

APPENDIX – 14 (R)
INSTITUTE OF DISTANCE EDUCATION

UNIVERSITY OF MADRAS
M.Sc. DEGREE COURSE IN GEOGRAPHY

REVISED REGULATIONS

(Non- Semester)

(With effect from the academic year 2011-2012 onwards)

1. ELIGIBILITY FOR ADMISSION

A Candidate who (1) has passed B.A. / B.Sc. Degree Examination of this University with Geography as the main subject of study or (2) is a gradate in any faculty (viz.) Arts, Science, Commerce, Languages, Law, Engineering or (3) an equivalent examination of any other university is eligible for admission

2. DURATION

The course of the Degree of Master of Science shall consist of two academic years.

3. MEDIUM OF INSTRUCTION: English

4. COURSE FOR STUDY AND SCHEME OF EXAMINATIONS.

FIRST YEAR

Paper	Name of the Courses	Exam Hours	Marks
I	Physical Geography	3	100
II	Cartography, GIS and Remote Sensing	3	100
III	Geography of India and Regional Planning	3	100
IV	Geography of Environment, Culture and Politics	3	100
V	Practical I – Cartographic methods & Map Analysis	3	100 Exam 60 Record 40

SECOND YEAR

Paper	Name of the Courses	Exam Hours	Marks
VI	Population and Settlement Geography	3	100
VII	Geography of Resources	3	100
VIII	Geographical Thought	3	100
IX	Practical II – Quantitative Techniques and Spatial Analysis	3	100 Exam 60 Record 40
X	Project: Applications of Geospatial Technology / Quantitative Techniques	100 (Report 60: Viva 40)	

5. PRACTICALS AND CONTACT SESSIONS

Practical sessions for a total period of five days in terms of practical cum seminars will be conducted and the attendance for such seminar/practical is compulsory and a minimum of 80 percent of attendance to be gained by each candidate. The practical examination shall be conducted on the sixth day, after completion of the practical exercises. For the purpose of examination, the record work completed and duly signed at the Compulsory Practical Contact Sessions alone will be considered for examination. All practical exercises will be recorded in A4 Size sheets and filed or bound appropriately.

6. PROJECT WORK

The Project work is an extended piece of work carried out largely independently. The candidate shall submit project report at the end of the second year. The Viva on the project will be conducted after evaluation of the Project work.

The Project work will be carried out in the distance education computer lab or approved educational institution labs, where the GIS/Remote Sensing/Statistical Software or map facilities are available. By using such software a set of maps or statistical analysis report should be prepared and interpreted from the report. Such project undertaken by the Distance Education Stream shall be compulsory for a period of five continuous days. The Viva- voce examination shall be conducted on the sixth day, after completion of the full report.

7. PASSING MINIMUM

A candidate shall be declared to have passed in each paper / practical / project if he/she secures not less than 50 percent of the marks in each paper / practical / project. Candidate who do not obtain the required minimum marks for a pass in a paper(s) / practical / project shall be required to appear and pass the same at a subsequent appearance.

8. CLASSIFICATION OF SUCCESSFUL CANDIDATE

Candidates who secure not less than 60 percent of the aggregate marks in the whole examination shall be declared to have passed the examination in the First Class provided they pass all the examinations prescribed for the course.

Candidates who secure not less than 50 percent shall be declared to have passed the examination in the Second Class, provided they pass all the examination prescribed for the course.

Candidates who obtain 75 percent of the marks in the aggregate shall be deemed to have passed the examination in First Class with Distinction provided they pass all the examination prescribed for the Course at the First appearance.

9. RANKING:

Candidate who pass all the examinations prescribed for the course in the first appearance only are eligible for ranking.

10. PROCEDURES FOR CONDUCTING PRACTICALS AND PROJECT WORKSHOP

Conduct of Practical Classes / Practical Examinations

Geographical Practicals involve mastering of designing and analysis of Maps. There are a number of techniques involved to prepare, organise and bring out a map. Map making is basically specialised drawing skill / technology. The following Man Power requirement is necessary for conducting Practicals and project workshop:

1. Co-ordinator for each centre (1)
2. Chief Tutor (1) for each batch of 20-30 students of a class throughout the completion of the work
3. Tutors / Talents (2 to 4) for each day for each batch the programme shall be organised into four sessions; each session is handled by a tutor or session wise. The tutor is paid if he engages more than one session. However, except unavoidable circumstances a tutor may not be engaged continuously for more than two sessions for a batch for a day.
4. Skilled Assistants (3) For each batch of 20-30 students, three skilled assistants shall be provided for a stretch of two sessions i.e. skilled assistant shall be paid for half a day period. Different set of skilled assistants be involved in the morning and afternoon sessions.

