in Geography, Houghton and Mifflin Co., Boston.
3. King, L. J. (1969): Statistical Analysis in Geography, Prentice Hall, Inc., Englewood Cliffs, New Jersey.
4. Hammond, R. and McCullagh, P.S. (1974): Quantitative Techniques in Geography An Introduction, Oxford University Press, London.
5. Yeates, M.(1974): An Introduction to Quantitative Analysis in Human Geography, McGraw Hill Book Co., New York.
6. Mahmood Aslam (1977): Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
7. Mitra, A. (1961): Levels of Regional Development, Census of India, 1961.
8. Streeton, P. and Jolly, R. (eds)(1981):Recent Issues in Development, Pergamon Press, London.
9. Kundu, A. (1975): Construction of Composite Indices for Regionalisation: An enquiry into the Methods of Analysis, Geographical Review of India, Vol.37 No.1, March, 1975, pp. 19-29.

Books for further reading

1. Cole, J.P. and King, C.A.M.(1968): Quantitative Geography, John Wiley and Sons London.
2. Mather, P.M. (1976): Computational Methods of Multivariate Analysis in Physical Geography, John Wiley and Sons, London.
3. Burton, T.A. and Cherry, G.E.(1970): Social Research Techniques for Planners, George Allen and Unwin, London.
4. Bailey, K.D. (1987): Methods of Social Research, The Free Press, New York.
5. Ottar H. (1984): Introduction to Causal Analysis, Exploring Survey Data by Cross-tabulation.
6. Dasgupta, N.(1984): The Geography of Socio-economic Well-being in India, M.Phil Dissertation, Department of Geography, University of Mumbai.
7. Banerjee-Guha, S. (1997): Spatial Dynamics of International Capital, Orient Longman.
8. U.N.D.P. (1981): Human Development Report - 1991, World Bank.

Group A: Physical/Natural Resources Group

A 1 - Tropical Geomorphology

1. Basics: Scope and significance of tropical geomorphology – Climatic elements and geomorphic processes in tropics – Tropical region: Definition and limit, factors affecting geomorphic processes in tropics- Climate, vegetation and other; concepts of morphogenetic region.
2. Weathering in tropics: Processes and types - Development and character of weathering profile - Duricrusts and laterites : Origin, structure, landforms; Character of tropical soils.
3. Mass movements in tropics and their effect in geomorphic evolution - Evolution of slopes under tropical environment - Nature of hill slopes in humid and arid tropics Slope stability.
4. Structural landforms of tropics - Domes, tors, scarps etc. - Deccan Trap landforms.
5. Fluvial processes in the tropics: their characteristics and rates – Tropical valley forms in humid and arid areas - Tropical deltas and estuaries and fluvial landform characteristics of India.
6. Tropical coastal processes - Coastal landform characteristics – erosional and depositional landforms.

7. Geomorphic processes in arid lands of the tropics - Arid landforms – Inselberg, pediment and pediplains – Characteristics and origin - Landscape of the Thar Desert.
8. Character of tropical terrain - Evolution of tropical landforms with respect to climatic control in their development – Mapping and identification of tropical landforms - Significance of remote sensing in tropical geomorphology.

Text Books:

1. Garner, H.F.(1974): Origin of Landscapes - A synthesis in Geomorphology, Oxford University Press, New York.
2. Triart, J.(1972): The Landforms of the Humid Tropics, Forests and Savannas, Longmans, London.
3. Tricart, J. and Coilleux, A.(1972): Introduction of Climatic Geomorphology, Longman Green, London.
4. Faniran, A. and Jeje, L.K. (1983): Humid Tropical Geomorphology, Longman, London.
5. Thomas, M.F.(1974): Tropical Geomorphology: A Study of Weathering and Landform Development in Warm Climates, Macmillan, London.
6. Ollier, C. (1969): Weathering, Oliver & Boyd, Edinburgh.
7. Douglas, J. and Spencer, I.(1985): Environmental Change and Tropical Geomorphology, George Allen & Unwin, London.
8. Bombay Geographical Association (1970-71): Geddes Memorial Volume: Maratha Lands, Bombay.
9. Twidale, C.R. (1971): Structural Landforms, The MIT, Cambridge.
10. Birot, P. (1968): Cycle of Erosion in Different Climates, B.T. Batsford, London.

Books for further reading:

1. Mcfarlane, M.J.(1976): Laterite and Landscape, Academic Press, London.
2. Dikshit, K.R., Kale, V.S. and Kaul, M.N.(1994): India - Geomorphological Diversity, Rawat, Jaipur.

3. Sharma, H.S. (1986): Tropical Geomorphology, Concept, New Delhi.
4. Sharma, H.S. (ed)(1991): Indian Geomorphology, Concept, New Delhi.
5. Jog, S.R.(ed)(1995): Indian Geomorphology, Vols. I & II, Rawat, Jaipur.
6. Sharma, A. (1993): Ecology of Landslide Damages, Pointer, Jaipur.

A 2 - Coastal Geomorphology

1. Physical factors and processes associated with evolution of coasts - Role of relief, lithology, structure - Biotic and anthropogenic factors affecting coastal evolution.
2. Erosional coastal landforms - Variations in characteristics with lithology and structure caves, cliffs and wave-cut platforms, coastal islands.
3. Depositional work along the shore - Evolution of a shore profile - The beach and associated forms: beach ridges and cusps - Other depositional forms - Coastal dunes and coral Coasts.
4. Sea level changes - Mean sea level, causes of sea level changes - Measuring changes of sea level - Late quaternary sea level changes - Recent Changes.
5. Classification of coastlines and shorelines: Evaluation of various schemes.
6. Development of shore lines and marine cycle of erosion: Along shorelines of submergence and emergence.
7. Off-shore features - Configuration of continental shelf and continental margins - Shelf deposits.
8. Coasts and man - Opportunities and constraints - Coastal development and management.

Text Books:

1. Ahmed, E. (1972): Coastal Geomorphology of India', Orient Longmans, Delhi.
2. Bird, Eric. (2000): Coastal Geomorphology, An Introduction, John Wiley and Sons Limited, Chichester.
3. Davies, J.L. (1972): Geographical Variation in Coastal Development, Oliver & Boyd, Edinburgh.
4. Johnson, D.W. (1965): Shore Processes and Shoreline Development, Hanfer,

New York.

5. King, C.A.M. (1972): Beaches and Coasts, Edward Arnold, London.
6. Snead, R.E. (1982): Coastal Landforms and Surface Features, Hutchinson Ross, Stroudsburg, Pennsylvania.
7. Steers, J. A. (1971): Applied Coastal Geomorphology, MacMillan, London.
8. Steers, J. (1971): Introduction to Coastline Development' Macmillan, London.

Books for further reading

1. Bird, E.C.F. (1985), 'Coastline Changes: A Review, John Wiley, Chichester.
2. Fisher, J. S. and Dolan, R. (1977): Beach Processes and Coastal Hydrodynamics, Dowden, Hutchinson & Ross Inc., Stroudsburg, Pennsylvania.
3. Dikshit, K.R. (1983), Contributions to Indian Geography - Geomorphology, Heritage, New Delhi.
4. Guilcher, A. (1988): Coral Reef Geomorphology, John Wiley, Chichester.
5. Steers, J.A. (1969): The Sea Coast: Oliver Boyd, London.
6. Minikin, R.R. (1952): Coast Erosion and Protection Studies in Causes and Remedies, Chapman and Hall Limited, London.
7. Guilcher, A. (1958): Coastal and Submarine Morphology, Methuen and Company Limited, London.

A 3 - Fluvial Geomorphology

1. Surface run-off at an essential component of hydrological cycle - Evolution of Drainage pattern and factors affecting - Drainage network composition and associated laws - Network composition and flow characteristics.
2. Drainage basin characteristics: forms, size density, bed and bank - Channel morphology and its impact on hydraulic geometry: their relation to nature of river work.
3. Hydraulics and mechanics of stream flow: types and regimes - Stream energy and determining factors - Energy/load relation and nature of stream work - Concept of a graded profile - Impact of local base levels on profile.

4. Processes of fluvial erosion and associated landforms - Gorges, Canyons, laterally eroded valleys and erosional terraces - changes in profile with distance from the source.
5. Processes of fluvial deposition and associated landforms - Piedmont plain, alluvial plain and delta morphologies.
6. Geomorphic evolution of fluvial landscape - Relevance of cycle concepts in the present day Geomorphology - Rejuvenation and evolution of complex valley forms - Systems approach to the study of fluvial landforms.
7. Fluvial landscapes in humid, arid and formerly glaciated areas : a comparison.
8. Fluvial landscapes and man - Anthropogenic modifications in fluvial regimes and dynamics : Man-induced hazards - Fluvial landscape management - Utility of drainage basins as planning units.
9. Remote sensing and GIS applications to fluvial environment.

Text Books:

1. Chorley, R.J. (ed)(1969): 'Introduction to Fluvial Processes', Methuen, London.
2. Gregory, K.J. and Walling, D.E. (1973) : 'Drainage Basin, Form and Process : A Geomorphological Approach', Edward Arnold, London.
3. Schumm, S.A. (1977): 'The Fluvial system', John Wiley, New York.
4. Morisawa, V. (1985): 'Rivers, Forms and Process', Longman, London.
5. Richards, K.(1982) : 'Rivers: Form and Process in Alluvial Channels', Methuen, London.
6. Crickmay, C.H. (1974): 'Work of the River', Macmillan, London.
7. Jansson, M.B.(1982): 'Land Erosion by Water in Different Climates', Uppsala University.
8. Knighton, D. (1984): 'Fluvial Forms and Processes', Edward Arnold, London.

Books for further reading.

1. Dury, G.H.(ed)(1970): 'River and River Terraces', Macmillan, London.
2. Gregory, K.J.(1977): 'River Channel Changes', Wiley Inter Science, Chichester.

3. Morisawa, M. (1968): Streams - Their Dynamics and Morphology, McGraw Hill, New York.
4. Schumm, S.A.(ed)(1972): River Morphology: Benchwork Papers in Geology, Dowden, Hutchinson in & Ross Inc., Stroudsburg, Pennsylvania, U.S.A.
5. Goudie, A. (1995): The Changing Earth, Blackwell, Oxford.
6. Sharma, H.S.(ed)(1982): Perspectives in Geomorphology, Vol.II, Concept, New Delhi.
7. Pal. S.M.(1986): Geomorphology of River Terraces long Alaknanda Valley, Garhwal Himalayas, B.R. Publishing Corporation, Delhi.

A4 Geographical Dimensions of Hydrology

1. Hydrology : scope and content – relationship to other disciplines – basic concepts, components and processes in hydrology – hydrology and man.
2. Hydrological cycle – factors affecting movement of water – patterns of movement significance of cyclic movement to human life – man's use of hydrological cycle and related issues.
3. Hydrology of a river basin – basin characteristics and spatial variations in discharge – potentialities and constraints in utilizing basin water – human use of river basins : problems of the catchments and command areas – examples from India.
4. Origin and occurrence of ground water – impact of surface, subsurface and atmospheric conditions on occurrence of ground water reserves – ground water recharge and utilization – concept of water balance – man induced problems related to ground water.
5. Glacial hydrology and its significance – glaciers as stores of water in solid form – characteristic movements in mountainous and plain areas – nature of glacial and periglacial discharges – problems associated with utilization of hydrological potentials of glaciated areas – examples from India.
6. Geographical hydrology: hydrological cycle in spatial context – spatial patterns – hydrology in monsoon, savannas, desert and polar areas – hydrology of trap and limestone areas - urban hydrology.
7. Water as a focus of geographical interest – distribution of water in the world – areas of water surplus and deficit – privatization of water resources and water wars – man-induced scarcity of water resources : some case studies.

8. Water conservation: present and future perspectives – watershed development for efficient use of water – conjunctive use of various sources – water harvesting: traditional and modern methods – judicious use of water in rural and urban areas – water conservation programmes in India.

Text Books

1. Agarwal A. and Narain, S. (1997), "Drying Wisdom : Rise, Fall and Potential of India's Traditional Water Harvesting System", CSE, New Delhi.
2. Central Water Commission (1977), "Floods and Their Control in India", Ministry of Agriculture and Irrigation, Govt. of India, New Delhi.
3. Centre for Science and Environment (2002), "Citizens Report", New Delhi.
4. Charlu, T.G.K. and Dutt, D. K. (1982), "Ground Water Development in India" Rural Electrification Corporation, New Delhi.
5. Chorley, R. J. (1967), "Water, Earth and Man", Methuen, London.
6. Chorley, R. J. (1969), "Introduction to Physical Hydrology", Methuen, London.
7. FAO (1997), "Sea Water Intrusion in Coastal Aquifers : Guidelines for Study, Monitoring and Control", U. N. , Rome.
8. Hills, E.S. (1966) (ed), "Arid Lands : A Geographical Appraisal", Methuen, London
9. Jones, J. A. (1997), "Global Hydrology : Processes, Resources and Water Management", Longman, London.
10. Mahajan, G. (1993), "Ground Water Recharge", Ashish Publishing House, New Delhi.
11. Matter, J. R. (1984), "Water Resources : Distribution, Use and Management", John Wiley, Marylane.
12. Rao, K. L. (1979), "India's Water Wealth", Orient Longman, New Delhi.
13. Singh, R. A. and Singh, S. R. (1972), "Water Management : Principles and Practices", Tara Publication, Varanasi.
14. Sita, K. , Phadke, V. S. and Rao, K. V. S. (1991), "Koyna Catchment : An Environmental Perspective", Unpublished Project Report, Department of Geography, University of Mumbai.
15. Tideman, E. M. (1996), "Watershed Management: Guidelines for Indian

Conditions", Omega, New Delhi.

16. Sain, S. K. (1979), "The Flood Problem in India", Birla Institute of Scientific Research, Economic Research Division, New Delhi.
17. Todd, D. K. ((1959), "Ground Water Hydrology", John Wiley, New York.
18. Yoshino, M. M. (1971) (ed), "Water Balance of Monsoon Asia", University of Hawaii Press, Honolulu.

A 5 - Climatology of the Tropics

1. Heat Budget of the tropics - Role of tropics in the general circulation of the atmosphere - Driving forces - Jet streams and their influence.
2. The Monsoon: its genesis, distributional characteristics over time and space – Variability and predictability.
3. Tropical air-masses and fronts - Their characteristics - Air masses over south Asia - Their seasonal variations.
4. Tropical disturbances: cyclones, thunderstorms, tornadoes - Their characteristics Frequencies and paths - Structure of the eye - Cyclones in Bay of Bengal and Arabian Sea - Tracking of tropical disturbances.
5. Classification of Tropical climates - Climatic types in the tropics and associated weather characteristics - Regionalisation of India based on the schemes of Koppen; Thornthwaite and Penman - Water balance: areas of surplus and deficit Droughts, their characteristics drought prone areas of India.
6. Study of climatic regions in detail and their distributional characteristics - Selva, savanna, desert - Impact of climatic characteristics on vegetation.
7. Climate and agriculture - Agro-climatic regions of the Tropics, their characteristics – Agro-climatic regions of India -Impact of technology and changing boundaries of agro-climatic regions.
8. Techniques of analysis and forecasting - Weather map analysis - Plotting of surfaces and upper air data - Instruments for analysis - Remote sensing and its relevance.

Text-Books:

1. Garbell, M.A.(1947): Tropical and Equatorial Meteorology, Sir Isaac Pitman and Sons Ltd., U.S.

2. Lockwood, J.G.(1974): World Climatology, an Environmental Approach, Edward Arnold, U.K.
3. Nieuwolt, S.(1977): Tropical Climatology, John Wiley & Sons Ltd., U.S.A.
4. Riehl, H.(1954): Tropical Meteorology, Mcgraw Hill Co., U.K.
5. Trewartha, G.T.(1962): The Earth's Problem Climates, Methun & Co. Ltd., London

Books for further reading:

1. Barrett, E.G.(1974): Climatology from Satellites Methuen & Co.Ltd. U.K.
2. Barry, R.G. & Perry, A.H.(1973): Synoptic Climatology Methods and Applications, Methuen & Co.Ltd. U.K.
3. Datye, V.S. et.al(ed)(1987): Explorations in the Tropics, Prof.K.R. Dikshit Fel.Vol.,Pune.
4. Ramage, C.S.(1971): Monsoon Meteorology, Academic Press, U.K.
5. Subrahmanyam, V.P.(1983): Contributions to Indian Geography, Part III - General Climatology Heritage Publ., New Delhi.
6. Subramaniam, A.R.(1992: Climatic Variability in India, Annals of NAGI, 12, 1-2.
7. Thornthwaite, C.W.(1948): An approach towards a Rational Classification of Climate, Geographical Review, 38, 55-94.
8. Yoshino, M.M.(ed)(1971): Water Balance of Monsoon Asia, University of Hawai Press.

