

M.Sc - GEOGRAPHY (2018-2019 onwards)

SEMESTER - I

CORE – I – ADVANCED GEOMORPHOLOGY

- UNIT I** Nature – Scope and Content – Fundamental Concepts – Recent Trends
- UNIT II** Geomorphic process – Endogenic – Diastrophism - folds, faults – continental Drift theory – Plate tectonics – Mountain Building theories – geosynclinal theory of Kober, thermal contraction theory of Jeffrey, and thermal convection theory of Holmes - earth quake and volcanoes – Exogenic process – Weathering – Mass Movement – Soil formation .
- UNIT III** Gradational Process – Work of River, Normal cycle of erosion by Davis – Peneplain concept - Modification of the cycle - concept of Penck and King
- UNIT IV** Aeolian landforms – erosional and depositional - Glacial landforms – Erosional and Depositional - Underground water and karsts topography – landforms developed in limestone regions - Waves – erosional and depositional features – coast – Johnson’s classification of coast.
- UNIT V** Development of slopes – Ideas of Wood, Davis, Penck and King – Climatic geomorphology - Morphogenetic regions - Applied Geomorphology – Mineral exploration, Engineering, hydrology.

BOOKS FOR REFERENCE

1. Thorn Bury D. Principles of Geomorphology, Wiley Eastern Ltd. New Delhi – 1984.
2. Dayal P. A Text book of Geomorphology, Shukla book Dept, Patna – 1995.
3. Worcester P.G., A Text book of Geomorphology, Van Nostrand Rein holds Company, New york, 1948
4. Strahler, A.H and Strahler, A.N., Modern Physical Geography, New York, John Wiley & sons .INC

SEMESTER - I

CORE – II - APPLIED CLIMATOLOGY

- UNIT I** **Composition and structure of atmosphere, solar radiation - temperature – factors controlling the distribution of temperature – horizontal, vertical distribution of temperature – heat balance of the earth - Atmospheric Pressure – distribution - General circulation of the atmosphere –wind - systems - planetary – seasonal and local winds .**
- UNIT II** **Atmospheric moisture - Humidity, evaporation – condensation – clouds – Precipitation – types and forms - distribution – Air mass – classification-fronts - Thunderstorms - jet streams – Elnino and La Nina .**
- UNIT III** **Empirical and generic climatic classification – Koppen and Thornthuwaite – World Climatic regions – Climatic changes – evidences and theories .**
- UNIT IV** **Applied climatology – micro climate – agro climatology – concepts – elements – temperature – wind – rainfall – water budget – artificial rainfall.**
- UNIT V** **Urban climatology – micro climatic changes - global warming – heat island – health hazards – pollution – rainwater harvesting – man’s impact on climate.**

Reference Books

1. Lal. D.S., Climatology , Chatianya Publishing House, Allahabad, 1990
2. Howard J. Chritchfield, General Climatology, Prentice – Hall of India Pvt Ltd, 1987
3. Glenm.T.Trewartha and Lyes H. Horn An introduction to Climate, International Student Eidition , Mc Graw Hill International Book Company, 1980.
4. Peter Haggett, - Geography of Modern Synthesis , Hopper and Row Publishres INC, 1979
5. Berry R.G & Chorely R.J., - Atmosphere, Weather and climate , Mathew & co, London 1978

SEMESTER - I

CORE – III – HYDROLOGY AND OCEANOGRAPHY

- UNIT I** **Hydrological cycle – sub cycle – elements – precipitation, evaporation, infiltration, runoff .**
- UNIT II** **Drainage basin – characteristics, human impact on hydrological systems - Construction of dams and reservoirs – capacity changes – river draining – principles of water balance and its application.**
- UNIT III** **Ocean of the world - Atlantic, Indian and Pacific Ocean - relief temperature, salinity and density of ocean water - distribution**
- UNIT IV** **Movements of ocean water - waves, tides ,Tsunami – currents of Atlantic, Pacific and Indian oceans**
- UNIT V** **Ocean deposits - Origin Types and Distribution - Coral reef- - conditions for growth - types and distribution – theories .**