The skilled Assistant may be treated on par with Tabulators or at a higher level. The skilled assistant in geography shall be from a qualified geographer. A skilled assistant engaged he/she should have been qualified at Under Graduate or Post Graduate level. No other graduates should be engaged as skilled assistant.

11. MAN POWER REQUIREMENT JUSTIFICATION

(A) Co-ordinating the work of a PCP / Examination Centre

Co-ordinator

Each centre shall have a Co-ordinator. Duties of the Co-ordinator include search and fixing of talents / tutors, chief tutors, skilled assistants, manager, secretariat assistants and others (peon, watchman and cleaning staff). It is the duty of the Co-ordinator to oversee the distribution of required lab. Materials such as drawing sheets, tracing paper, graph sheets and work book. He will co-ordinate administration and finance and maintain all accounts.

He is authorised to receive payments and materials for purpose of conducting practical examination for the respective centres by Distance Education. Irrespective of the batches he shall co-ordinate the entire programme for one set of students for a given year. The Distance Education shall appoint co-ordinator on yearly basis on the recommendations of the Convener of the programme.

(B) Lab Man Power for a batch of 20-30 students

Since geography practical involves cartography work which is both design and precision work, it is recommended that a batch of 20-30 students shall be restricted in a class room for the conductance of practical class / Lab.

1. Chief Tutor

The Chief Tutor is responsible for a batch of 20-30 students for the class room / lab room maintenance and organisation. The Chief tutor shall be a Senior Geographer who will be conversant with Cartography practicals and knowledge in map designing and interpretation. He has to co-ordinate with work of other tutors for maintaining record work of the students: it includes

completion of assigned exercises on each day both of the talents/ tutors and the students.

The programme shall be managed in such a way that the work on each exercises both on the record sheets and on progress chart shall be marked everyday in the lab itself. It is the duty of the Chief tutor to manage cartographic materials required for the lab work such as topographic sheets, thematic maps, measuring scales, display boards, OHP, and all such other materials as and when required in addition with the drawing materials which have been received from the co-ordinator. He is to certify not only the 5 days attendance of the candidates but also the candidates work completion and co-ordination in the class room (tutors and skilled assistants) of the work of the staff.

The Chief Tutor is responsible for organising the last minute changes if any for tutors /talents / skilled assistants and the allotted practical for the day at unforeseen circumstances.

2. Tutor / Talent

Talents for the geography practicals may appropriately called as tutors as they have to give a tutorial which demonstrates the lab work. It is the skill of the tutor in the act of his class room performance he will convey the art and technique of map making, map interpretation and map analysis. The tutor will describe the procedure about work and examples for about 20 minutes. This will present a methodology to the students to continue the lab work.

3. Skilled Assistants

For a group of 7-10 students one Skilled Assistant shall be provided. In other wards for a batch of 20-30 students 3 Skilled Assistant shall be provided to help the tutors and students in the lab. One of the Skilled Assistant shall be responsible for the maintenance of the cartographic materials such as maps, instruments and display equipments (Aerial photos, Satellite imageries, Survey of India maps, Log books).

All the 3 Skilled Assistants shall help the candidates for the following:

- (a) Calculation and derivation of index values for mapping.
- (b) Assisting them in assigning maps for appreciation; interpretation.

- (c) Logistics for class interval selection and scale strategy for thematic mapping.
- (d) Symbolization, legend organisation and layout of the maps etc.
- (e) Organising the report of each of the exercises in the formatted manner.