A 6 - Microclimatology

1. Microclimatology - Definition, scope and content - relevance in applied climatology - Local, regional, global perspectives - Factors affecting microclimate.
2. Influence of physical factors on microclimate: elevation slope and aspect, proximity to water body - Types of climate: mountain, valley, coastal - Indian examples.
3. Impact of vegetation - Light, temperature, humidity, wind, rainfall - Microclimatic

conditions of forests, scrublands, grasslands, barren areas.

4. Soil-heat flux and soil-moisture regimes - temperature and moisture profiles – Impact of soil characteristics on climate.
5. Soil-plant-climate continuum - Their influence on evapo-transpiration - Water balance: concept and estimation – Evapo-transpiration in forests, from ice and snow, swamps and water-bodies.
6. Climate and agriculture - Concepts of accumulated temperature and precipitation efficiency - Weather and crop production - Weather hazards - Phenology - Relation of water use and plant development - Yield - Drought and irrigation schedule – Pests and diseases - Artificial methods for conserving soil moisture.
7. Climate and health - Influence of climate on human physiology - Climatic stress – Acclimatization - Comfort and discomfort indices.
8. 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 Maharashtra in relation to climate.

Text-Books:

1. Mather, J.R.(1974): Climatology: Fundamentals and Applications, McCraw Hill Book Co., U.S.A.
2. Matthews, W. H., Kellogg, W., Robinson, G.D. (1971): Man's Impact on Climate, M.I.T.Press Design Dept. U.S.A.
3. Rosenberg, N.J., Blad, B.L., Verma, S.B.(1983): Micro-climate - The Biological Environment, John Wiley & Sons, Inc., U.S.A.
4. Russel, E.W. (1973): Soil conditions and Plant growth, Longmans, U. K.
5. Subrahmanyam, V.P.(1983): Contributions to Indian Geography Part IV - Applied Climatology, Heritage Publishing, New Delhi.
6. Geiger, R.(1966): The Climate near the ground, Harvard University Press, Cambridge.

Books for further reading:

1. Bach, W., Pankrath, J., Kellogg, W.(1979): Man's Impact on Climate, Elsevier, Scientific Publishing Company, New York.

2. Pascal, J.P.(1982): Explanatory notes on Bioclimate Maps of the Western Ghats, Institut Francais de Pondicheri, Pondicherry.
3. Seth, S.R. & Khan, W. (1959): Bioclimate and Plant Introduction in Dry Zone, Indian Forester, 85,376-384.
4. Smith, K. (1978): Principles of Applied Climatology, McGraw Hill Books Co. Ltd., U.K.
5. Yoshino, M.M. (ed.)(1971): Water Balance of Monsoon Asia - A Climatological Approach, University of Tokyo Press, Tokyo.
6. U.S. Department of Agriculture (1957): Soil, The Year Book of Agriculture, New York.

A 7 Plant Geography with special reference to Tropics

1. Evolution of Plant Geography as a discipline – Scope and content – Links with other disciplines and relevance to Geography– Recent trends – Future needs in phyto-geographical research.
2. Factors affecting plant distribution -- Physical, physiographic, atmospheric, edaphic - Concept of zonal soils and vegetation, soil catena.
3. Factors affecting plant distribution – biotic,anthropogenic – Types of interactions among plants, between plants and animals – Impact of man and consequences – Plants as indicators of environment.
4. Vegetation, its distribution and dynamics – Plant associations and communities as units of study – Dispersal and migration – Past and present distributions, evidences -- Concept of areas: centres and types of areas – Concept of climax vegetation: significance, variations and modifications – Basis for climatic classifications.
5. Concept of eco-system: its relevance and utility – Major plant formations of the tropics -- Forests, grasslands, deserts, mangroves – Vegetation types of India.
6. Tropical vegetation characteristics — Indigenous and exotic flora -- Bio-diversity and intellectual property rights – Contemporary issues related to deforestation – Conservation.
7. Techniques and methods of studying vegetation in the field – Vegetation classification – Vegetation cartography – Sampling, data collection, analysis, representation – Remote sensing and its utility in vegetation studies.
8. Depletion, conservation and management of protected forest /reserved forest /

national park / sanctuary / mangrove – Green belts and zones in urban areas.

Text Books

1. Akin, W.E. (1991): Global patterns – Climate, vegetation soils, University of Oklahoma Press, U.S.A.
2. Ewusie, J.Y. (1980): Elements of Tropical Ecology, Heinemann Educational Books Inc. London.
3. Furley, P.A. and Newey, W.N. (1983): Geography of the biosphere, Butterworth & Co. Ltd., London.
4. Kellman, M.C. (1975): Plant Geography, Methuen & Co. Ltd., London.
5. Mani, M.S. (1974): Ecology and Biogeography in India. The Hague: Dr. W. Junk Publishers.
6. Odum, E.P. (1959): Fundamentals of Ecology, W. Saunders, Philadelphia.
7. Pears, N. (1985): Basic Biogeography, Longman, London.
8. Slaymaker, O. and Spencer, T. (1998): Geography and Global Environment Change, Addison Wesley Longman Ltd., UK.
9. Smithson, P. et al (2002): The Fundamentals of The Physical Environment, Routledge, London.

Books for further reading:

1. Ali, S. (1990): Notes on National Forest Policy 1988, Encology, 5(3), August, 1990, 20—22.
2. Bharucha, F.R. (1983): A text-book of the plant geography of India, Oxford University Press, Bombay.
3. Forest Survey of India (1987-1999): The State of Forest Reports, Dehradun.
4. Dikshit, K.R. (1991): Environment, Forest Ecology and Man in the Western Ghats – The Case of Mahabaleshwar Plateau, Rawat Publ., New Delhi.
5. Ganeshaiah, K. N. et al (ed) (2001): Tropical Ecosystems – Structure, Diversity and Human welfare, Oxford & IBH Publ. Co., New Delhi.
6. Geethakrishnan, K.P. (1994): National Forest Policy, 1988, Encology, 5(3), 15-20.
7. Kuchler, A.W. (1967): Vegetation Mapping, Ronald Press Co., U.S.A.

8. Meher-Homji, V.M. (1987): Vegetation types of Peninsular India in relation to environment conditions, in Explorations in the tropics, Prof. K.R. Dikshit Fel.Vol.Comm., Pune, 3-19.
9. Meyers, A.A. and Giller, P.S. (1988): Analytical Biogeography – An Integrated Approach to the Study of Animal and Plant Distribution, Chapman and Hall, London, New York.
10. Mueller-Dombois and Ellenberg (1974): Aims and Methods of Vegetation Ecology John Wiley and Sons, U.S.A.
11. O'riordan, T. et al (2002): Biodiversity, Sustainability and Human Communities – Protecting beyond the Protected, Cambridge Univ. Press, U.K.
12. Puri, G.S. (1980): Indian Forest Ecology, Vols.2, New Delhi: Oxford.
13. Sharma, N.P. (ed.) (1992): Managing World's Forests; Kendall Hunt Publ. Co., Iowa.
14. Randall, R.E. (1978): Theories and Techniques in Vegetation Analysis, Oxford University Press, U.K.
15. Walter, H. (1973): Vegetation of the Earth in relation to climate and eco-physiological conditions, English Univ. Press Ltd., London.

A 8 Geography of Soils with special references to Tropics

1. Evolution of Pedology as a science – Significance in geographical studies – Relevance in environmental geomorphology.
2. Soil formation: process of development – Influence of major factors: parent rock, time, topography, climate, biotic factors – Soil profile – Soil catena.
3. Properties and characteristics of soils: colour, texture, structure, pore space, bulk density, tilth.
4. Soil constituents: organic and inorganic matter, soil organisms, soil air and water nutrients -- Soil fertility – Soil capability, suitability and productivity.
5. Soil classification: earlier and recent – Soil types of India – Soil analysis in field and laboratory: physical and chemical – Soil maps of Maharashtra.
6. Soil-plant relationships in the tropical environment: forests, grasslands, deserts – Concept of water balance – significance of soils in micro-climatological studies.

7. Soil depletion and damage in the tropics – Soil erosion: types and characteristics – Agricultural ecosystems and related problems in India..
8. Soil conservation and management in the tropics – Sustainable development of soil resources – Recent trends in farming techniques -- Vermiculture, organic fertilizers, bio-pesticides, drip irrigation.

Text-Books:

1. Bridges, E.M. (1970): World Soils, Cambridge University Press, U.K.
2. Daji, J.A. (1970): A Text Book of Soil Science, Asia Publication House, Mumbai.
3. De, N.K. and Sarkar, H.K. (1993): Soil Geography, Sribhumi Publishing Company, Calcutta.
4. Dohahue, E.L., et. al., (1987): Soils: An Introduction to Soil and Plant Growth, Prentice Hall of India, New Delhi.
5. Foth, H.D. & Turk, L.M. (1972): Fundamentals of Soil Science, John Wiley & Sons, Inc., Canada.
6. Pitty, A.F. (1978): Geography and Soil Properties, Methuen and Co. Ltd., London.
7. Paton, T.R., Humphreys, G.S., Mitchell, P. B. (1995): Soils: A New global View, U.C.L. Press, London.

Books for further reading:

1. Datye, V.S. et al (ed) (1987): Explorations in the Tropics, Prof. K. R. Dikshit Ed. Vol., Pune.
2. Foth, H.D. & Schafer, F.W. (1980): Soil Geography and Landuse, John Wiley & Sons, Inc., Canada.
3. Raychaudhari, S.P. (1958): Soils of India, ICAR, New Delhi.
4. U.S. Department of Agriculture (1957): Soil, The Year Book of Agriculture, New York.
5. Miller, R.W. et. al., (1995): Soil in Our Environment, Prentice Hall, U.S.A.

A 9 Geographical Perspective on Ocean Development

1. Significance of oceans in the present day context: Ocean as a resource - Oceanic deposits and sediments - Sea as a means of transport - Morphology of ocean basins.
2. Ocean – atmosphere system – Energy transfer mechanisms – World energy balance - Circulation patterns of major oceans: surface, subsurface and deep water circulation.
3. Biotic environment of the ocean: flora and fauna – Biotic ocean resources – Ecological factors in productivity – Horizontal and vertical variations in distribution and productivity.
4. Abiotic ocean resources – Water – Renewable and non-renewable sources of energy – Minerals from the ocean bed – Polymetallic nodules – Minerals from seawater.
5. Pollution of the oceans: Sources - Land related and marine – types, trends, consequences and preventive measures.
6. Environmentally sensitive areas of oceans – Problems associated with them and preventive measures.
7. Global legislation and ocean resource utilization – Law of the sea: territorial waters, exclusive economic zone, international waters - Islands: continental and oceanic – Their significance – Problems associated with island ecosystems.
8. Geopolitical and strategic importance of oceans with special reference to the Indian Ocean – Strategic and economic significance of Indian Ocean islands – Indian Ocean community.

Text Books:

1. Bhatt, J.J. (1978): Exploring the Planet Ocean, D. Von Nostrand Co., New York.
2. Birla Economic Research Foundation, Economic Research Division(1992): The Oceans, allied Publishers Ltd., New Delhi.
3. Chandra, S. and others (eds.)(1993): The Indian Ocean and its Islands: Strategic Scientific and Historical Perspectives', Sage Publications, New Delhi.
4. Couper, A.D. (1972): Geography of Sea Transport, Hutchinson University Library, London.
5. Sharma, R.C.(ed)(1985): The Oceans: Realities and Prospects, Rajesh Publications, New Delhi.
6. Sengupta, R. and Desai, E. (eds.)(2001): The Indian Ocean: A Perspective Vol. I and II, Oxford and IBH Publishing Company Private Limited, New Delhi.

7. Paul, P.R. (1998): Invitation to Oceanography, Jones and Bartlett Publishing, Sudbury, Massachusetts.
8. Rajgopalan, R. (ed)(1996): Voices for Oceans, A Report to the Independent World Commission on the Oceans, International Ocean Institute, Operational Centre, Madras, India.
9. Qasim, S.Z.(1998): Glimpses of Indian Ocean, Universities Press (India) Limited, Hyderabad.

Books for further reading:

1. Fairbridge, R.W. (ed) Encyclopedia of Oceanography, Reinholt, New York.
2. Scientific American (ed) (1969): The Ocean, Freeman, San Francisco.

Group B: Social and Cultural Group

B1 Regional Development and Planning

1. Regional Development: concept – Role in national development – Factors influencing regional development: physical and cultural – Regional disparities and their measurement – Regional typology based on development.
2. Regional problem: varied dimensions – core and peripheral facets – integrated nature of the problem – Examples: depressed, backward and progressive regions – Spatial lags in regional problem: examples – need for regional approach to development.
3. Regional development strategies – Regional policy and planning – Relative role and relevance of these strategies in regional development – Applicability of spatial models to regional development.
4. Regional studies: their relevance to regional development – Regional concept and its significance to regional development – Regionalisation for planning – Changes in perspective and current status – Regional hierarchy and its relevance to planning.
5. A comparative study of regional planning exercises in Europe and South Asia in supra and sub-national perspective.
6. Regional planning in India: a historical view and current status – Temporal change in perspective – Planning and development machinery at various levels.
7. Regional development strategies during the planning era – Role of Finance and

Planning Commissions in solving regional problem – meso and micro regional measures – evaluation of planning strategies.

8. Role of urban centres in regional development –Urban scenario in Maharashtra in the context of regional development – City regions and their problems: case study of MMR – Problems of poorly urbanized areas.

Text Books

1. Alden, J. and Morgan, R.(1974), " Regional Planning: A Comprehensive View", Leonard Hill Books, Beds.
2. Ardill, J. (1974), " New Citizen's Guide to Town and Country Planning", Charles Knight and Company Ltd. , London.
3. B.M.R.D.A.(1995), "Draft Regional Plan for Bombay Metropolitan Region : 1996-2011" Bombay.
4. Cook, P. (1983), "Theories of Planning and Spatial Development", Hutchinson & Company Ltd. , London.
5. Diamond, D.(ed)(1982), "Regional Disparities and Regional Policies", Pergamon Press, Oxford.
6. Glassen, J. (1983), "An introduction to Regional Planning", Hutchinson Education London.
7. Hall, P.-(1996), "Cities of Tomorrow", Updated Edition, Blackwell Publishers Ltd., Oxford.
8. Holland, S.(1978), "Regional Problem", MacMillan, London.
9. O.E.C.D. (1970), "The Regional Factor in Economic Development", Paris.
10. Sundaram, K. V. (1985), "Geography and Planning", Concept Publishing Company New Delhi.
11. Subrahmanya, K. N. (ed)(1985), "Economic Development and Planning in India", Publications, New Delhi.
12. Sundaram, K.V., Misra, R.P. and Prakasarao, V.L.S.(1971), "Spatial Planning for a Tribal Region", Institute of Development Studies, Mysore.
13. Sundaram, K.v., Misra R.P. and Prakasa Rao, V.L.S. (1978), "Regional Development Planning in India", Vikas Publishers, New Delhi.
14. Vanhove, N. and Klassen, L.H. (1980), "Regional Policy – A European Approach" Saxon House, Hants (England).