Reference Books

1. **H.M. Raghunath., Hydrology Principles, Analysis and design., Wiley Eastern Limited, New Delhi, 1986.**
2. **Richard J.Chorley., Introduction to Physical Hydrology – Methuen & CO LTD – 1977.**
3. **Lal .D.S., Oceanography**
4. **Grant Gross – Oceanography, Prentice – Hall International Editions , 1987**
5. **Sharma.R.C., and M.Vital – Oceanography for Geographers , Chatianya publishing house , Allahabad , 1987**
6. **Paul R. Pinet – Oceanography, West Publishing Company, 1992**

SEMESTER - I

CORE – IV - PRACTICAL – I TERRAIN MAPPING AND CLIMATIC DATA ANALYSIS

- UNIT - I** **Terrain data analysis - Profiles –Serial, Super imposed – projected and Composite – Slope analysis – Smith, Wentworth, Robinson Methods.**
- UNIT - II** **Drainage Basin analysis – stream ordering – Strahelr’s method – Bifurcation ratio, drainage density – shape of the drainage basin- Miller’s circulatory ratio.**
- UNIT - III** **Climatic data analysis – climatic diagram – E.E. Fosters climograph, climatograph – Thermo isopleths – rainfall distribution – dispersion – rainfall variability.**
- UNIT - IV** **Water balance – Aridity Index – NDVI Index**

REFERENCE BOOKS

- 1** **R.L. Singh _ Elements of Practical Geography, Kalyani Publishres, New Delhi**
- 2** **F.J. Monkhouse and H.R Wilkinson, Maps and Diagrams, B.I. Publications, Madras**
- 3** **Gopal Singh – Map work and Practical Geography, Vikas publishing house Ltd**
- 4** **V.P. Subrahmanyam and Subramaniam,A.R. Application of water balance concept for a climatic study of droughts in south India, 1964**

SEMESTER - I

ELECTIVE – I - SOCIAL GEOGRAPHY

- UNIT – I** Social Geography – Nature and scope – social structure and processes – concept of space and place – social well being – quality of life – social exclusion , derivation and discrimination issues relating to under privileged groups – spatial distribution of social groups in India, tribes, castes , religions and language groups.
- UNIT – II** Concept of culture, culture complex, culture areas and cultural regions, cultural heritage, cultural interactions, cultural diffusion and cultural ecology – cultural imperialism.
- UNIT – III** Health – factors affecting human health – nutritional status, diseases – etiological condition, classification and distribution patterns, - Health care planning and policies in India, prospects of medical tourism in India.
- UNIT – IV** Concept of boundaries and frontiers, heart land and rim land theories – conflicts – resource, regional and ethnic human rights and conflicts resolution – recent trends and development in Political Geography.
- UNIT – V** Geopolitics of climatic change, geo politics of World Resources – regional organizations of co operation (SAARC, ASEAN, OPEC , EU)

REFERENCE BOOKS

1. Majid Husain-Human Geography-Rawat Publications 1994.
2. Gillian C.Morgan – Human and Economic Geography, Oxford University Publications 1999.
3. Aime Vincent Perpillon-Human Geography, Longman Group limited London 1977.
4. C.Daryll Forde-Habitat, Economy and Society, Methuen Publishers 1977.
5. Chandna-Popualtion Geography, Kalyani Publishers.