14. GENERAL INSTRUCTIONS

- Duration of the practicals : 5 days
 1-5 days practical exercises in the class room/lab (minimum of 5-6 exercises per day and a minimum of 25 exercises to be completed within 5 full days)
 6th day Examination
- Duration of the Project : 5 days
 1-5 days (research theme selection, review of literature, data collection, data analysis in the lab, report writing and submission of Project report)
 6th day Viva-Voce Examination
- Attendance : Since the practicals and projects are assessed based on continuous work, the attendance is compulsory
- Practical/Project materials : The Practical and Project materials such as record sheets, tracing sheets, graph sheets and one folder will be given to each student.

To avoid the malpractice, the Data sheet will be prepared for every batch/year and will be distributed to the students in the first day of the practical class.

APPENDIX – 14 (S)
INSTITUTE OF DISTANCE EDUCATION

UNIVERSITY OF MADRAS
M.Sc. DEGREE COURSE IN GEOGRAPHY

REVISED SYLLABUS
(Non- Semester)

(With effect from the academic year 2011-2012 onwards)

PAPER – I : PHYSICAL GEOGRAPHY

1. Fundamental concepts : Factors controlling landform development: Endogenic and Exogenic forces: Origin and evolution of the earth's crust: physical conditions of the earth's interior – classification of rocks
2. Continental drift and Plate tectonics: concepts and theories: Volcanicity: Earthquakes : mountain building : classification of mountains : geosynclines : theories of mountain building
3. Weathering and mass movement: weathering and weathering zones - type of weathering Mass wasting: controlling factors – classification of mass movement - Geomorphic cycle
4. Erosion, Transportation and depositional Landforms : fluvial, glacial, arid, coastal and karst landforms: Applied Geomorphology: meaning and concept – geomorphologic application in hydrology, land use planning, mineral exploration and hazard management
5. Climatology : Origin, composition and structure of the atmosphere; insolation; Heat budget of the earth; Distribution of temperature, atmospheric pressure and motion general atmospheric circulation
6. General atmospheric circulation : mechanism of general circulation – tri cellular meridional circulation - jet streams – El Nino – La Nina - Southern Oscillation: Local and seasonal winds : period local winds – non-period local winds - monsoons: concept of the origin of monsoons – origin of Indian monsoon
7. Fogs, Clouds and precipitation: Air-masses: Characteristics of major air masses – classification of air masses: Frontogenesis: Fronts and frontogenesis – classification of fronts – frontal zones: Cyclones and anti-cyclones: general characteristics – types – source regions and tracks
8. Classification of world climates; Koppen's and Thornthwaite's Schemes; Hydrological Cycle: Climate change: meaning and concept – indicator of climate change- causes and theories of climate change: Global warming: evidence of global warming – processes of global warming

9. Origin of ocean basins: Continental shelf, slope, rise and abyssal plains: bottom relief of Indian, Atlantic and Pacific Oceans; ocean deposits; coral reefs; temperature and salinity of the Oceans; Density of Sea water
10. Waves, Tides and ocean currents: thermohaline circulation and the oceanic conveyor belt: sea-level changes; Ocean hazards: Sea-level changes – Pollution on marine environment including fisheries – climate change on marine bio-diversity – Coastal Zone Management

References

1. Ahnert, Frank (1996), "Introduction of Geomorphology", John Wiley & Sons, New York
2. Briggs (1993), "Fundamentals of Physical Geography", Copp-Clark Pitman Ltd., Toronto.
3. Dale, F.Ritter (1986), "Process Geomorphology", William C. Brown Publishers, USA
4. Thornbury, William (1969), "Principles of Geomorphology", John Wiley & Sons, New York
5. Das, P.K. (1968), "The Monsoons", National Book Trust, India
6. Howard, J.Critchfield (1995), "General Climatology", Printice Hall, Delhi, India
7. Morgan R.S. and Wooldridge S.W (1959), "Outline of Geomorphology the Physical basis of Geography", Longmans Green, London
8. Roger, G. Barry & Richard.J Chorley (1990), "Atmosphere, Weather and Climate", Routledge, London
9. Savindra Singh (2005), "Climatology", Prayag Pustak Bhawan, Allahabad, India
10. Savindra Singh (1998), "Geomorphology", Prayag Pustak Bhawan, Allahabad, India
11. Worcester P. G. (1948), "Textbook of Geomorphology", Princeton, D.van, Nortrand.