Books for further reading

1. Boyd, A.(1991): 'An Atlas of World Affairs', Ninth Edition, Routledge, London.
2. Chambers, R. (2003), "Rural Development: Putting the Last First", Pearson Education Pvt. Ltd. , Delhi.
3. Diddee, J. (1997), "Role of ;Medium Towns in Regional Development in India", Rawat Publishers, Jaipur.
4. Gilbert, A.G.(1976), "Development Planning and Spatial Structure", John Wiley & Sons, New York.
5. Jain, A.K. (1996), "The Indian Megacity and Economic Reforms", Management Publishing Company, New Delhi.
6. Pathak, C. R. (1995), "Essays on Regional Science : Regional Development and Planning", Regional Science Association, India, IIT, Kharagpur.
7. Prasad, K. V.(1988), "Planning at the Grass Roots", Sterling Publishers Pvt.. Ltd., New Delhi.
8. Regional Science Association- Papers and Proceedings.
9. S. A. C./B. M. R. D. A. (1992), "Macro Level Urban Urban Information System – A GIS Case Study for BMR", Bombay.
10. Sita, K., Phadke, V.S. and Rao, K.V.S. (1991), "Koyna Catchment – An Environmental Perspective", An Unpublished Report of the Project sponsored by Ministry of Environment and Forests, Govt. of India, Department of Geography University of Mumbai.
11. Syms, P. (2002), "Land, Development and Design", Blackwell Science Ltd., Oxford.
12. U.N. (1959), "Regional Planning: Housing, Building and Planning , Nos. 12 & 13", New York.
13. U.N. (1967), "Planning of Metropolitan Areas and New Towns", New York,
14. U.N. (1971), "Planning for Urban and Regional Development in Asia and The Far East", New York.
15. Yiftachel, O., Little, J. Hedgcock, D. and Alexander, I. (2001), "The Power of Planning: Spaces of Control and Transformation", Kluwer Academic

B 2 - Urban Geography

1. Urbanisation and Development - Demographic, economic and social aspects of urbanisation – Capitalism and urban development – Urbanisation in the industrial world – Political economy of urbanisation.
2. Urbanisation in the Third World - Concept of peripheral urbanisation - Salient characteristics – Globalisation and Third World urbanism.
3. Urban system - Evolution, growth and organisation - Primacy, hierarchy and balance – Globalisation and world city system – Urban systems in the periphery. Global and local.
4. Urban economic base - Concept of dualism - Colonial and post-colonial structure - Intersection of global processes and flexibilised urban economy - Glob city and changing urban functions.
5. Organisation of urban space - Urban morphology and land use - Contemporary urban frontiers - Urban renewal, gentrification and transformation of urban space - Globalisation and urban spatial order – Crisis in urban space- Emerging issues.
6. Urban expansion and the periphery – Suburbanisation and urban sprawl - Urban development in the fringe – Associated issues in M.M.R.
7. Perspective in urban planning – Review of India's 5 Year Plans - Centralisation, dispersal and the role of State - Contemporary Issues in Urban Planning.
8. Frontiers in urban management and planning – The case of New Mumbai – Changing perspectives – Social, economic and environmental parameters – New Mumbai as a 21st century city.

Text-Books:

1. Carter, H. (1972): The Study of Urban Geography, Edward Arnold.
2. Knox, P.L. and Taylor, P.J. (1995): World Cities in a World System, Cambridge University Press, U.K.
3. Harvey, D. (1973): Social Justice and the City, Arnold.
4. Abu-Lughod, J. and Hay, R. Jr. (1977): Third World Urbanisation, Maarouta Press

5. Gugler, J. (ed.)(1988): The Urbanisation of the Third World, O.U.P.
6. Sassen, S.(1991): The Global City, Princeton University Press.
7. Clarke, D.(1982): Urban Geography: An Introductory Guide, Croom Helm.
8. Marcuse, P. and Kempen, R.V. (eds.)(2000): Globalizing Cities: A New Spatial Order, Blackwell,
9. Short, J. R. (1996): The Urban Order, Basil Blackwell.
10. Smith, N.(1996): The New Urban Frontier, Routledge.
11. King A.D.(1990): Global Cities, Routledge.
12. Simmonds, R. and Hack, G. (2000): Global City Regions, Spon Press.
13. Markusen, A.R., et. al. (199): Second Tier Cities: Rapid Growth Beyond the Metropolis, University of Minnesota Press.

Books for further reading:

1. P. Hall (1996): Cities of Tomorrow, Basil Blackwell.
2. Walton, J. (ed.)(1985): Capital and Labour in the Urbanised World', Sage.
3. Szelenyi, J. (ed.)(1984): Cities in Recession, Sage.
4. Cox, K. and Johnston, R.J. (eds.)(1982): Conflict, Politics and Urban Scene, Longman.
5. McGee, T.G.(1975): The Urbanisation Process in the Third World, G. Bell & Sons.
6. Saunders, P.(1981): Social Theory and the Urban Question, Unwin Hymer.
7. Castells. M.(1977): The Urban question, Edward Arnold.
8. Diddie, J, and Rangaswamy, V.(1993): Urbanisation: Trends Perspectives and Challenges, Rawat Publications.
9. Dunleavy, P.(1980): Urban Political Analysis, Macmillan.
10. Patel, S. and Thorner, A. (eds.)(1995): Bombay: Metaphor for Modern India, Oxford University Press.

11. Watson, S. & Gibson, K.(1995): Postmodern Cities and Spaces, Basil and Blackwell.

12. Amin, A. and Thrift, N.(2000): Cities: Reimagining the Urban, Polity Press.

B 3 - Social Geography

1. Main currents in social thought and their relevance in social geography - Nature and perspective in social geography.
2. Social relations - Spatial diversity in social relations - Social processes and spatial form - Spatiality of society and economy.
3. Social groups - Primary and secondary groups - Interaction, socialisation and segregation - Ethnicity, language and religion as basic parameters.
4. Towards a social geography of India – Social differentiation and regional formations – Caste and clan territories - Tribes and spatial variations.
5. Concept of social well-being - Indicators of social and economic well-being – Need, want and patterns of consumption – Spatial pattern of well-being with special reference to India.
6. Contemporary perspective in social geography - Social stratification and Urban Social Order - Urban space and polarisation in post- industrial cities – Globalisation and rise of network society.
7. Social geography of Contemporary Third World Cities –Impact of globalisation – Fragmentation, segregation and crisis of local and global- Modernity, post-modernity and related issues.
8. Concept of social planning - politics of space and social planning - Concept of social justice - Planning with a welfare approach - Peoples participation.

Text-Books:

1. Eyles, J.(1974): Social Theory and Social Geography, in Progress in Geography, Vol.6, pp 27-88.
2. Gregory, D. and Urry, J.(1985): Social Relations and Spatial Structure, Macmillan.
3. Pacione, M. (ed)(1987): Social Geography: Progress and Prospect, Croom Helm.
4. Jones, E. and Eyles, J.(1977); Introduction to Social Geography, Oxford University Press.

5. Sassen, S.(1994): Cities in a World Economy Pine Forge Press.
6. Smith, D. M.(1979): Where the grass is Greener, Croon Helm.
7. Ahmad, A.(1999):Social Geography, Rawat Publishers.
8. Daniels, S. & Lee, R. (eds.)(1996): Exploring Human Geography, Arnold.
9. Castells, M.(1996): The Rise of the Network Society, Basil Blackwell, 1996.
10. Dear, M.J. and Flusty, S. (2000): The Spaces of Postmodernity, Blackwell.

Books for further reading:

1. Lefebvre, H.(1991): The production of Space' (Translated by Donald Nicholson), Basil Blackwell
2. Maheu, L. (1995): Social Movements and Social Classes, Sage.
3. J.O'Loughlin and Friedrichs, J. (1996): Social Polarization in Post - Industrial Metropolises, Water de Gruyter.
4. Peet, R.(1977):Radial Geography, Maaroufa Press.
5. Harvey, D.(1996): Justice, Nature and the Geography of Difference, Basil Blackwell.
6. Thorns, D.C.(1992): Fragmenting Societies, Routledge,
7. Babcock, B.(1984): Unfairly Structured Cities, Basil Blackwell.
8. Castells, M.(1988): Information Technology: Economic Restructuring and Urban Development, Basil Blackwell.
9. Harvey, D. (1989): The Condition of Post Modernity, Basil Blackwell.
10. Sibley, D.(1995): Geographics of Exclusion, Routledge.

B4 Population Geography

1. Population in environment, economy and society – Interrelationships – Relevance of population studies in Geography – Scope, content and approaches – Contemporary trends.
2. Population growth and distribution — Demographic characteristics and interrelationships – Aspects of reproduction, health and education – Challenges for developed and developing countries - Critical review of population growth

theories and models.

3. Concentration of people in space – Patterns of density and its impact – Rural and urban dimensions – Population-resource relationship – Role of technology and environmental aspects – Issues of dislocation -Indian examples.
4. People, society and culture – Early migration and evolution of cultural hearths – People as social groups – Race, ethnicity, language and religion – Dimension of gender and related aspects - Relevant examples –
5. People and economy – Population as a resource – Economic and occupational characteristics – Spatial patterns – Changing status of labour – Recent trends – Segmentation of labour market – Related issues – Sectoral, spatial and social dimensions.
6. Migration and mobility – Factors, processes and typology – Contemporary trends of migration in developed and developing countries – Rural and urban dimensions – Globalisation and labour mobility – Relevant examples.
7. Population, social organisation and governance – People as communities and citizens – People's rights and protection in contemporary societies – Role of State and global institutions – Issues of participatory development – Role of people's movements – Indian examples.
8. Population dynamics and development processes – Population as social capital – Relevant indicators for measuring development – Status of developed and developing countries – Critical assessment of population as human resource.

Text Books:

1. Trewartha, G.T.(1969): A Geography of Population: World Patterns, New York.
2. Zelinsky, W. (1965): A Prologue to Population Geography, Prentice Hall, London.
3. Clarke, J.I. (1972): Population Geography, Pergamon, Oxford.
4. Hornby, W.E. and Jones, M. (1980): An Introduction to Population Geography, Cambridge University, Cambridge.
5. Beaujeu-Garnier, J. (1966): Geography of Population, St. Martin's Press, New York.
6. Zelinsky, W., Kosinski, L.A., Prothero, R.M. (eds.)(1970): Geography and a Crowding World, Oxford University Press, London.
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7. Redcliff, M. (1987): Sustainable Development: Exploring the Contradictions, Methuen, London.
8. Adams, W.M. (2001): Green Development, Environmental and Sustainability in

the Third World, Routledge, London.

9. Vivelto, F.R.(1978): Cultural Anthropology, McGraw Hill, U.S.A.
10. Gould, W.T.S. and Findlay, A.M.(1994): Population Migration and the Changing World Order, Chichester, John Wiley and Sons.
11. Munck, R. (2003): Globalisation and Labour, Zed Books, London.
12. Simai, M.(ed.(1995): Global Employment: An International Investigation into the Future of Work, Zed Books, London.
13. Sengupta, R. and Sinha, A.K.(2003):Challenges of Sustainable Development, I.I.M and Manak Publication, New Delhi.
14. Dreze, J. and Sen, A. (1995): India: Economic Development and Social Opportunity, O.U.P., New Delhi.
15. Prem, M.K.(1991): India's Population: Heading Towards a Billion, B.R.Publishin Corporation, New Delhi.

B 5 Geography of Gender

1. The Place of gender in Geography – Review of Feminist geographies – Analysis o gender in Social and Cultural Geography- Gender theories – Gender and Development.
2. Regional dimension of gender and development – Differential access and control over resources – Environment, gendered livelihood and poverty – Cross-cutting issues of caste, class and regions – Spatio-temporal patterns with special reference to India.
3. Demographic variables – Spatial pattern of changing age and sex-ratio – Child/women ratio – Dependency ratio and women- Fertility and poverty- Caste, class and regional variations in India.
4. Social and cultural aspects- Literacy, education and women – Gender bias in access to health care- Reproductive health, education and women – Regional patterns in India.
5. Women and economy – Gendered division of labour – Workforce trends and occupational types – Implications for emerging regional patterns in India – Agricultural sector and women – Industrialisation and female labour.
6. New Economic Policy and women in India – Structural adjustment, social sector and women – Women and green revolution – Informalisation, feminisation and women workers in industry.

7. Gender development and planning – Review of Government and bi-lateral policies and schemes for women in India – Gender empowerment through Five year Plans
8. Critical evaluation of case studies of gender empowerment projects in India- Regional/cultural variations: rural-urban- Caste, tribe, religious groups.

Text-Books:

1. McDowell Linda. (1999): Gender, Identity and Place, Polity Press, U.K.
2. Raju, Saraswati. and Bagchi, Dipika. (1998): Women and Work in South Asia: Regional Patterns and Perspectives, Routledge, U.K. and U.S.A.
3. McDowell, Linda. and Sharp, Joanne P. (1997): Space, Gender and Knowledge, Arnold, U.K.
4. Visvanathan, Nalini. et. al., (1997): The Women, Gender and Development Reader, Zed Books Ltd., U.K. and U.S.A.
5. Kabeer, Naila. (1999): Reversed Realities, O.U.P, U.K.
6. Harison, S. and Pratt, G. (1995): Gender, Work and Space, Routledge, U.K. and U.S.A.
7. Massey, D. (1994): Space, Place and Gender, University of Minnesota Press, U.S.A.
8. Shiva, Vandana. (1988): Staying Alive: Women, Ecology and Development, Zed Books, U.K.
9. Momsen, J.H. and Kinnaird, V. (eds). (1993): Different Places, Different Voices; Gender and Development in Africa, Asia and Latin America, Routledge, U.K.
10. Banerjee, N. (1985): Women Workers in the Unorganised Sector, Sangam Books Hyderabad, India.

Books for further reading:

1. Desai, N. and Krishnaraj (1987): Women and Society in India, Ajanta Publications, India.
2. Short, J.R. (1996): 'Gender, Space and Power' in J.R.Short (ed.) The Urban Order, Blackwell, U.S.A., pp 307-329.
3. Charlton, S.E.M.(1984): Women in Third World Development, Westview Press, U.S.A. and U.K.

4. Government of India (1974): Towards Equality: Report of the Committee on the Status of Women in India, Government Printing Press, New Delhi.
5. Raju, J. et. al., (1999): Atlas on Men and Women in India, Kali for Women, New Delhi, India.
6. Momsen, J. and Townsend, J. (1987): Geography of Gender in the Third World, Hutchinson, U.K.
7. Boserup, E. (1970): Women's Role in Economic Development, St. Martin's Press, New York.
8. Rose, G. (1993): Feminism and Geography: The Limits of Geographical Knowledge, University of Minnesota Press, U.S.A.
9. Massey, D. and Jess, P. (eds.) (1995): A Place in the World? Places, Culture and Globalisation, O.U.P., U.K.
10. Peet, R. (1997): Feminist Theory and the Geography of Gender, in R. Peet (ed). Modern Geographical Thought, Blackwell, pp 247-291.

B 6 - Historical Geography

1. Theory and Methodology in Historical Geography - Time space convergence - History as an aspect of geographical explanation.
2. Growth of Civilisation and permanency of settlements - Origin and diffusion of technology - Society and space in ancient civilisations: selected examples.
3. Spatial organisation of medieval economy - Agriculture and society during feudalism - Growth of feudal towns and mercantile capital - Discovery and explorations.
4. Transition from feudalism to capitalism - Mercantile capitalist period - Industrial growth and industrial revolution - Growth of towns and cities.
5. Emergence of colonial spatial organisation - Spatial shift and changing spatial order - Transformation of settlement and urban systems - Examples from India.
6. A critical perspective of Indian urban history - Towns in ancient India - Trade and commerce - Nature of spatial economic organisation - Urban growth in medieval India - Role of urban centres in regional and national economy.
8. Historical geography of the western coast of India - Pre-colonial economy and society - Spatial organisation of the economy during Maratha Period - Space, society and economy during colonial period.
9. Urban history of Mumbai - Space and society - Rise and fall of ancient trade

centres - Pre- British relations – Colonial spatial organisation and emergence of Bombay – Growth of a Colonial City.