PAPER – II : CARTOGRAPHY, GIS AND REMOTE SENSING

1. Cartography as communication system – Nature and Scope of Cartography – Growth of modern cartography – Major divisions in cartography – earth as a cartographic problem - Scales and their functions – directions and co-ordinates – map projections and their functions
2. Collection and interpretation of statistical data - Compiling maps from other maps – map design and layout – lettering and toponomy – mechanics of map construction – mapping the terrain, climate and socio-economic data - Thematic mapping
3. Map design and layout – lettering and toponomy – mechanics of map construction - Map reproduction – cataloguing, storing and marketing of maps – Digital mapping: need of digital mapping
4. Introduction to GIS – definitions - Hardware and software requirements for GIS - Data structure and formats - Spatial data models: Raster and Vector

-Data capturing in GIS - Data base design - editing and topology creation in GIS - Linkage between spatial and non spatial data

5. Spatial analysis – spatial and Attribute Query, Vector and Raster based spatial data analysis
- Buffer and overlay analysis – Network analysis – DEM – TIN
6. Data quality and sources of errors - Integration of RS, GPS and GIS data - Data analysis and modeling in GIS– types of GIS modeling- Decision support systems - Overview of GIS Packages – Recent Trends in GIS: AM/FM, Virtual 3D GIS, OLAP, Internet GIS, Open GIS
7. Modern surveying : Aerial Photography: Types of aerial Photographs – resolution - Scale – Photographic overlap – Image Parallax – Flight Planning – air photo interpretation: Total Station : GPS: Types – Segments of GPS – triangulation - Signals – error sources in GPS: GPRS
8. Basics of Remote Sensing : Components of remote sensing – energy and EMR – energy interaction with atmosphere and surface features – Sensor and sensing – remotely sensed data products and formats
9. Satellite data interpretation : approaches in interpretation - Image interpretation elements – Types of Interpretation : Visual and Digital interpretation
10. Application of GIS, Remote Sensing and GPS: Natural Resource Management – Natural Hazards and disaster management – Business and community management.

References

1. Arson, R.W (1988),”Basic Cartography”, Elsevier, Applied Science Publishers, New York
2. Misra R.P, A.Ramesh (1989),”Fundamentals of Cartography”, Concepts Publishing Company, New Dellhi
3. Rabinson, H.Joel.L, Morrission, Philip C.Muekrche, A.John Kimerling and Stephen, C.Guptil (1995),”Elements of Cartography”, John Wiley & sons, USA
4. Ian Heywood, Sarah Cornelius and Steve Carver (2000),”An Introduction to Geographical Information System”, Addison Wesley Longman Limited, New York
5. Aronoff, S (1991),”Geographic Information System : A Management perspective”, WDL publications, Ottawa, Canada
6. Kang-tsung Chang (2002),”Introduction to Geographical Information Systems, Ta McGraw-Hill Publishing Company Limited, New Delhi
7. Avery, T.E and G.L.Berlin (1992),”Fundamentals of Remote Sensing and Air Photo Interpretation”, MacMillan Publishing Company, New Yourk
8. Burrough, P.A (1986),”Geographical Information System for Land Resources Assessment, Clarendon Press, Oxford

9. Lillesand, T.M and R.W Keifer (2000), "Remote Sensing and Image Interpretation", John Wiley & Sons, New York
10. Reeves, R.G (1979), "Manual of Remote Sensing", American Society of Photogrammetry
11. Jeff Hurn (1989), "GPS: A Guide to the Next Utility", Trimble Navigation