Text-Books:

1. Pacione, M.(ed)(1987): Historical Geography, Progress and Prospect, Croom Helm.
2. Dunford, M. and Perron, D.(1984). The Arena of Capital, Macmillan.
3. Wooley, L. (1963): 'History of mankind : The Beginnings of Civilization, George Allen and Unwin.
4. Jones, B.(1988): Feudal Society and its Culture, Progress Publishers.
5. Smailes, A. E. (1966): The Geography of Towns, Hutchinson University Library.
6. Baker, A. R.H.& Gregory, D. (1984): Explorations in Historical Geography, Cambridge University Press.
7. Baker, A.R.H.(1972): Progress in Historical Geography, David and Charles.
8. Gladhill, J, Bender, B. & Larsen, M.T. (1995) State and Society, Routledge.
9. Annenkov, V.V.(ed.)(1976): Historical Geography, International Geographical Congress.
10. Carter, H.(1983):An Introduction to Urban Historical Geography, Edward Arnold.
11. Sen, S. N. (1988): Ancient Indian History and Civilization, Wiley Eastern Ltd.
12. Habib, I.(1982): An Atlas of the Mughal Empire, O.U.P.

Books for further rearing:

1. Basham, A. L. (1975): Cultural History of India, O.U.P.
2. Norton, W. (1984): Historical Analysis in Geography, Longman.
3. Guelke, C. (1982): Historical understanding in Geography, Cambridge University Press.
4. Husain, M.(1993): Perspectives in History and Nature of Geography, Vol.II, Anmol Publication.
5. Kinder, H. and Hilgemann, W.(1964):The Penguin Atlas of World History, Vols.I

and II, Penguin Books.

6. Mitchell, J.B.(1973): Historical Geography, The English Universities Press Ltd.
7. Syke, P.(1961):A History of the Exploration, Harper Torchbooks.
8. Schwartzberg, J.E.(1978): A Historical Atlas of South Asia, The University of Chicago Press.
9. Kosambi, D. D.(1972):The Culture and Civilization of Ancient India, Vikas Publication Ltd.
10. Joshi P.B.(1920):Early History of North Konkan, Wilson College, Bombay.

B 7 - Political Geography

1. Relevance of Space in political Geography - Territoriality in land, water and air - State and nations - Concept of nation-state - Territorial state and international relations.
2. Global strategic views - Functional Approach - Unified Field theory - Rimland theory - Geopolitics of capitalism and contemporary role of the heartland
3. Relevance of world systems approach - Neo-colonialism and economic independence- New world order - Role of international organisations - Political geography of foreign aid and debt.
4. Geography of Power and Conflict - Superpowers and the changing global order - Old and new geopolitics of superpower - Dynamics of superpower relations - Col war and geopolitical transition.
5. Worldwide struggle for expansion and domination - Role of third world countries - geopolitics of war - World tension zones - Geography of international terrorism - Contemporary examples.
6. Integration treaties and alliance patterns - Significance of North-North, North-south and South-south treaties in political and economic integration - Selected case studies.
7. Boundary and frontier concepts - Factors of boundary formation - Role of religion, culture and language in the formation of boundaries - Associated cleavages - Selected examples.
8. Electoral geography - Nature and content - Spatial organisation - Social theory and electoral geography - Geography of elections with special reference to India

Text-Books:

1. Taylor, P.J.(1985): Political Geography: World Economy, Nation-State and Locality, Longman.
2. Kasperson, R.E. and Minghi, J.V.(1969): The Structure of Political Geography, University of London Press.
3. De Blij, H.J. (1967): Systematic Political Geography, John Wiley and Sons.
4. Jackson, W.A.D.(1964): Politics and Geographic Relationships, Prentice Hall.
5. Nijman Airman, J.(1993): The Geopolitics of Power and Conflict, Belhaven Press,
6. Dikshit, S.K. (1994): Geography of Elections, Rawat Publishers.
7. Amin, S. (1980): Class and Nation, Monthly Review Press.
8. Agnew, J. and Corbridge, S. (1995): Mastering Space, Routledge.
9. Thorns, D. C. (1992): Fragmenting Societies, Routledge.
10. Bhambhri, C. P.(1991): Elections 1991: An Analysis, B. R. Publishers.
11. Prescott, J.R.V.(1967): Geography of Frontiers and Boundaries, Hutchinson & Co.
12. Johnston, R.J.(1982): Geography and the State, MacMillan.

Books for further reading:

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3. Glassner, M. I. de Blij, H.J. and Yacher, L.(1980). Systematic Political Geography, John Wiley.
4. Amin, S. (1985): Delinking towards a Polycentric World, O.U.P.
5. Cohen, S.B.(1975): Geography and Politics in a World Divided, O.U.P.
6. Prescott, J.R.V.(1972): Political Geography, Hutchinson & Co.
7. Sukhwai, B.L. (1971): India - A Political Geography, Allied Publishers.

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9. Taylor, P.J.(1996): The Way the Modern World Works: World Hegemony to World Impasse, John Wiley.
10. Norris, R. E. and Haring, L.L.(1980): Political Geography, Bell and Howell.

B 8 - Cultural Geography

1. Evolution and growth of cultural geography- Significance of a spatial perspective in cultural studies –Attributes of culture – New turns in Cultural Geography.
2. Evolution of culture hearths - Culture realms and regions - Early migration and interaction in culture realms – Convergence and divergence processes –Cultural changes.
3. Race and ethnicity - People as racial groups - Classification and distribution – Racial regions – Process of acculturation.
4. Cultural Geography of language - Early diffusion - Classification and distribution – People as linguistic groups - Major language families and groups - Language as basis of nations and states - Language and dialects.
5. Diversity of language groups in India - Major and minor language families – Distribution and interaction – Evolution of linguistic states - Cohesion and integration – Relevant issues.
6. Geography of religion - Ancient religions and early patterns - Evolution of major world religions - Spatial spread - Religion and colonialism - Role of religion in the formation of nations and states – Culture and religion.
7. Major and minor religious groups in India - Distribution and spatial attributes – Multi- religious Diversity – Relationship among religion, culture and politics in India - Contemporary issues.
8. Political economy of culture – Patterns of dominance and dependence – Concept of modernity and postmodernity in cultural geography – India as a land of multicultural.

Text Books:

1. de Blij, H.J. and Muller, P.O.(1977): Human Geography: Culture, Society and Space, John Wiley & Sons.
2. Steve, P. and Michael, K.(1993): Places and the Politics of Identity, Routledge.

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4. Sopher, D.E. (ed)(1980):Explorations of India: Geographical Perspective on Society and Culture, Longman.
5. Faruqi, I.R. and Sopher, D.E.(1974):Historical Atlas of Religions of the World, Macmillan.
6. Bose, N.K.(1967):Culture and Society in India, Asia Publishing House.
7. Mitchell, D.(2000):Cultural Geography: A Critical Introduction, Oxford: Blackwell, U.K.
8. Noble, A.G. and Dutt, A.K. (eds.)(1982): India: Cultural Patterns and Processes, West View Press, U.S.A.
9. Spencer, J.E. and Thomas, W.L.(1973): Introducing Cultural Geography, John Wiley & Sons.
10. Cook, I. et.al., (2000):Cultural Turns/Geographical Turns, Prentice Hall, U.K.

Books for further reading:

1. Harper, R.A. and Schmudde, T.M. (1978):Between the Two Worlds, Houghton Mifflin.
2. Beteille, A.(1969): Social Inequality, Selected Readings, Harmondsworth.
3. Bose, N.K. (1969).: Problems of Indian Nationalism, Allied Publishers.
4. Sinha, S.C.(ed.)(1976): Cultural Anthropology, Anthropological Survey of India.
5. Smart, N.(ed.)(1999): Atlas of the World's Religion, O.U.P., New York.
6. Polgar, S. (1975): Population, Ecology and Social Evolution, The Hague Mouton Publishers.
7. Forde, D. (1963):Habitat, Economy and Society, Methuen.
8. Open University Series (1980):Conflict and Stability in the Development of Modern Europe 1789-1970, O.U.P.

9. Habib, Irfan. (1982): An Atlas of the Mughal Empire, O.U.P., New Delhi.
10. Singh, K.N. (ed.) (1992): People of India: An Introduction, Seagull Books.
11. Adorno, T.W. (1991): The Culture Industry, Routledge.

B 9 - Agricultural Geography

1. Nature of Agricultural Geography – Evolution and current status – Trends in approaches to the study of Agricultural Geography: Commodity, regional, ecological and socio-cultural approaches.
2. Origin and dispersal of agriculture – Evolution of human societies and culture hearths - Major gene centres of agriculture and their characteristics.
3. Factors influencing agricultural activity – Economics of Agriculture – Role of modern technology in agriculture – Agricultural dynamics - Agricultural systems of the world: Basis of classification – Major agricultural types, their characteristics and world pattern.
4. Theoretical concepts and analysis of agricultural land use: Von Thunen's model and its modification – Sinclair's approach; the peri-urban zone and agriculture; risk, uncertainty and decision making in agriculture.
5. Concept of agricultural region – Techniques of delimiting agricultural region: Crop combination analysis - Agricultural regions and agro-climatic regions of India and their characteristics.
6. Evaluation of agricultural land - Measurements of agricultural productivity – Land use and land capability classification: methods and applications.
7. World food production and distribution pattern – Causes and spatial pattern of hunger – Eradication of hunger – Colonial expansion and national development – Contemporary globalisation and the agricultural scenario - Third world agricultural development – Issues and strategies.
8. Indian agriculture: Indigenous techniques and modernisation – Green revolution- Regional perspectives of agricultural development in India – Specific problems of Indian agriculture and their solutions – Indian agricultural planning – Role of State

Text-Books:

1. Grigg, D. (1984): An Introduction to Agricultural Geography, Hutchinson Publication, London.

2. Hussain, M. (1996): Systematic Agricultural Geography, Rawat Publishers, New Delhi.
3. Morgan, W. B. and Munton, R.J.C. (1977): Agricultural Geography, Methuen, London.
4. Singh, J. and Dhillon, S. S. (1984): Agricultural Geography, McGraw Hill, New Delhi.
5. Symons, L. (1972): Agricultural Geography, Bell and Sons, London.
6. Tarrant, J. R. (1974): Agricultural Geography, John Wiley and Sons, New York.

Books for further reading:

1. Bansil, B.C. (1975): Agricultural Problems of India, Delhi.
2. Bowler, I.R. (1992): The Geography of Agriculture in Developed Market Economy, Longman.
3. Bryant, C.R., Russwurm, L.K. and others (1982): The City's Countryside: Land and its Management in the Rural-Urban Fringe, Longman.
4. Chisholm (1972): Rural Settlement and land use, Hutchinson, London (Revised ed.)
5. Gregor, H. F. (1971): Geography of Agriculture - Themes in Research, Prentice-Hall, N. J.
6. Grigg, D.B. (1974): The Agricultural Systems of the World, Cambridge University Press.
7. Mohammad Noor (ed.) (1981): Perspectives in Agricultural Geography, vol. I to V, Concept, New Delhi.
8. Sauer, C. (1952): Agricultural Origin and Dispersal, American Geographical Society, Bowman memorial lecture, New York.
9. Sharma, P.S. (1973): Agricultural Regionalization of India, New Heights Publication, New Delhi.
10. Van Roven Willam (1954): Atlas of the World Resources, Vol. I - The Agricultural Resources of the World, Prentice Hall, New York.

B 10 - Industrial Geography

1. Factors of industrial location - Technological changes and their impact on the factors - A temporal review - International division of labour - Changing perspectives in industrial location.
2. Theories and models of industrial location and growth - Contributions from - Economics and regional science - Geographer's contributions - Critique of industrial location theories.
3. Industrial linkages and industrial regions - Growth and decline of industrial region and industries - Nature of industries and territorial division of labour - Patterns in national space.
4. Industrial structure and organisation - Models of growth of firms - Characteristics of industrial development in various political systems - Relevant case studies.
5. Patterns in international space - Mobility of capital and restructuring of world Industrial space - Models of corporate growth - Vertical and horizontal integration - Transnational corporations, industrial development and the new international division of labour.
6. Historical review of Indian industrialisation since 1947 - Evolution of industrial regions in India - Selected case studies.- Inter-industry linkage - Role of small scale and cottage industries.
7. Inter-regional disparities in industrial development In India - Industrial restructuring and its impact on resource, employment and market - Multinational corporations and India's industrial scenario - Impact on economy, society and environment.
8. Problems of industrial development - Contemporary scenario - Issue of dispersal of industries and regional development - Resource utilization, technology and industrial development - Role of MNCs - Role of State.

Text-Books:

1. Pacione, M. (1985): Progress in Industrial Geography, Croom Helm.
2. Bale, J.(1981): The Location of Manufacturing Industry, Oliver and Boyde, (2nd ed.)
3. Hamilton, F.E.I.(1974): Spatial Perspectives on Industrial Organisation and Decision Making, John wiley.
4. Lloyd, P. E. and Dicken, P.(1972): Location in Space - A Theoretical Approach to Economic Geography, Harper and Row.
5. Smith, D. M.(1982): Industrial Location - An Economic Geographic Analysis, John Wiley and Sons.

6. Massey, D.(1984): Spatial Divisions of Labour, Macmillan, U.K.
7. Dunning, J.H.(1981): International Production and the Multinational Enterprise.
8. Clarke, I.M.(1985): The Spatial Organisation of Multinational Corporations, Croom Helm, U.K.
9. Banerjee-Guha, S. (1997): Spatial Dimensions of International Capital: Study of Multinational Corporations in India, Orient Longman.

Books for further reading:

1. Watts, H. D. (ed)(1980): Large Industrial Enterprise: Some Spatial Perspectives, Croom Helm.
2. Chaudhuri, M. R.(1976): Indian, Industries, Oxford Book House.
3. Hamilton, F.E.I. & Lingo, G.J.R. (ed)(1979): Spatial Analysis, Industry and Industrial Environment, Vol.I & II, John Wiley.
4. Radice, H.(1975): International Firms and Modern Imperialism, Harmondsworth, U. K.
5. Seth, V.K.(1987): Industrialization in India - Spatial Perspective, Delhi Commonwealth Publications.
6. Saxena, A. N. (1985): Planning and Promotion of Production - The Indian Experience, Vol.I and II, New Delhi, National - Productivity Council.
7. Harvey, D.(1982): Limits to Capital, Basil Blackwall.
8. Tharakan, M.(1980): The New International Division of Labour and Multinational Corporations, Saxon House.

B 11 Geography of Trade and Marketing

1. Trade and marketing as forms of exchange – Geographical bases – Comparative cost advantages, territorial specialisation and interaction in space and time – Systems of trade and marketing – Environment, links and typology – Geography of trade and marketing – Scope, content and contemporary trends.
2. Origins of trade and marketing – Forms of exchange in simpler and complex societies – Early forms and patterns of long distance trade – Evolution of international trade and structuring of world economy – Patterns in mercantile, colonial and post industrial revolution periods.

3. Trade and development – Theoretical perspective on trade and marketing – Doctrine of free trade and trade barriers – Terms of trade and benefits - Classical neo-classical and contemporary versions of international trade theory – Critical review - Concept of unequal exchange.
4. Spatial dynamics of international trade – Comparative aspects of growth, expansion, direction and composition of trade – Pre-war and post-war trends – Bi-lateral and multi-lateral trade relations- Typology and significance of trade integrations – Trade creation and diversion – Trade integrations of developed and developing countries and issues of development.
5. Restructuring of world economy and trade – Post eighty trends – Expansion of international capital – Structural adjustments and globalisation and pattern of trade – Rise of international and supranational institutions and related changes in world trade – Regime of WTO and issues of trade – Impact on environment, economy and society.
6. Inter and intra-regional systems of trade and marketing – Structure and links – Spatial organisation of wholesale and retail trade – Interrelation with transport and communication networks and information flows – Hierarchy of markets – Organisation of trade areas and links – Critical evaluation of theories of marketing – Gaps and contemporary trends.
7. Environment of markets – Economic, political and social dimensions – Role of State – Price structures, profits and related policies – Issues of agricultural marketing and related policies in developing countries – Case studies on Monopoly of State purchase and PDS schemes: regulatory and co-operative agricultural marketing in India.
8. Globalisation and contemporary issues of trade and marketing – Role of MNCs in restructuring of markets – Interface between global to local trade and marketing – Hierarchy, links and gaps – Aspects of segmentation of markets – Characteristic of formal and informal trade and markets – Inclusion and exclusion in marketing and consumption – Impact on living and culture – Examples from developed and developing countries.

Text-Books:

1. Conkling, E.C. and Thoman, R.C. (1967): Geography of International Trade, Prentice Hall, Englewood Cliffs.
2. Berry, B.J.L. et.al. (1976): Geography of Economic Systems, Prentice Hall, Englewood Cliff.
3. Berry, B.J.L.(1967): Geography of Market Centres and Retail Distribution, Prentice Hall, Englewood Cliff.
4. Vince, James, E.Jr.(1970): 'The Merchants' World - The Geography of

Wholesaling, Prentice Hall Inc., Englewood Cliffs.

5. Beaujeu-Garnier, J. and Delobez, A. (1979): Geography of Marketing, Longman, London.
6. Gibb, R. and Michalak, W. (eds.) (1994): Continental Trading Blocks: the Growth Regionalism in the World Economy, Chichester, Wiley.
7. Cole, J.P. (1983): Geography of World Affairs, Butterworths, London.
8. Knox, P., Agnew, J. and McCarthy, L. (2003) (3rd Edition), Arnold, London.
9. Frank, A.G. (1978): Dependent Accumulation and Underdevelopment, McMillan, London.
10. Bryson, J., Henry, N., Keebly, D. and Martin, R. (1999): The Economic Geography Reader, John Wiley and Sons Limited, Chichester.
11. Altvater, E. (1992): The Future of the Market, London, Verso.
12. Eckersley, R. (ed) (1995): Markets, the State and the Environment, Macmillan, London.
13. Harris, B. (1984); State and Market, Concept, New Delhi.
14. Hoekman, B.M. and Kostecki, M.M. (1996): The Political Economy of World Trading System: From GATT to WTO, New York, Oxford University Press.
15. Acharya, S.S. and Agarwal, N.L. (1999): Agricultural Marketing in India, Oxford and I.B.H. Publishing Company, 3rd Edition.
16. Page, S. (1994): How Developing Countries Trade, Routledge, London.

Books for further Reading:

1. Emmanuel, A. (1972): Unequal Exchange: A Study of the Imperialism of Trade, London, Verso.
2. Agnew, J. and Corbridge, S. (1995): Mastering Space: Hegemony, Territory and International Political Economy, London, Routledge.
3. Storper, M. and Scott, A. (1992): Pathways to Industrialisation and Regional Development.
4. Harris-White, B. (1996): A Political Economy of Agricultural Markets in South India, Masters of the Countryside, Sage, New Delhi.

5. Cammanu, L. (1992): Traditional Market Systems, D.E.S.munich.
6. Josling, T. (1998): Agricultural Trade Policy, Completing the Reforms, Institute for International Economics, Washington D C.
7. Abbott, J. (ed.)(1993): Agricultural and Food Marketing in Developing Countries, Selected Readings, C.A.B. International and Technical Centre for Agriculture and Rural Co-operation.
8. Reddy, D.N., Singh, S. and Arora, D. (eds.)(2002): Political Economy of WTO Regime, Some Aspects of Globalisation and Governance, Indian Political Economy Association, Rainbow Publishers, New Delhi.
9. Krugman, P.R. (1996): Rethinking International Trade, M.J.I. Press, (5th Print).
10. Pereira, W. and Seabrook, J.(1994): Global Parasites, 500 Years of Western Culture, Earthcare Books, Mumbai.
11. Hoogvelt, A.M.M.(1997): Globalisation and the Post Colonial World: The New Political Economy of Development, MacMillan, London.
12. Hoogvelt, A.M.M.(1982): The Third World in Global Development, MacMillan.
13. Bagchi, A.K. (1982): The Political Economy of Underdevelopment, Cambridge.
14. Gamble, Andrew and Payne, A.(eds.)(1996): Regionalism and World Order, MacMillan, London.
15. Kenwood, A.G. and Lougheed, A.L. (1983): The Growth of the International Economy 1880-1980, Allen and Unwin.
16. Brandel, R. (1979): Civilization and Capitalism, 15th –18th Century-Vol I- The Structures of Everyday Life, Vol. II, The Wheels of Commerce, Vol. III, The Perspective of the World, William Collins Sons and Company Limited and Harper and Row, New York, 1984, (English Version)
17. Potter, R.B., Binns, T., Elliott, J.A. and Smith D.(1999): Geography of Development, Longman.

B 12 Geography of Transport and Communication

1. Transport and communication as means of interaction and interdependence between spatial systems – Types of movements and flows – Characteristics of nodes, links and networks – Distance and space as barriers – Inter-relations – Relevance of transport geography in planning and development.
2. Economics of systems of transport – Factors and processes influencing demand

and supply – Expansion of economy, technological advances and modernisation
– Development of transport modes – Trends in colonial and post-colonial periods

3. Transport cost as variable in locational theory – A critical review – Structural properties of transport networks – Relevance and applicability of graph theory measures – Development of transport facility – Evolutionary models – Location of routes and efficiency of networks.
4. Evolution of transport system and their environment – Phases of growth – Development of different modes of transportation – Comparative cost structures, locational characteristics and spatial pattern of major systems of transportation – Global pattern of land, air and water transport.
5. Functioning of transport network systems - Role of distance – Hierarchy within and between networks – Nature of competition between modes of transportation – Role of public and private sectors - Examples from developed and developing countries.
6. Post eighty revolution in communication and I.T. sector – Role of international organisations – Globalisation and associated aspects – Zones of convergence and divergence and differential implications of accessibility and connectivity.
7. Transport and communication interface – Diffusion process, technology and evolution of communication networks – Economic organisation and patterns of communication system – Traditional and modern forms – Role of telecommunication sector and I.T. sector- Relevant impact.
8. Planning and policy framing of transport and related issues of development – Differential roles of State, private and corporate sectors – Dimensions of environment and social justice – Concept of sustainable development of transport and communication – Case studies from developed and developing countries.

Text Books:

1. Taffee, E.J. and Gauthier, H.L. (1973): Geography of Transportation, Prentice hall.
2. Lowe, J.C. and Moryadas, S. (1975): The Geography of Movement, Houghton Mifflin, Boston.
3. Hurst, E. (1974): Transport Geography-Comments and Readings, McGraw Hill, New York.
4. Gatrell, A. (1983): Distance and Space: A Geographical Perspective, Clarendon Press, Oxford.
5. Hay, A. (1973): Transport for the Space-Economy, MacMillan, London.
6. Chapman, K. (1980): People, Pattern and Processes, Arnold Heinemann, New

Delhi.

7. Abler, R.(1971): Distance Intercommunications and Geography, Proceedings of the Association of American Geographers.
8. Abler, R. Janelle, D., Philbrick, A.and Sommer, J. (1975): Human Geography in a Shrinking World,Duxbury Press.
9. Johnston,R.J.(1973): Spatial Structures, Methuen & Co. London.
- 10.Abler,J.S., Gould, P.R.(1971): Spatial Organisation, Englewood cliffs, N. J. Prentice Hall.
11. Helling, D. (1996): Information Inequality, Routledge, New York.
12. Staple, G.C.(ed.)(1993): Telegeography, International Institute of Communication London.
- 13.McChesney, R.W., Wood, E. M. and foster, J.B. (eds.)(2001): Capitalism and the Information Age – The Political Economy of the Global Communication Revolution, Cornerstone Publications, India and Monthly Review Press, New York.
14. Castells, M.(1989): The Informational City: Information Technology Economic Restructuring and the Urban-Regional Process, Oxford: Blackwell.
15. Mattleart, A. (1994): Mapping World Communication: War, Progress, Culture, Minneapolis, University of Minnesota Press.
16. Low N., and Gleeson, B. (2003): Making Urban Transport Sustainable, Palgrave-Macmillan, U.K.

Books for Further Reading:

1. Ullman, E.L.(1973): The Role of Transportation and Bases for Interaction, in Blunden J., Brook, C.Edgi, G. and Hay, A. (eds) Regional Analysis and Development, Harper and Row London.
2. Carlstein, I., Parkes, D. and Thrift,N.(1978):Timing Space and Spacing Time- Vol.1,2 and 3, Edward Arnold, London.
3. Midgley, P. (1994):Urban Transport in Asia, An Operational Agenda for the 1990s, World Bank,Washington D.C.
4. Raza M. and Aggarwal, Y.(1986): Transport Geography of India. Commodity flows and the regional structure of the Indian Economy, Concept, New Delhi.

5. Munshi S. (1980): Geography of Transportation in Eastern India Under the British Raj, Centre for Studies in Social Sciences, Monograph 1, Bagchi, Calcutta.
6. Howe, J. and Richards, P. (1984): Rural Roads and Poverty Alleviation, Intermediate Technology Publications, London.
7. National Council of Applied Economic Research (1981): Transport Technology for the Rural Areas, India, World Employment Programme Research Working paper, ILO, Geneva.
8. Taaffe, E.J., Morrill, R.L. and Gould, P.R. (1963): Transport Expansion in Under-developed Countries: A Comparative Analysis, Geographical Review, May 1963.
9. Houle, B.S. (1973), Transport and Development, McMillan, London.
10. Soja E. (1969): Telephone Communication and Territorial Integration in East Africa: An Introduction to Transaction Flow Analysis, Ekistics, 28, 168, pp. 356-359, Reprinted from the East Lakes Geographer, 4 (1968) pp 39-57
11. Tornquist, G. (1967): Flows of Information and Location of Economic Activity, Lund, Gleerup, Lund Studies in Geography, Series B, Human Geography No. 30.
12. Lowe, M. (1991): Rethinking Urban Transport in L. Starke, ed. State of the World, New York: W.W. Norton.
13. I.T.U., World Telecommunications Development Report, (1994): Geneva, I.T.U.
14. Menzies, H. (1996): Whose Brave New World? The Information Highway and the New Economy, Toronto: Between the Lines.
15. Golding, P. and Harris, P. (eds.) (1997): Beyond Cultural Imperialism, London, Sage Publications.

B13 Geography of Tourism and Recreation

1. Leisure, recreation and tourism – Definitions and relationships – Development of the geography of tourism and recreation – Conceptual basis and application.
2. Evolution of tourism and related function – Early beginning and growth – industrialisation, modernisation and changing perception about travel – Emergence of mass and international tourism - Factors and characteristics – spatial patterns – Role of tourism in development.
3. Tourism as an industry – Structural components and characteristics – motivation factors – Typologies of tourists and tourism functions - Examples from developed and developing countries.

4. Organisation of tourism - Spatial fixity and factors of supply – Provision of off-site and on-site infrastructure and services – Role of information and marketing of tourism products – Public and private sectors - Relevant issue.
5. Impact of tourism – Environmental dimension and impact assessment – Economic impact - Employment, labour, sectoral linkages and hierarchy – Socio-cultural impact – Commodification and related aspect - Structuring of tourists perception and experience – Issues of conservation.
6. Planning of tourism – Conflicting issues of development – Urban and rural dimensions – Concepts of green tourism, eco-tourism, sustainable tourism – Critical perspectives – Community participation – Regulation and governance – Case studies from developed and developing countries.
7. Tourism development in India – Origin and evolution – Spatial patterns of tourism development and contemporary trends – Regional policies and status of tourism development – Role of State and private sector – Impact on society and environment – Case studies.
8. Tourism Development in Maharashtra – Historical perspective – Resource potentialities and spatial pattern of development – Post eighty tourism policies of Maharashtra – Current thrust areas – Planning of tourism in Mumbai Metropolitan Region and Konkan – Critical issues of development.

Text-books:

1. Cosgrove, I. And Jackson, R. (1972): The Geography of Recreation and Leisure, Hutchinson, London.
2. Robinson, H. (1976): A Geography of Tourism, Macdonald and Evans, London.
3. Kaul, R.K. (1985): Dynamics of Tourism and Recreation, Inter India, New Delhi.
4. Pearce, D.(1987): Tourism Today – A Geographical Analysis, Longman Scientific and Technical, New York.
5. Bhatia, A.K.(1989): Tourism Development, Principles and Practices, Sterling, Bangalore.
6. Pearce, D.(1989): Tourist Development, Longman Scientific and Technical, New York.
7. Bhatia, A.K.(1991): International Tourism: Fundamentals and Practices, Sterling, New Delhi.
8. Chris Ryan.(1991): Recreational Tourism, A Social Science Perspective,

Routledge, London.

9. Hunter, C. and Green, H.(1995):Tourism and the Environment, A sustainable Relationship.
10. Shaw, G. and Williams, A.M.(1994):Critical Issues in Tourism, A Geographical Perspective, Blackwell, Oxford, U.K.
11. Hall, C.M. and Page, S.J.(1999):The Geography of Tourism and Recreation, Environment, Place and Space, Routledge, London.
12. Hall, C.M. and Page, S.J.(2001):Tourism in South and South-east Asia : Issues and Cases, Butterworth, Heinemann, Oxford.
13. Garg, N.K.(1996):Tourism and Economic Development, Avishkar, Jaipur.
14. Sinha, P.C.(1997):International Encyclopedia of Tourism Management, Vol. 1-12, Anmol, New Delhi.
15. Bhardwaj, D.S. and Chaudhary, M.(1997):Contemporary issues in Tourism, Himalaya, Mumbai.

Books for further reading

1. Neumeyer, M.H. and Neumeyer, E.S.(1949):Leisure and Recreation, A.S. Barner and Company, New York.
2. Foster, D.(1986):Travel and Tourism Management, Macmillan, Hampshire.
3. Banerjee-Guha, S.(2003):Contemporary Tourism Policy and Costal Districts of Maharashtra : A Critique, unpublished report, Equations, Banglore, on project conducted at the Department of Geography, University of Mumbai.
4. Modi, S.(2002):Tourism and Society, Rawat, Jaipur.
5. Batra, G.S. and Donghal, R.C.(2002):Tourism promotion and Development, Deep and Deep, New Delhi.
6. Lavery, P.(1971):Recreational Geography, Donglas David and Charles Ltd., Vancouver.
7. Singh, S.N.(1986):Geography of Tourism and Recreation, Inter India, New Delhi.
8. Fesenmaker, L.(1986):Recreation Planning and Mangement, Venture Publications, U.S.A.
9. Kaiser, C. Jr., Helber, L.E.(1977):Tourism Planning and Development, CBI Publishing Co. Inc. Boston.

10. Mill R.C. and Morrison, A.M.(1985):The Tourism System: An introductory Text, Prentice Hall International Englewood Cliff, New Jersey.
11. Kaur, J.(1985):Himalayan Pilgrimages and New Tourism, Himalayan Books, New Delhi
12. Kumar, R.B.(1995):Coastal Tourism and Environment, Avishkar, Jaipur.
13. Singh, S.(1995):Profile of Indian Tourism, Avishkar, Jaipur.
14. Chattopadhyay, K.(1995):Economic Impact of Tourism Development, Avishkar, Jaipur.
15. Yadav, Hrishikesh, (ed.)(1995):Sangati Sahyadrichai, Sahyadri Prakashan, Mumbai.

B-14. Geography of Tribes with special reference to India.

1. Tribes and tribal communities- Perspectives in time and space – Race, ethnicity and tribes- Contemporary global distribution of tribes.
2. Differentials in tribal living - Location, environment, economy, society and culture of tribes – Social organisation and control - Case studies of selected tribal communities from two continents.
3. Tribes in India - Demographic framework - Locational and environmental diversity - Major and minor areas of concentration – Characteristics and classification.
4. Differentials in characteristics - Economic activities and associated status – Access to land and other resources – Occupational characteristics of tribals in India – Social mobility - Case studies.
5. Issues of integration and marginalization – Analysis of development projects and the placement of tribals – Case studies of relevant projects.
6. Tribals and mainstream development – Study of scheduled and non scheduled tribes and non scheduled tribes – Tribals in various sectors of economy and society – Relevant case studies.
7. Tribal movements – Historical perspectives – Social, economic, political and ecological issues – Role of state in colonial and post colonial period
8. Review of Policies on Tribals and tribal development in India - Colonial and post-colonial policies: Nature, parameters and objectives - Impact of such policies on tribals.