PAPER – III : GEOGRAPHY OF INDIA AND REGIONAL PLANNING

1. Geography of India : Physiographic divisions: Geological Structure: Drainage Systems : Climate : regional variation of climate: Climate regions of India
2. Forest : floristic regions – classification and distribution : Soils: Major soil types and distribution – problems and conservation: Agriculture: Land utilization – types of farming – characteristics of Indian agriculture – Agricultural regions - new trends in Indian Agriculture
3. Coastal and Marine resources: Irrigation :Irrigation potential - source of Irrigation: Multipurpose projects: Damodar Valley project – Kosi Project – Nagarjunasagar Project – Narmada valley project – Parambikulam Project – Tungabhadra Project and Indira Gandhi Canal Project
4. Energy Resources and distribution: Coal – Petroleum – Natural Gas: Electricity : Hydro, Thermal and Atomic : Non-conventional Energy: Wind, Solar, wave, Bio-energy and geothermal energy - Mineral resources: Distribution – reserves – Metallic and non-metallic minerals
5. Industrial Development : Major industries: Metallurgical, Textile, Engineering, Chemical and allied industries - Industrial regions; Transports : Road, Rail, water and pipe line networks – problems and prospects: Foreign trade: Volume of foreign trade – composition and direction of import and export – India's Trade Policy
6. Population: Growth, Distribution and Density of population – age composition – Sex ratio – Literacy – occupational structure – religious composition - population issues: Malnutrition – Migration – Population policies
7. Settlements: Types, patterns and morphology of rural settlement: Urban settlement: morphology of Indian cities; functional classification of Indian cities; conurbations and metropolitan regions; urban sprawl; slums and associated problems; town planning; problems of urbanisation.
8. Regional Planning : Regional concept of Geography: Nature and scope of Regional Planning: Concept of Planning Regions ; Regional Hierarchy : Types of regions and methods of regional delineation

9. Conceptual and theoretical framework of regional planning : Concept of development: Indicators of development; Regional disparities in social and economic development
10. Regional Planning in India : Experience of regional planning in India - Five Year Plans; Integrated Rural Development Programmes; Panchayath Raj and Decentralised Planning; Command Area Development; Watershed Management; Planning for Backward Area, Desert Drought-prone, Hill and Tribal Area Development planning

References

1. Nagi B.S (1990), "Geography of India, Kedarnath Ramnath, Meerut, India
2. Deshpande C.D.(1992), "India : a regional Interpretation", ICSSR and Northern Book Center, New Delhi
3. Dreze, Jean and Amartya sen (1996), "India Economic Development and social opportunity", Oxford University press, New Delhi
4. Kundu A. Raza Moonis (1982), "Indian Economy : The Regional Dimension, Spectrum Publishers New Delhi
5. Robinson Francis (1989), "The Cambridge encyclopedia of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan & Maldives", Cambridge University Press London
6. Sing R. L. (1971), "India Regional Geography", National Geography Society, India , Varanasi 1971.
7. Spate OHK and ATA Learmonth (1997), "India and Pakistan", Menthuen London
8. Tirtha R. and Gopal Krishna (1986), "Emerging India", Reprinted by Rawat publication, Jaipur
9. Tiwari R.C (2006), "Geography of India", Prayag Pustak Bhawan, Allahabad
10. Kuriyan G (1970), "India : A General Survey", National Book Trust, New Delhi

PAPER – IV : GEOGRAPHY OF ENVIRONMENT, CULTURE AND POLITICS

1. Definition environmental geography - Components of physical environment and their interrelations – Physical factors influencing world distribution of plants and animals
2. Concept of ecosystems - components and structure of ecosystem - Major ecosystems of the world - Forms and functions of ecosystem : Forest – Grassland, Marine and mountain ecosystems
3. Bio-diversity and its depletion through natural and man induced causes - Conservation and management of ecosystems
4. Environmental degradation and Management: land, water and air Pollution - Environmental hazards and remedial measures - Environmental education and legislation.

5. Environmental ethics – Concept of Sustainable Development – Sustainable development projects – Case studies
6. Political Geography : Definition and scope of Political geography – Geo-politics – Global strategic views (Heartland and Rimland theories)
7. Concept of Nation, State and Nation-State – Boundaries and frontiers – Politics of world resources – Geography of Federalism
8. Social Geography : Nature and scope of social geography – Social structure and social processes – Elements of Social Geography – ethnicity, tribal, dialect, language, caste and religion – Concept of social well-being
9. Cultural Geography: Nature and scope – Environment and culture – Concept of culture-areas and cultural regions – Theories of Tribal groups – Dwelling places and cultural expressions
10. Ethnic regions – cultural diffusion and ethnicity – ethnic cultural integration

References

1. Dikshit R.D (1994),”The art and Sciences of Geography : Integrated readings”, Prentice Hall Private Limited, New Delhi
2. Mohmmmed Shafi and Mehdi raza (1994),”Geography of Environment, Rawat Publications, Jaipur
3. Andrew R.W., Jackson and Julie, M.Jackson (1996),”Environmental Science”, Addison Wesley Longman Limited, UK
4. Sharma P.D (1995),”Ecology and Environment”, Rastogi Publications, Meerut
5. Krishnan Kannan (1991),”Environment Pollution”, S.Chand & Co, New Delhi
6. Asthana D.K and Meera Astana (1998),”Environmental problems and Solutions”, S.Chand & Co. New Delhi
7. Eldon D.En ger and Bradley F.Smith (1988),”Environmental Science – A Study of relationships”, WCB, BcGraw Hill, Boston
8. Rubenstein, J (2005),”An Introduction to Human Geography: The Cultural Landscape”, Prentice Hall, New York
9. Sharma, Savita Anand (1986),”Rural Settlements : A Cultural ecological Perspective”, Inter India Publication, New Delhi.
10. Money D.C (1967),”Introduction to Human Geography, University Tutorial Press Ltd., London.

PAPER – V : PRACTICAL – I : CARTOGRAPHIC METHODS AND MAP ANALYSIS

1. Construction and interpretation of Profiles – Serial, Superimposed, Projected and Composite profile – River Thalweg

2. Slope and morphometric analysis – Wentworth, Smith, Robinson and Raize methods of slope analysis – morphometric analysis of drainage basin – numbers, order, length and area bifurcation ratio and other ratios – drainage density
3. Climatic graphs – climograph – Foster's and Taylor's – Climatograph – Dispersion graph – Ergo graph
4. Analysis of Indian Daily Weather Charts and rainfall variability maps – Deviation graphs
5. Statistical diagrams and Block diagrams
6. Appreciation of Cartographic techniques in SOI sheets – appreciation of thematic maps of NATMO and Census of India
7. Map conventional signs and symbols
8. Interpretation of topographical maps for relief features, settlement, vegetation and land use
9. Aerial photo interpretation – interpretation – preparation of thematic maps
10. Sampling methods and land cover / land use estimation

References

1. Lawrence G.R.P (1971), "Cartographic methods", Methuen and Co., London
2. Dury G.H (1952), "Map Interpretation", Sir Issac Pitman and Sons Ltd., UK
3. Garmier B (1964), "Practical Work in Geography", Edward Arnold Publishers, London
4. Worthington B.D.R and Robert Gant (1975), "Techniques in Map Analysis", Ebenzer baylis and Sons Ltd., London
5. Nag P, and G.N. Saha (1996), "Geomorphological Mapping", NATMO, Calcutta
6. Robinson H., et.al (1995), "Elements of Cartography", John Wiley and Sons, USA
7. Monkhouse F.J and Wilkinson H.R (1976), "Maps and Diagrams", Methuen and Co., London

SECOND YEAR

PAPER – VI : POPULATION AND SETTLEMENT GEOGRAPHY

1. Nature and Scope of population geography – Sources of population data –Problems relating to reliability and comparability of data - recent trends in population studies
2. Factors influencing the distribution and density of population – growth, pattern and density of world population - factors affecting the growth of world population – population policies and issues
3. Population explosion – Population cycle – Population growth – fertility, mortality patterns – demographic determinants - Demographic transition

4. Patterns and processes of migration – Types of migration – causes and consequences of migration – social and cultural transformations – economic transformations
5. Population and resource implications – population as human resources – population and resource concepts – major population theories – population, resource conservation and sustainable development
6. Rural settlement : Site, situation, type, size, spacing and internal morphology of rural settlement – rural landscape of India
7. Urban settlements: Ecological processes of urban growth – classification – Nelson, Harris classification - urban landuse patterns urban growth – urban landuse models
8. Urban problems : urban pollution, urban heat islands, land and water contamination, solid waste management, urban crime, political and ethnic segregation
9. Settlement theories – Von Thunen, Christaller’s Central Place Theory, August Losch’s Theory of market centres – urban landuse theories – growth theories – growth pole concepts
10. Indian Settlements – Villages – urbanization – towns and cities problems of Indian villages and towns.