Text Books:

1. Bhangé, N.P.(1993): Tribal Commission and Committees in India, Himalaya Publishing House, Bombay.
2. Bose, N.K.(1971): Tribal life in India, National Book Trust, New Delhi.
3. Chaudhury, B.(1982): Tribal Development in India: Problems and Prospects, Inter-India Publications, New Delhi.
4. Pati, R.N. and Jena B.(1989): Tribal Development in India, Ashish Publishing House, New Delhi.
5. T. Prasad. (1979): Tribal Geography: An Introductory Bibliography, Classical Publications, New Delhi.
6. Ramaswami, V.S.(1988): Tribal Economy: Problems and Prospects, Chugh Publications, Allahabad.
7. Singh, K.S.(1982): Tribal Movement in India, Manohar Publications, New Delhi.
8. Singh, S.(1969): Tribal Situation in India, Indian Institute of Advanced Study, Simla.
9. Viveló, F.R. (1978): Cultural Anthropology, McGraw Hill, New York.
10. Waterlow, C. (1967): Tribe, State and Community, London.

Books for further Reading:

1. Das, S.T. (1986): Tribal Life in North Eastern India, Gian Publishing House, New Delhi.
2. Dasgupta, B.K. and Danda, A.K. (1984): Tribal Education in India, Anthropological Survey of India, Calcutta.
3. Gohain, B.C.(1977): Tribal Map of India, Anthropological Survey of India, Calcutta.
4. Hammerton, J.A.(1984): Tribes, Races and Culture of India and Neighbourhood Countries, Mittal Publications, New Delhi.
5. Joshi, R.(1984): Tribals; Islands of Deprivation, National Bookshop, New Delhi.
6. Kothari, K.L.(1985): Tribal Social Change in India, Himanshu Publications, New

Delhi.

7. Kumar, A. (2002): Tribal Development in India, Sarup and Sons, New Delhi.
8. Mishra, P.K. (1986): Tribes of Southern Region, Inter India Publications, New Delhi.
9. Mittal, K. (1980): Tribal Identity in Changing Industrial Environment, Metropolita Book Co, New Delhi.
10. Padhy, C. (2000): Challenges of Tribal Development: Eassays in Honour of Dr. Patnaik, Sarup and Sons, New Delhi.
11. Pjeffer, G. and Behra, D. (1997): Contemporary Socceity: Tribal Studies, structure and process, Vol. I, Concept Publications, New Delhi.
12. Sahu, C. (1998): Primitive Tribes of India (An Ethnographic Profile), Sarup and Sons, New Delhi.
13. Singh, K.S. (1985): Tribal Society in India: An Anthropological perspective, Manohar Publications, New Delhi.
14. D. Thakur et.al (1994): Tribal Life and Forest, Deep & Deep Publications, New Delhi.

Group C: Interface Group

C 1 Thematic Cartography

Total Marks: 75 . The Paper consists of **Theory : 60 Marks** and **Mapping Project 15 Marks**. The mapping project is devoted to preparation of thematic maps which wi be submitted for assessment as part of the paper at the Final University Examination

1. Development of the field of Cartography: historical perspective - Conceptual, technological and institutional changes during the post World War period – Status of Cartography in India: contemporary and future developments – Conceptual bases of Cartography: Map as miniature model of Reality – Changing role of maps - Map projections: properties and choice.
2. Sources of data for mapping - Traditional sources: primary and secondary data- Nature, processing and applications - Modern Sources: Remote- sensing and GPS technologies: principles, systems and applications – Digital graphic data: vector and raster formats – Various GIS databases – Internet and World Wide Web;
3. Data Processing and representation: characteristics of data and levels of measurement - Concept of statistical surface - Statistical diagrams and maps - Basic statistical and cartographic techniques of representing

different aspects of features on thematic maps;

4. Production of maps: manual drafting and scribing techniques - Characteristics of map image - Drawing instruments, equipment and base materials - Map design and layout - Scale-content relationship and cartographic generalisation - Designing cartographic symbols - Colour use and specification -feature-separated and colour-separated map image - Lettering styles and methods.
5. Computer cartography and automation: development of digital computers - Automated plotting of topographical maps - Computer-assisted Cartography - Interactive drafting of thematic maps - Geographical Information Systems - Nature, structure and components of GIS database - Applications in cartography.
6. Duplication and multiplication of map image: photographic techniques for duplication, modification and combination of map images - Non-photographic techniques for plate making and few copies: Xerography, Silk-screen printing - Reproduction of multiple copies: letterpress printing, intaglio and offset lithography - Production planning and costing.

Text Books:

1. Crone, G.R.(1968): Maps and their Makers: An Introduction to the History of Cartography, Hutchinson University Library, London.
2. Cuff, D.J. and M.T. Mattson (1982) : Thematic Maps: Their design and Production, Methuen and Company, New York.
3. Dickinson, G.C. (1977) : Statistical Mapping and Presentation of Statistics, Edward Arnold limited, London.
4. Heywood, Ian et al (1998) : An Introduction to Geographical Information Systems, Addison Wesley Longman, Limited, England,
5. Keates, J.S. (1973) : Cartographic Design and Production, 2nd Edn., Longman Group Limited, London.
6. Keates, J.S. (1996) : Understanding Maps, 2nd Edn., Longman Group Limited, London.
7. Kraak, Menno-Jan and Ferjan Ormeling (1996) : Cartography: Visualization of Spatial Data, Addison Wesley Longman Limited, England.
8. McDonnell, P.W. Jr. (1979) : Introduction to Map Projections, Marcel Dekker, Inc., New York and Basel.
9. Monmonier, Mark S. (1982) : Computer-Assisted Cartography: Principles and

Prospects, Prentice-Hall, Inc., London.

10. Robinson, A.H. et al (1995) : Elements of Cartography, Vol.VI, John Wiley & Sons, New York.
11. Sabins, Floyd F. (1978) : Remote Sensing: Principles and Interpretation, W.H. Freeman & Co., San Francisco.

Books for further reading

1. Anson, R.W. and F.J. Ormeling (1993) : Basic Cartography for Students and Technicians, Vol.1, 2nd Edn., I.C.A. and Elsevier Applied Science Publishers, New York.
2. Institute of British Geographers (1977): 'Contemporary Cartography', I.B.G. Transactions, New Series Vol. 2, No.1, London.
3. Jones, Christopher (1997) : Geographical Information Systems and Computer Cartography, Addison Wesley Longman Limited, England.
5. Monkhouse, F.J. and H.R. Wilkinson (1971) : Maps and Diagrams, Methuen & Co. Ltd., London.

C 2 Computer Cartography

Total Marks: 75 . The Paper consists of **Theory : 60 Marks** and **Mapping Project : 15 Marks**. The mapping project is devoted to preparation of thematic maps which will be submitted for assessment a part of the paper at the Final University Examination.

1. An overview of development of digital computer systems – Progressive changes in capability and adaptation of hardware and software for handling and display of spatial data – Earlier mapping software – Impact of windows operating system on recent mapping software – Contemporary scenario.
2. Principles of mapping: fundamental attributes of maps – Elements of design and layout – Scale-content relationship – Techniques of representation and symbolisation of geographic features – Map projections: properties and choice – Map as medium of communication: its effectiveness.
3. Sources of data for mapping: traditional and modern sources – Data acquired by remote-sensing and GPS technologies – GIS database – Web-based resources – Integration of data from different sources – Some basic statistical techniques for processing and organisation of data – Conversion into mappable form.
4. Characteristics of geographic data: spatial data structures – Conversion of spatial data into digital form – Characteristics of digital data – Vector and raster formats:

their implications for input, processing and storage – Manual, semi-automated and automated procedures for input of spatial data.

5. Processing and output of spatial data – Computer assisted procedures for representation of point, line and area data – Linking of attribute data with corresponding objects – Addition of text – Plotting and printing: devices and methods – Quality of output.
6. Recent trends in computer cartography – Impact of Geographical Information Systems – Incorporation of time element in portrayal – Dynamic and animated maps – Impact of Internet – Web-based cartography – Future potentials.

Text Books:

1. Clarke, K. C. (1998) : Analytical and Computer Cartography, Pearson Educational Company, New Jersey.
2. Jones, C. B. (1997): Geographical Information Systems and Computer Cartography, Addison Wesley Longman Limited, England.
3. Monmonier, M. S. (1982) : Computer-Assisted Cartography: Principles and Prospects, Prentice-Hall, Inc., London.
4. Robinson, A. H. et al (1995) : Elements of Cartography, Vol.6, John Wiley and Sons, New York.

Books for further reading

1. Kraak, M. J. and A. Brown (1996) : Web Cartography: Developments and Prospects, Addison Wesley Longman Limited, England.
2. Mather, P. M. (1976) : Computers in Geography: A Practical Approach, Basil Blackwell, Hampshire.
3. Saxena, S. (1998) : A First Course in Computers, Vikas Publishing House, U.S.B. Publishers and Distributors Ltd., New Delhi.

C 3 Remote Sensing Techniques in Geographical Studies

1. Concepts, definition and development of remote sensing – Advantages of remote sensing over other geographical tools.
2. Aerial photography: Introduction to aerial camera, film, spectral sensitivity and filters; factors affecting image quality – Types of aerial photographs – Photographic resolution and radiometric characteristics.
3. Fundamentals of photogrammetry: Introduction and definition – Simple geometry of vertical aerial photograph – Relief and tilt displacement – Stereoscopy, parallax

equation; flight planning – Scale and height determination.

4. Principles and fundamentals of aerial photo interpretation and image analysis – Elements.
5. EMR characteristics – Spectral reflectance of earth's features in different wave length bands of EMR.
6. Sensors and platforms: Characteristics of platforms – Landsat, IRS, SPOT, ERS JERS, RADARSAT and characteristics of sensors onboard them viz. MSS, TM, LISS-I, II and III, PAN and others.
7. Fundamentals of satellite images analysis: Types of imagery, visual image analysis, digital image analysis – Basic principles of thermal and microwave remote sensing.
8. Application of remote sensing in various sub fields of geography and use of meteorological satellites and their characters.

Text-Books

1. Jenson, R.J. (2003): Remote Sensing of the Environment- An Earth Resources Perspective, Pearson Education Series in Geographical Information Science, Keith C. Clarke (Series editor) Person Educators Private Limited. (Singapore), New Delhi.
2. American Society of Photogrammetry (1983): Manual of Remote Sensing, ASP Falls Church, V.A.
3. Barrett, E.C. and Curtis, L.F.(1992): Fundamentals of Remote Sensing in Air Photo-interpretation, McMillan, New York.
4. Campbell, J. (1989): Introduction to Remote Sensing, Guilford, New York.
5. Curran, Paul, J. (1988): Principles of Remote Sensing, Longman, London.
6. Hard, R.M. (1989): Digital Image Processing of Remotely Sensed data, Academic Press, New York.
7. Lillesand Thomand and Relph Kiffer (1994): Remote Sensing and Image Interpretations, John Wiley and Sons, Inc., New York.
8. Lo, C.P. (1986): Applied Remote Sensing, Longman, Scientific and Technical, Harlow, Essex.
9. Lunder, D. (1959): Aerial Photography Interpretation: Principles and Applications, McGraw Hill, New York.

10. Prater, W.K. (1978): Digital Image Processing, John Wiley, New York.
11. Rao, D.P. (eds.)(1988): Remote Sensing for Earth Resources, Association of Exploration Geologist, Hyderabad.
12. Sabins, F.(1982): Remote Sensing: Principles and Applications, Freeman and Co., New York.
13. Verrtappen, H., Th.(1977): Remote Sensing in Geomorphology, Elsevier Scientific Publication Company, Amsterdam.
14. Warrin, R. Philipson (1997): Manual of Photographic Interpretations, American Society for Photogrammetry and Remote Sensing, Maryland, U.S.A.

C 4 Principles of Geographical Information System

Total Marks: 75 . The Paper consists of **Theory : 60 Marks** and **Project Work : 15 Marks**. The project work is devoted to preparation of a GIS Database, analysis and mapping related to a selected topic, which will be submitted for assessment as part of the paper at the Final University Examination.

Theory :

1. Fundamentals of GIS: concepts and definitions – Component elements of GIS – Evolution and development of GIS – Traditional view of GIS – Developments in Computer Systems – Development of contemporary GIS.
2. Spatial data: nature and necessity of their graphical representation – Thematic maps: scales and symbolization – Topological structure of map features – Map projections: properties and choice - Spatial data models and data structures in GIS environment --Analogue to Digital conversion of features – Modelling surfaces, networks, terrain relief and time – Virtual maps.
3. GIS database components: locational and attribute databases – Spatial and attribute data – Traditional sources: primary and secondary – Modern sources: Remote sensing and GPS technologies – Creation of locational and attribute databases: their structure – Vector and Raster formats – Digitizing and Scanning –Data editing and validation – Geocoding.
4. Data analysis and manipulation : Measurements in GIS – Classification, overlay analysis and integration of data -- Buffering – Shortest path – Interpolation – Analysis of surfaces and networks – Modelling physical and environmental processes and human activities – Query building – Decision making with GIS.

5. Display and output through GIS environment: visualization and mapping -
Forms of output: maps, tables, reports – Cartographic principles and techniques
of graphic representation – Inbuilt tools and facilities in a GIS package –
Considerations for effective communication.
6. Management and maintenance of GIS databases – Issues of training of
personnel and institutional support – Applications of GIS technology in utilities
management and other fields - Adoption of GIS technology in India - GIS
Project: conception, design, implementation, management and evaluation;
Recent trends and future developments in GIS.

Project Work:

Textbooks:

1. Bernhardsen, Tor (2002) : Geographical Information Systems: An Introduction,
3rd Edition, John Wiley & Sons, Inc., New York.
2. Burrough, Peter A. and McDonnell, R.A. (1998) : Principles of Geographical
Information Systems, Oxford University Press, Mumbai.
3. Clarke, Keith C. (1998) : Getting Started with Geographic Information Systems,
Prentice-Hall Series in Geogl. Info. Science, Prentice-Hall, Inc. N.J.
4. Heywood, I. et al (2002) : An Introduction to Geographical Systems, Pearson
Education Limited, New Delhi.
5. Star, Jeffrey and John Estes (1996) : Geographical Information Systems: An
Introduction, Prentice-Hall, Inc., N.J.

Books for further reading

1. Foresman, Timothy N. (Ed.) (1998): The History of Geographical Information
Systems: Perspectives from the Pioneers, Prentice Hall, PTR, N.J.
2. Huxhold, William E. (1991): An Introduction to Urban Geographical Information
Systems, Oxford University Press, New York.
3. Jones, Christopher B. (1997): Geographical Information Systems and
Computer Cartography, Addison Wesley Longman Limited, England.
4. Martin, David (1996): Geographical Information Systems: Socio-economic
Applications, 2nd Edition, Routledge, London & New York.
5. Masser, Ian (1998): Government and Geographical Information Systems,
Taylor & Francis Group, London.

6. Morain, Star (1998): GIS Solutions in Natural Resource management: balancing the Technical-Political Equations, Onward Press, London.
7. Obermeyer, Nancy J. and Jeffrey K. Pinto (1995): Managing Geographical Information Systems, The Guilford Press, New York.
8. Pickles, John (Ed.) (1995): Ground Truth : The Social Implications of Geographical Information Systems, The Guilford Press, New York.

C 5 Advanced Quantitative Techniques in Geography

1. Nature of geographical data: locational attribute – Problems of collection and storage – Type of data: primary and secondary – Census versus sample data – Methods of sampling spatial data – scaling and classification of data.
2. Testing of hypotheses: problems involved – Research, alternative and null hypotheses – Procedure and tests – significance of hypothesis testing in spatial analysis.
3. Commonly used tests for testing hypotheses: parametric and non-parametric – Chi-square, Co-efficient of Correlation as tests of significance – Spatial applications – Analysis of Variance and its significance in geographical analysis.
4. Bi-serial techniques of analysis: measures of Central Tendency and Dispersion – Spatial representation of the results of the above techniques – Their utility in geographical analysis – Centographic techniques and their utility in geographical analysis.
5. Multivariate techniques of analysis and synthesis – Linkage, cluster and factor analyses – Spatial representation of the results of the above techniques.
6. Concepts of multiple and partial correlation – Significance of these in geographical analysis – concept of spatial autocorrelation and its significance.
7. Multiple regression: concept – problems involved in its use – applications in solving problems of spatial nature: examples
8. Spatial efficiency: concept and need – Linear programming and its utility in achieving the efficiency – Location allocation algorithm: concept and applications – Graphical and quantitative techniques.