References

1. Clerk, I, (1984),”Geography of Population”, Approaches and Applications, Pergamon Press, Oxford, UK
2. Chandna, R.C (1984),”A Geography of Population”, Kalyani Publishers, New Delhi
3. William F.Hornby and Melvyn jones (1990),”An introduction to Population Geography”, Cambridge University Press, Cambridge
4. Kayastha, S.L (1998),”Geography of Population”, Rawat Publications, Jaipur
5. Singh, R.Y (1998),”Geography of Settlements”, Rawat Publications, Jaipur
6. Singh, R.P (1972),”Rural Settlements in Monsoon Asia”, National Geographical Society of India, Varanashi
7. Bourne L.S (1971),”Internal Structure of the City”, Oxford, UK
8. Ray M Northam (1979),”An Introduction to Urban Geography”, John Wiley & Sons.
9. Murphy R.E (1967),”The American City:An Urban Geography”, McGraw Hill Publications, New York
10. Davis, M. (2004),”The Urbanization of Empire: Megacities and the Laws of Chaos”, Social Text, 22(4), pp. 9-15.

PAPER – VII : GEOGRAPHY OF RESOURCES

1. Concept of Natural Resources - Meaning, definition, importance and characteristics of resources – Types of resources - Identification and classification of resources – Factor affecting utilization of resources – resource conservation
2. Physical Resources: Soil formation and composition – Soil erosion and conservation – Surface and groundwater – Water management – Rain water harvesting – Watershed Management – Forest types - Forest products- demand and supply - Tribal and forest – Forest management
3. Importance of wildlife, abuse and depletion of wildlife, Wildlife conservation- classification of scarce wildlife, Methods of wildlife conservation, World Endangered species
4. Mineral resources – mineral regions – power resources – metallic minerals – non-metals and chemicals
5. Energy resources – sources of energy – conventional and non-conventional energy - Impact of energy utilization on environment
6. Agricultural Geography : Concept and techniques of delimitation of agricultural regions – Measurement of agricultural productivity and efficiency – Crop combinations and diversification – Von Thunen’s Model – Agricultural systems of the world
7. Economic Geography : Location of economic activities and spatial organization of economies: Classification of economies : Sectors of Economy : Primary, Secondary, Tertiary and quaternary
8. Industrial Geography : Classification of industries – Weber’s and Losch’s approaches – Resources based and footloose industries
9. Geography of Transport and Trade: Models of transportation and transport cost – Accessibility and connectivity – inter-regional and Intra-regional – Comparative cost advantages
10. Resource Assessment : Land evaluation methods – land classification methods – land use study and planning: Water resource assessment – coastal and ocean resource management

References

1. Rodgers and Panwar (1988),” Planning Protected Area Network in India”, Vol. I & II.
2. Khoshoo, T.N (1988),” Environment Concerns and Strategies”, Ashish Pub. House, Delhi.

3. Pachauri R. K. & Sridharan (1997),” Looking back to Think Ahead”, The Energy Research Institute, New Delhi
4. R. F. Dasmann, R.F (1968),” Environment Conservation”, John Willey and Sons, New York.
5. Khanna and gupta (1982),”Economic and commercial Geography”, Sultan Chand and sons, New Delhi
6. Balbir Sing Negi (1979),”Geography of Resources’, Kedamath Ramnath Publisher, Meerut
7. Sadhukah, S.K (1990),”Economic Geography”, S.Chand and Company, New Delhi
8. Prithwish kumar Roy (1992),”Economic Geography”, New Central Book Company, Calcutta.
9. Sharma, P.D (1995),”Ecology and Environment”, Rastogi Publication, Meerut
10. Asthana, D.K and Meera Astana (1998),”Environmental Problems and Solutions”, S.Chand and Co., New Delhi

PAPER – VIII : GEOGRAPHICAL THOUGHT

1. Nature of geography - Greek contribution to Physical geography, Human geography, Cartography, Mathematical geography – Contribution of Romans: Sytrabo, Ptolomy, Pomponius Mela, Lifermanus – Arab contribution to geography
2. Ancient Indian Geographical Thought – Sources of information – Contribution of Indians – Geography of India, Dwipas, seasons – earth and sun
3. Major exploration and discoveries : Contribution of Megallan, Vascodagama, James cook, Cahristopher Columbus – Contribution of modern geographers : varenias, Immanual Kant, Alexander Von Humbolt, Carl Ritter
4. Determinism and Possibilism, New Determinism – Contributions of Radzel, Ellensempel, La blaches, Ellsworth, Huntington, Griffith Taylor
5. Dualism in Geography : Systematic and regional geography: Physical and human geography – The myth and realism about dualisms – Regional Geography: Concepts of a region, regionalization and regional methods
6. Scientific explanations: Deductive, inductive logic; types of explanations – cogitative description – cause and effect – temporal, functional and ecological systems
7. Theories and models in geography – quantitative revolution and paradigms
8. Themes in Geography – Positivism – Pragmatism – Behaviourism – functionalism – idealism – realism and Marxism
9. Modern political ideas – Heartland concept of Halford Mackindei – Rimland Theory of Spikeman – Social Darwinism of F.Ratzel
10. Spheres of influences NATO – COMECON – SEATO – OPEC and Non-Alignment Countries

References

1. Amedee D and Golledge, R.G (1975),”An Introduction to the Scientific Reasoning in Geography, Random House, New York
2. Beazley C.R (1949),”The Dawn of Modern Geography”, Vol.III, New York

3. Hartshorne R.(1959),”Perspective and Nature of Geography”, Rand Mc Nally and Co., New Delhi
4. Fuchs R.J and Demke G.J (1977),”Theoretical Problems of Geography”, Ohio State Press, Ohio
5. Haggett P (1966),”Locational Analysis in Human Geography”, New York
6. Mackiner H.J (1904),”The Geographical Pivot of History”, Geographical Journal, Vol.23
7. Majid Hussian (2001),”Evolution of Geographical Thought”, Rawat Publications, New Delhi
8. Peet R (1977),”The Development of Radical Geography in U.S”, Radical Geography, Chicago
9. Penrose B (1952),”Travel and Discovery in renaissance”, Cambridge University Press, Cambridge
10. Simmons I.G (1997),”Changing the face of the Earth: Culture, Environment, History”, Blackwell, Oxford.

PAPER – IX : PRACTICAL II - QUANTITATIVE TECHNIQUES AND SPATIAL ANALYSIS

(a) Quantitative Techniques

1. Located Diagrams – Circle, Sector, sphere, Pyramid and Dot methods
2. Mapping of Density – Choropleth, Isarithmic maps and Dasymetric Analysis – Complex thematic mapping
3. Measures of geographical pattern – Point pattern: Rn Index, Index of concentration, Application of centographic techniques, Mean and Median centres
4. Line patterns: Simple network analysis, flow diagram and ray diagram
5. Simple correlation and regression analysis: Chi-square analysis, “F” test and “t” test

(b) Spatial Analysis

6. Satellite data – Image elements – Interpretation keys
7. Satellite data – thematic layers preparation – area calculation
8. Spatial data encoding – Data Dictionary
9. 3D Modelling in GIS platform
10. Buffering operations

References

1. Gregory S. (1971), "Statistical Methods in Geography", Orient Longman, New Delhi
2. Hammond R. and P.S McGullah (1970), "Quantitative Techniques in Geography in Geography, Oxford University Press, UK
3. David M. Smith (1977), "Patterns in Human Geography", David and Charles Ltd., New York
4. George J Demko, Harold M. Rose and George A. Schnell (1970), "Population Geography – a Reader", McGraw Hill Publishers, New Delhi
5. Monkhouse F.J and H.R Willimon (1976), "Maps and Diagrams", Methuen & Co. London
6. Ian Heywood, Sarah Cornelius and Steve Carver (2000), "An Introduction to Geographical Information systems", Addison Wesley Longman Limited, New York
7. Aronoff, S (1991), "Geographic Information Systems : A Management Perspective, WDL Publications, Ottawa, Canada.

PAPER X – PROJECT

APPLICATIONS OF GEOSPATIAL TECHNOLOGY / QUANTITATIVE TECHNIQUES

At the end of the first year, the problem of the project work will be decided and approved for each candidate. The candidate shall submit project report at the end of the second year. The Viva on the Project will be conducted after evaluation of the project report.

The project work, if offered under distance education, the work will be carried out in the distance education computer lab or approved educational institution labs, where the GIS / Remote Sensing / Statistical software or map facilities are available. By using such software a set of maps or statistical analysis report prepared and interpreted from the report. Such project undertaken by the Distance Education Stream shall be compulsory for a period of five continuous days. At the sixth day viva shall be conducted.