Text Books

1. Burt, J. E. and Barber, G.M.(1996): "Elementary Statistics for Geographers", The Guilford Press, New York.

2. Clark, W.A.V. and Hosking, P.C.(1986): "Statistical Methods for Geographers", John Wiley & Sons, New York.
3. Ebdon, D.(1977): "Statistics in Geography", Basil Blackwell, London.
4. Gregory, S.(1963): "Statistical Methods and the Geographer", Longman Group Ltd., London.
5. Killen, J.(1983): "Mathematical Programming Methods for Geographers and Planners", Croom Helm, London.
6. Levin, J. (1973), "Elementary Statistics in Social Research", Harper & Row, New York.
7. Mahamood, A.(1977): "Statistical Methods in Geographical Studies", Rajesh Publications, New Delhi.
8. Norcliff, G. B. (1982), "Inferential Statistics for Geographers", Hutchinson, London.
9. Taylor, P.J. (1977), "Quantitative Methods in Geography", Houghton Mifflin Company, Boston.
10. Watson, G. and McGraw, D. (1980), "Statistical Inquiry", John Wiley & Sons, New York.
11. Yeates, M. (1974), "An Introduction to Quantitative Analysis in Human Geography", McGraw Hill, New York.

Books for further reading

1. Cressie, N. (1991): "Statistics for Spatial Data", John Wiley and Sons, New York.
2. Duncan, O.D., Cuzzort, R.P. and Duncan, B.(1961): "Statistical Geography: Problems in Analysing Spatial Data", The Free Press of Glenco, Illinois.
3. Hammerton, M.(1975): "Statistics for the Human Sciences", Longman Group Ltd., Barlow.
4. Till, R.(1974): "Statistical Methods for the Earth Scientist", The MacMillan Press Ltd., London.
5. Wicox, R. R. (2003), "Applying Contemporary Statistical Techniques", Academic Press, Amsterdam.

6. Wilson, A.G. and Bennet, R. J. (1985), "Mathematical Methods in Human Geography and Planning", John Wiley & Sons, New York.

C 6 Geography of Resources

1. Resources – links and flows among environment, economy and society – Significance of a spatial perspective – Resource definitions – Changing perceptions – Typology – Characteristics and interrelations – Scarcity of resources – Futuristic trends – Resources and issues of development.
2. Resources as inputs – Types of economic systems and economics of resource organisation – Social organisation and aspects of ownership and control – State ownership and related issues of resource governance – Concept of resource mobilisation – Sectoral, social and spatial.
3. Organisation of resources in various social and economic systems – Resource organisation in pre-colonial and colonial systems – Transfer of resources – Industrial and urban growth – Advances in technology, transport and communication – Structuring of world economy as core and periphery – Associated imbalances in resource use and organisation.
4. Resources – People and economic development – Theoretical frameworks – Classical and neo-classical approaches – Population growth – Stages of economic development and aspects of carrying capacity – Limits to growth.
5. Contemporary patterns of resource distribution and exploitation – Gaps and imbalances – Issues and challenges in distribution and use of key resource type – Land / forests / water / energy / minerals / ocean resources.
6. Expansion of international capital – Globalisation – MNCs and restructuring of production – Related dynamics – Implications on resource ownership, accessibility and pattern of livelihood – Global and local issues – Examples from developing countries.
7. Resources, development choices and environmental issues – Resource depletion, degradation and emerging crisis – Desertification, Deforestation and losses in bio-diversity – Politics of global warming – Increasing water scarcity and conflicts – Energy crisis – Issues of sharing of resources – Challenges before developed and developing countries – Need for conservation and resource creation.
8. Sustainable development and conservation of resources – Critical evaluation of conservation strategies – Post-eighty scenario – Dimensions of market, equity and ethics – Community participation and governance – Reforms and measures – Emergence of global environmentalism.

Text Books:

1. Mather, A.S. and Chapman, K.(1995): Environmental Resources, Longman Scientific and Technical, London.
2. Harper, C.L. (2001): Environment and Society, Human Perspectives on Environmental Issues, Prentice Hall, New Jersey.
3. Adams, W.M.(1990): Green Development, Environment and Sustainability in the Third World, Routledge, London.
4. Sarre, P. and Blunder, J. (1995): An Overcrowded World Population, Resources and the Environment, The Open University, Oxford.
5. Hampel, L.C.(1996): Environmental Governance, The Global Challenge, Island Press, Washington D.C.
6. Redicliff, M. (1987): Sustainable Development: Exploring the Contradictions, Methuen, London.
7. Redcliff, M.(1996): Wasted: Counting the Cost of Global Consumption, Earthscan, London.
8. Potter, R.B., Binns, T., Elliott, J.A. and Smith, D. (1999): Geographies of Development, Longman.
9. Elliott, J.A. (1999): An Introduction to Sustainable Development, Routledge.
10. Mengitsu, W. (1987): The Geography of Hunger- Some Aspects of Causes and Impacts of Hunger, Geografriska Institute.
11. Dreze, J. and Sen. A.(1990): The Political Economy of Hunger, Vol. 1,2,3, Clarendon Press, Oxford.
12. Roy, P.K.(2001): Economic Geography, A Study of Resources, New Central Book Agency, Kolkata.
13. Beck, U. (1992): Risk Society: Towards a New Modernity, Sage, London.
14. Chopra, K., Kadekodi, G.K. and Murty, M.N. (1989): Participatory Development: People and Common Property Resources
15. Peet, R. , Watts, M. (eds.)(1996): Liberation Ecologies: Environment, Development, Social Movements, Routledge, London.

Further Reading:

1. Brundtland, H. (1987): Our Common Future, Oxford University Press, Oxford for the World Commission on Environment and Development.
2. Dasgupta, P. and Karl-Goran, M.(eds.)(1997): The Environment and Emerging Development Issues, Vol. 1 and 2, Clarendon Press, Oxford.
3. Holdgate, M.W. (1996): From Care to Action: Making a Sustainable World, Earthscan, London.
4. Gadgil, M. and Guha, R. (1995): Ecology and Equity: The Use and Abuse of the Nature Contemporary India, Routledge, London.
5. Baraenclough, S.L. and Ghimir, K.B. (1995): Forests and Livelihoods: The Social Dynamics of Deforestation in Developing Countries, MacMillan, London.
6. Blaikie, P. and Brooksfild, H. (1987): Land Degradation and Society, Methuen, London.
7. Blaikie, P., Cannon, T., Davis, I. and Wisner, B. (1994): At Risk: Natural Hazards, People's Vulnerability and Disasters, Routledge, London.
8. Bryaut, R. and Bailey, S. (1997): Third World Political Ecology, Routledge, London.
9. Agarwal, A. and Narain, S. (eds.)(1985): The State of India's Environment 1984-85: The Second Citizen's Report, Centre for Science and Environment, New Delhi.
10. Agarwal, A. and Narain, S. (eds.)(1991): The State of India's Environment 990-91: The Third Citizen's Report, Floods, Flood plains and Environmental Myths, Centre for Science and Environment, New Delhi.
11. Agarwal, A. and Narain, S. (eds.)(1997): The State of India's Environment 1996-97: The Fourth Citizen's Report, Dying Wisdom: Rise, Fall and Potential of India's Traditional Water Harvesting Systems, Centre for Science and Environment, New Delhi.
12. Agarwal, A. and Narain, S. (eds.)(1985): The State of India's Environment: The fifth Citizen's Report, Vol. 1 and 2, Centre for Science and Environment, New Delhi.
13. Hitte P.D. and Horowitz, M.M.(eds.) Lands at Risk in the Third World: Local-Level Perspectives, Boulders, Colo: Westview Pross.
14. Pereira, W. (1993): Tending the Earth, Traditional Sustainable Agriculture in India, Earthcare Books, Bombay.

15. McCormick, J.S. (1992): The Global Environmental Movements: Reclaiming Paradise, Bethaven, London.
16. Middleton, N.(1999): The Global Casino: An Introduction to Environmental Issue Arnold, London 2nd Edition.
17. Berustein, H., Crow. B., Mackintosh, M. and Martin, C. (1990): The Food Question – Profits versus People, Earthscan, London.
18. Sachs, W. (ed)(1992): The Development Dictionary: A Guide to Knowledge as Power, Zed Books, London.

C 7 Geography of Water Resources

1. Significance of water to human society – Hydrological cycle – Basic elements and processes – Water as a resource: historic perspective –Water scarcity and renewability – Need for water management and conservation.
2. Demand for water – Components of demand and system of supply – Practice of water harnessing and supply in traditional societies – Mechanisms of socio-spatial organisation – Contemporary relevance of traditional wisdom of water harvesting and conservation – Indian Examples.
3. Water in modern society – Changing profiles of demand – Mobilisation of water resources – Role of technology and capital – Sectoral and spatial links – Hierarchy and gaps – Optimal use of water and related policies.
4. Water uses in agriculture – Climate, soil, crop relationships and related water requirements – Modern irrigation practices and resulting problems – Dryland agriculture and sustainability of livelihoods – Management of wetlands – Relevance of water harvesting for agriculture – Examples from developing countries.
5. Industrial use of water and systems of supply – Industrial activities and estimates of demand – Use and misuse of waterbodies – Associated environmental issues – Water management in industry – Examples from developing countries with special reference to India.
6. Demand and Supply of water in urban areas – Socio-political focus – Uneven availability and access to water as a basic service – Water quality, Security and health issues – Urban water management.
7. Contemporary issues of water management – Large dams, multipurpose project and linking of rivers –Benefits and costs – Environmental, economic and social dimension – Issues of displacement – Relevant examples.

8. Ownership of water and issues of water governance – Water rights, water wars and need for sharing – Issues at different scales and relevant examples – Contemporary trends of privatization and its impact – community participation and role of people's movements in sustainable use of water – Role of NGOs – Critical perspective.

Text Books

1. Iyer, R.R.(2003): Water: Perspectives, Issues and Concerns, Sage, New Delhi.
2. Mather, J.R. (1984): Water Resources Distribution, Use and Management, John Wiley, Maryland.
3. Michael, A.M.(1978): Irrigation: Theory and Practice, Vikas Publishing House Private Limited, New Delhi.
4. Todd, D.K.(1959): Ground Water Hydrology, John Wiley, New York.
5. Pereira, H.C. (1973): Landuse and Water Resources, Cambridge University Press, Cambridge.
6. Kates, R.W. and Burton, I (eds.)(1980): Geography, Resource and Environment, Ottawa.
7. International Water Resource Association and Central Board of Irrigation and Power (1975): Water for Human Needs, Vol. I to IV, Proceedings of Second World Congress on Water Resources, 12-16 December, New Delhi.
8. Singh, R.A. and Singh, S.K. (1979): Water Management: Principles and Practice Tara Publications, Varanashi.
9. White, G.F.L. (1977): Environmental Effects of Complex River Development, Westrirer Press, Boulder, Colorado.
10. Mather, A.S.and Chapman, K. (1995): Environmental Resources, Longman Scientific and Technical, London.
11. Brundtland, H. (1987): Our Common Future, Oxford University Press, Oxford f the World Commission on Environment and Development.
12. Harper, C.L. (2001): Environment and Soccity, Human Perspectives on Environmental Issues, Prentice Hall, New Jersey.
13. Adams, W.M.(1990): Green Development Environment and Sustainability in t Third World, Routledge, London.

14. Agarwal, A. and Narain, S. (eds.)(1997): The State of India's Environment 1996-97: The Fourth Citizen's Report, Dying Wisdom: Rise, Fall and Potential of India's Traditional Water Harvesting Systems, Centre for Science and Environment, New Delhi.
15. Mishra, A.(1993): Aaj Bhi Khare Hai Talab, Gandhi Peace Foundation, New Delhi.
16. Peet, R., Watts, M.(eds.)(1996): Liberation Ecologies: Environment, Development, Social Movements, Routledge, London.
17. Thomas, D.S.G. and Middleton, T. (1994): Desertification: Exploding the Myth, Wiley and Sons, Chichester.

Books for Further Reading:

1. Gulhati, N. O. (1972): Development of Interstate Rivers: Law and Practice in India, Allied Publishers, Mumbai.
2. Jones, J.A. (1997): Global Hydrology: Processes, Resources and Environmental Management, Longman, London.
3. Tebbutt, T.H.Y. (ed.)(1985): Advances in Water Engineering, Elsevier Applied Science Publications, London.
4. Rao, K.L. (1979): India's Water Wealth, Orient Longman, New Delhi.
5. Mujumdar, D.K. (2002): Irrigation Water Management: Principles and Practice, Prentice Hall of India Private Limited, New Delhi.
6. Newson, M. (1992): Land Water and Development, River Basin Systems and their Sustainable Management, Routledge, London.
7. Law, B.C.(ed)(1968): Mountains and Rivers of India, I.G.U. National Committee for Geography, Calcutta.
8. Economic and Social Commission for Asia and Pacific, United Nations (1989): Guidelines for the Preparation of National Master Water Plans, U.N.O.
9. Usada, (1985): The Year Book of Agriculture: Water, Oxford and I.B.H. Publishing Company, New Delhi.
10. Falkenmark, M. (1997): A Water Perspective on Population, Environment and Development in Dasgupta, P. and Maler, Karl-Goran, The Environment and Emerging Development Issues, Vol. 1., Clarendon Press, Oxford.
11. Paranjpe, V. (1990): High Dams on the Narmada, A Holistic Analysis of the Rive

Valley Projects, Indian National Trust for Art and Cultural Heritage, New Delhi.

12. Paranjpe, V. (1988): Studies in Ecology and Sustainable Development- Evaluating the Tehri Dam- An Extended Cost Benefit Appraisal, INTACH, New Delhi.
13. Sangvai, S. (2000): The River and Life, People's Struggle in the Narmada Valley Earthcare Books, Mumbai.
14. Redcliff, M.(1996): Wasted: Counting the Cost of the Global Consumption, Earthscan, London.
15. Mishra, A. (1993): Aaj Bhi Khare Hai Talab, Gandhi Peace Foundaton, New Delhi.
16. Agarwal, A. and Narain, S. (eds.)(1985): The Status of India's Environment 1984-85: The Second Citizen's Report, C.S.E., New Delhi.
17. Agarwal, A. and Narain, S. (eds.)(1991): The State of India's Environment 1990-91: The Third Citizen's Report, Floods, Flood plains and Environmental Myths, Centre for Science and Environment, New Delhi.
18. Agarwal, A. and Narain, S. (eds.)(2003): The State of India's Environment: The fifth Citizen's Report, Vol. 1 and 2, Centre for Science and Environment, New Delhi.
19. World Commission on Dams (2000): Dams and Development: A New Framework for Decision Making, Earthscan, London.
20. McGully, P. (1996): Silenced Rivers: The Ecology and Politics of Larger Dams, Zed Press, London.

C 8 Geography of Energy Resources

1. Role of energy in society and economy – Sources of energy – Definition, and types – Energy systems – Structural components and link – Dynamics of energy and development.
2. Typology of energy resources – Commercial energy systems – Dimensions of demand and supply – Interrelationship with environment, economy and society – Role of technology – Geography of energy production and consumption – Relevant issues.
3. Transfer and trading of energy – Organisation of flows – Variation in volume and direction – Policies of energy trade – Status of developing countries.

4. Energy and development – Related issues of the developed economies – Economic, socio-political and environmental implications – Energy combination, planning policies and future prospects – Role of technology, value systems and policies – Select examples.
5. Energy problems of the developing economies patterns of production and consumption – Rural and urban dimension – Role of international powers – Aspects of dominance and dependence – Critical appraisal of energy related policy issues of developing countries.
6. Energy crisis – Significance of existing resource base – Impact on production, consumption and quality of life – Variations in spatial scales – Policies of conservation, renewal and sustainable use of energy.
7. Energy base and organisation of power sector – Policy making, governance and issues of development – Socio-sectoral and spatial dimensions – Case studies from Asia, Africa and Latin America.
8. State of energy and power sector in India – Resource types and evolution of energy systems – Impact of urban and industrial growth - Regional dimensions – Privatisation of energy production and power supply – Critical issues of governance –Availability and use of sustainable energy resources – Future trend

Text-Books:

1. Chapman, J. D.(1989): Geography and Energy ,Commercial Energy Systems and National Politics, Longman Scientific and Technical.
2. Guyel, N.B.(1971): Energy in the Perspective of Geography, Prentice Hall, Englewood Cliffs.
3. Manners, G. (1964): The Geography of Energy, Hutchinson University, London.
4. Shaw, T.L. Lennard D.E. and Jones, P.M.S. (1984):Policy and Development of Energy Resources, John Wiley and Sons, New York.
5. Hoffman, Thomas and Johnson Brian (1981): The World Energy Triangle, A Strategy for Co-operation.
6. McVeigh, J.C.(1984): Energy Around the World, An Introduction to Energy Studies, Global Resources, Needs, Utilisation, Pergamon Oxford.
7. Shaw, T.L. Lennard, D.E. and Jones, P.M.S.(eds.)(1984): Policy and Development of Energy Resources, John Wiley and Sons, New York.
8. World Energy Council,(1993): Energy for Tomorrow's World: The Realities, The

Real Options and The Agenda for Achievement, St. Martin's Press, New York.

9. Pachuri, R.K.(1977): Energy and Economic Development in India, Prager, New York.
10. Dayal, Maheshwar (1989): Renewable Energy, Environment and development, Konark, Delhi.
11. Parikh, Jyoti K.(1980): Energy Systems and Development: Constraints, Demand and Supply of Energy for Developing Regions, Oxford, Bombay.
12. Pachur, R.K. (1985): The Political Economy of Global Energy, Oxford, Mumbai.
13. Chaturvedi, P. (1997): Sustainable Energy Supply in Asia, Vol. 1 and 2, Concept, New Delhi.
14. Edmonds, J. and Reilly J.M.(1985): Global Energy, Assessing the Future, Oxford New York.
15. World Energy Council (1994): New Renewable Energy Resources, A Guide to the Future, Kogan Page, London.

Books for further reading:

1. Smil Vaclav and Knowland, W.E. (1980): Energy in the Developing World, The Real Energy Crisis, Oxford, New York.
2. U.N.(1993): Energy, Environment and Sustainable Development, Series NO. 34, 35 and 36.
3. Luten, D.B.(1971): 'The Economic Geography of Energy' in Scientific American, 224, No.3, pp-165-175.
4. Conant, Melvin, A. and Gold Firn Racine (1978): The Geopolitics of Energy, Westview press, Colorado.
5. Tanzer, Michael (1974): The Energy Crisis. World Struggle for power and Wealth.
6. United Nations (1991): Energy System, Environment and Development, U. N. New York.
7. Mabro, R. (ed.)(1980): World Energy: Policies and Issues, Oxford, London.
8. Brown, Norman, L.(1978): Renewable Energy Resources and Rural Applications in the Developing World, A Selected Symposium, Westview Press, Colorado.

9. Giriappa, S.(1986): Rural Energy Crisis, Institute for Social and Economic Change, Bangalore, Himalaya, Bombay.
10. Monga, G.S. and Sanctis, V.J.(1994): India's Energy Prospects, Vikas Delhi.
11. Chaturvedi, Pradeep (1995): The Energy Sector, Oxford, London.
12. Mather, A.S.and Chapman, K. (1995): Environmental Resources, Longman Scientific and Technical.
13. Harper, C. (2001): Environment and Society, Human Development Perspectives on Environmental Issues.
14. Belgrave, R., Ebinger, C.,K. and Okino, H. (1987): Energy Security to 2000, Graner, aldershot, U.K. Westview Press, U.S.
15. Vaishampayan, J.V.(1995): Energy and Economic Development, An Analysis of Energy- Economic Interaction, Ajanta.

C9 Geography of Environmental Quality

1. Changing man-environmental relations - Environment: principles governing environmental relationships – Energy flows – Material cycles – Food chains and webs - Concept of ecosystem.
2. Ecological pyramids – Ecological efficiencies – Ecological indicators – Environmental balance.
3. Factors of environment degradation and their impact – Present environmental concerns – Exploitation of resources/ destruction of tropical rain forest – Toxic waste / hydel projects – Global warming / ozone hole – Reduction in diversity / genetic engineering.
4. Environmental problems in different sectors of the economy - Primary sector: agriculture, fishing/mining/forestry – Secondary sector:manufacturing – Tertiary sector: transport, trade, tourism. Remedial measures.
5. Spatial dimension of environmental problems - Mountain areas / desert areas – River basins / coastal areas – Rural / urban areas – Industrial areas / forest areas.
6. Preservation and conservation of the environment – Concept of economically, socially and environmentally acceptable patterns of development – Environmental dimension in planning – Sustainable development – Environmental management.

7. Increasing levels of environmental consciousness – Institutional framework for environmental protection – Major phases at global level – People's movements and their impact.
8. Planning and environmental protection in India – Legislative measures and their effectiveness – Environmental Policy - Environmental education and awareness.

Text Books:

1. Adams, W.M.(2001): Green Development: Environment and Sustainability in the Third World, Routledge, London.
2. Agarwal, S.K. and Dubey, P.S. (2002): Environmental Controversies, A.P.H. Publishing Corporations, New Delhi.
3. Basu, D.(ed.)(1995): Environment and Ecology – The Global Challenge, Printwell, Jaipur.
4. Calvert P.S. (1999): The South, The North and the Environment, Pintee, London and New York.
5. Ewusie, J.Y. (1980): 'Elements of Tropical Ecology', Hainmann Education Books Inc. London.
6. Gupta, A. (1988): 'Ecology and Development, in the Third World', Routledge, London.
7. Krishna, S. (1996): Environmental Politics – Peoples Lives and Development Choices, Sage Publications, New Delhi.
8. Mather, A.S. and Chapman, K. (1995): Environmental Resources, Longman Group Limited, U.K.
9. Odum, E.P. (1971): 'Fundamentals of Ecology', Third Edition, W.B.Saunders Company, Philadelphia.
10. Pachuri, R.K. and Sridharan, P.V.(eds.)(1998): Looking Back to Think Ahead, Green India 2047, Tata Energy Research Institute, New Delhi.
11. Rajan, M.G. (1997): Global Environmental Politics, Oxford University Press, New Delhi.
12. Smithson, P., Addison, K. and Atkinson, K. (2002): The Fundamentals of Physical Environment, Routledge, London.

13. United Nations (1971): 'ECE Symposium on Problems Relating to Environment', U.N., New York.
14. UNFPA (1992): 'Population, Resources and Environment – The Critical Challenges', United Population Fund, London.

Books for further Reading:

1. Centre for Science and Environment (1985),(1991): The State of India's Environment, Vol. 1, 2, 3, 4. CES, New Delhi
2. The Hindu (1991-2003) Survey of the Environment, Madras.

C 10 Geography of Health

1. Changing pattern of health - Spatial pattern of health indicators - Developed and less developed countries – Implications of epidemiological transition in health care perspective - Significance of geographical analysis.
2. Ecology of diseases - Environmental and other associated factors - Spatial pattern of cholera and gastro-enteric diseases - Malaria, leprosy, tuberculosis- Heart diseases and cancer.
3. Rural environment and health - Custom, social practice and disease - Food habit and health- Environment and health - Health problems of tribal communities with special reference to India.
4. Urban environment and health - Occupational health hazards - Environmental Pollution and related impact on health in urban and peri-urban areas - Relevant case studies.
5. Geography of health care - Relevant Contributions - Welfare Approach and its relevance to health care – Health care delivery: A systems approach - Cross country comparisons.
6. Health care system in India - Socio-political context - Sources of health care – Demand and supply - Socio-spatial accessibility and hierarchy of the system – significance of primary health care - Rural-urban divide – Planning of health care delivery.
7. International organisations and health care policy in India - Role of government and market - Health inputs – Critical appraisal of Indian health policy
8. Health care planning in developing countries - Contemporary issues – Globalisation and impact on health care - Need for a balanced approach.

Text-Books:

1. Akhtar, R. and Learmonth, A.T.A. (eds) (1956): Geographical Aspects of Health and Disease in India, Concept Pub. Co.
2. McGlashan, N.D(ed)(1972): Medical Geogranhy: Techniques and Field Studies, Methuen.
3. Pacione, M. (1986):.Medical Geography: Problems and Prospect, Croom. Helm.
4. Smith, D.M.(1977): Human -Geography, A Welfare Approach, Arnold Heinemann.
5. McGlashan, N.D. and Blunde J.R.(eds)(1983):Geographical Aspects of Health, Academic Press.
6. Trevethick, R.A.(1973): Environmental and Industrial Health Hazards, William Heinemann Medical Books Ltd.
7. Bhat, V.N. (1980):Public Health in India, Amar Prakashan.
8. Banerji, D. (1985):Health and Family Planning Services in India, Lok Prakash, New Delhi.

Books for further reading:

1. Pyle, G. F.(1979): Applied Geography, Wiley & Sons.
2. Howe, G.M.(1977): A World Geography of Human Diseases, Academic Press.
3. Denton, J.A. (1978) : Medical Geography, Houghton Mifflin, U.S.A.
4. Eyles, J. and Wood, K.(1983):The Social Geography of Medicine and Health, Croom Helm.
5. Learmonth, A.T.A.(1988): Ecology of Diseases, Blackwell.
6. Bastide, R.(1972): The Sociology of Mental Disorder, Routledge and Kegan Paul.
7. Banerji, D. (1986) :Social Sciences and Health Services in India, Lok Prakashan, New Delhi.
8. Misra, R.P.(1970): Medical Geography of India, National Book Trust of India.

C 11 - Theoretical Geography:

1. Geographical discourse - Social construction of the discipline - Geography as a situated knowledge - Dichotomy and exceptionalism - Areal differentiation, fragmentation and coherence.
2. Places of theory and geographical interest - Kuhn: paradigms and scientific revolutions- Foucault: truth and power - Habermas: power, knowledge and truth - Theory and practice in geography.
3. Geography and Society - Classical context and non-formal age - Advent of classical formal geography. – Cartography and exploration- Institutionalised geography - Emergence of geography as an academic formal discipline- .
4. Geography as an empirical analytical science - Systems and process- Logical positivism - Process and form in physical geography - Environment and regional geography - Behaviorialism in Geography - Approaches to systematic human geography.
5. Philosophy and Methodology - Significance of philosophy and its placement – Methodology and explanation - Theory building in geography.
6. Explanation, relevance and social origins of concern - Geography as historical-hermeneutic science – Phenomenology and geography.
7. Spatiality and Time - Dialectic of space and time geography – Time -space and area - Social construction of space and time - Towards a humanistic geography.
8. Geography and the production of knowledge - Radical geography and a structuralist alternative -Reality and realism in geography - Ideology and Ethics Geography as a critical science - Towards a critical geography.

Text-Books:

1. Davies, M.K.D.(1972):Conceptual Revolution in Geography, University of London Press Ltd.
2. Unwin, T.(1992): The Place of Geography, Longman.
3. Barnes, T. and Gregory, D.(1997): Reading Human Geography, Arnold.
4. Mitchell, B. and Draper, T.(1982): Relevance and Ethics in Geography, Longman.
5. Gregory, D. (1978):Ideology, Science and Geography', Cambridge University Press.
6. Stoddard, D.R.(1986): On Geography, Basil Blackwell.

7. Pickles, J.(1985): Phenomenology, Science and Geography, Cambridge University Press.
8. Carlstein, T., Parkes, D. and Thrift, N.(1978): Making Sense of Time, Edward Arnold.
9. Harvey, D.(1969): Explanation in Geography, Edward Arnold.
10. Hussain, M. (ed)(1993): Perspectives and Nature in Geography, Vol. I to V, Anmol Publications.
11. Haggett, P.(1983):Geography: A Modern Synthesis, Harper and Row.

Books for further reading:

1. Johnston, R.J.(1985):Future of Geography, Methuen, London.
2. Woolridge, S.W. and East W.G.(1970):Spirit and Purpose of Geography, Hutchinson University Library, London.
3. Harvey, D.(1985): Conciousness and the Urban Experience, Basil Blackwell
4. Gale, S. and Olsoon, G. (1979): Philosophy in Geography' D. Reidel Publishing Co.
5. Paterson, J.L.(1984): David Harvey's Geography' Croom Halm.
6. Carlstein, T., Parkes, D and Thrift, N.(1978): Human Activity and Time Geography, Edward Arnold.
7. Entrikin, J.N. and Brunn, S.D.(1989): Reflections on Richard Hartschorne's The Nature of Geography, Association of American Geographers.
8. Deskins, D.R.(Jr.), Kish, G., Nystuen, J.D. and Olsson, G.(1977): Geographic Humanism, Analysis and Social Action, Michigan University.
9. Hussain, M.(1990):Evolution of Geographic Thought, Rawat Publications.
10. Taaffee, E.(ed)(1970): Geography, Prentice Hall.

C 12 Development of Modern Geographical Thought

1. Introducing geographical thought – Philosophy of Geography – Early modern geography – Growth of geography as a spatial science.

2. Logical Positivism in Geography – Explanation and search for scientific routes – Existential phenomenology and humanistic geography.
3. Welfare approaches in geography – Radical geography, Marxism and Marxist geography – Political economic perspective in geography.
4. New models of environment and resources – Resource management and natural hazards – Changing meaning of environmentalism – Modern environmentalist concepts and challenges.
5. Reconstructing regional geography – New models of regional change – Economic social and cultural dimensions of regional geography – Regions and political life - Civil society, political systems and territorialisation of power.
6. Feminist geography and the concept of gender- Place, space identity and gender – Relevant theories- Gender, nation and international relations.
7. New models of geopolitical change – Post-cold war democracy and human rights – Geopolitics in the era of globalisation – Contrasting superpowers in a world of global dangers.
8. Post-colonial and postmodern geography – Geography in the era of globalisation – Peripheral capitalism, restructuring of world economy and regional problematics – Crisis of modernity – Towards a critical geography.

Text-Books:

1. Peet, R.(1998):Modern Geographical Thought, Blackwell.
2. Lefebvre, H.(1991):The Production of Space, Blackwell (Translated by D. Nicholson-Smith).
3. Harvey, D.(2001):Spaces of Capital:Towards a Critical Geography, Edinburgh University Press.
4. Harvey, D.(1989):The Condition of Postmodernity, Blackwell.
5. Blunt, A. and McEwan, C. (2002): Postcolonial Geographies', Continuum.
6. Unwin, T. (1992):The Place of Geography, Longman.
7. Harvey, D.(1969):Explanation in Geography, Edward Arnold.
8. Cloke, P. et.al., (eds.)(1999):Introducing Human Geographies, Arnold.
9. Peet, R. and Thrift, N.(eds.): New Models in Geography, Vol.I & II, Unwin Hyman.

10. Livingstone, D.N.(1992): The Geographical Tradition, Oxford: Basil Blackwell.

Books for further reading:

1. Knox, P. et. al., (1989):The Geography of the World Economy, Arnold.
2. Davies, W.K.D.(1972): Conceptual Revolution in Geography, University of London Press.
3. Johnston, R.J. (1982):Geography and Geographers, Edward Arnold.
4. Gregory, D.(1978):Ideology Science and Human Geography, Macmillan.
5. Johnston, R.H. (1985):Future of Geography, Methuen.
6. Gale, S. and Olson, G. (1979):Philosophy in Geography, D. Reidel Publishing co.
7. Pickles, J. (1985): Phenomenology, Science and Geography.
8. Sandbach, F. (1980):Environment, Ideology and Policy, Oxford: Basil Blackwell.
9. Burton, I. and Kates, R.W. (eds.)(1986):Geography, Resources and Environment, Vols. I & II, University of Chicago Press.
- 10.Taylor, P.J.(1996):The Way the Modern World Works: World Hegemony to World Impasse, John Wiley.