SEMESTER – II

CORE – V- AGRICULTURAL GEOGRAPHY

- UNIT I** **Nature, Scope and significance of agricultural geography - Approaches to the study of Agricultural Geography - Agricultural types and their Characteristics - Elements of Agriculture – Land, Labour , Capital, Market**
- UNIT II** **Determinants of Agriculture – Physical, Economic, Social Institutional and technological factors – Green Revolution – First and Second - its implications.**
- UNIT III** **Von Thunen’s Theory of Agricultural location and its modification – Application of Von Thunen’s theory to present day agricultural location – land use - types – land use survey - land capability classification – Remote sensing in land use analysis.**
- UNIT IV** **Agricultural productivity – Determinants and - measurements - Regionalization - cropping Pattern, – crop combination Analysis – Weaver, Doi Rafiullah, Crop Diversification – Bhatia. .**
- UNIT V** **Agricultural Regions of the World – India and Tamil Nadu – Whittlessey’s agricultural classification.**

BOOKS FOR REFERENCE

1. **Hussain, M. – Agricultural Geography Inter, India Publications, New Delhi**
2. **Morgan , W.B & Muntan , R.J.C. – Agricultural Geography**
3. **Singh Jasbir, and Dhillon - Agricultural Atlas of India- A Geographical Analysis, Vista Publishers, Krukshetra.**
4. **Symons,I – Agricultural Geography, G. Bells & Sons, London**
5. **Savindra Singh and Dhillon**

SEMESTER – II

CORE – VI – URBAN GEOGRAPHY

- UNIT- I** Nature, Scope and Development of urban Geography – Urbanization – Factors – Urbanization in developed countries and India.
- UNIT – II** Demographic structure of cities – age and sex structure – population – growth, density, and occupational structure.
- UNIT – III** Urban land use models – C.B.D. – Delimitation – Economic base – Functional classification of towns and cities – Basic and non-Basic concepts.
- UNIT IV** Urban Expansion – Vertical and Horizontal – Urban sprawl – Urban fringe – Urban renewal – Suburbs - Growth and characteristics – City regions concept – Umland demarcation – Hierarchy of Urban centers – Rank size rule –Central Place Theory.
- UNIT – V** Urban problems – Slums – Pollution – Transport – Urban Planning.- Rural settlement – types and patterns distribution – Urban migration , land use changes – land acquisition and characteristics.

Reference Books

1. H. Carter- The Study of Urban Geography, Edward Arnold, London
2. J.H.Johnson- Urban Geography of Towns, Hutchinson University Library, London
3. Mayer & Kohn – Readings in Urban Geography, Central Book Depot, Alahabad
4. Northam – Urban Geography. John Wiley & Sons Inc; 2nd edition 1979

SEMESTER – II

CORE – VII - GEOGRAPHY OF INDIA

- UNIT I** **Location – Structure and relief – Drainage pattern – Climate – Rainfall distribution – Climatic types.**
- UNIT II** **Soils-Natural vegetation – Need for conservation of soils and forests – Agriculture types and regions – Irrigation – Types and multipurpose projects – Distribution of food and commercial crops – Rice, Wheat, Cotton, Sugarcane, Tea, Coffee and Jute.**
- UNIT III** **Power resources – Hydel, Thermal, Atomic - Mineral resources – Iron ore, Manganese, Mica, Bauxite and Copper. Major industries – Cotton, Iron and Steel, Sugar, Cement – Small scale and cottage industries.**
- UNIT IV** **Transport and communication – Land, Water and Air – Ports and Harbors – Economic significance – Trade – volume – direction. Population – Distribution and density – growth – Trends – Problems.**
- UNIT V** **Resources of Tamilnadu – climate, water, soil, forest, population, power – Industrial regions.**

BOOKS FOR REFERENCE

- 1) Gopal Singh – Geography of india, Atma Ram & Sons, New Delhi, 1995
- 2) Sharma T.C. and Countinho. O – Economic and Commercial Geography of India, Vikas publishing house Pvt Ltd, New Delhi, 1998
- 3) Memoria, C.B, Economic and Commercial Geography of India, Sivalal agrawal and company, Agra 1995
- 4) Tirtha, Geography of India, 1996

SEMESTER – II

CORE – VIII - PRACTICAL II – SOCIO ECONOMIC DATA ANALYSIS

- UNIT I** **Population data - growth – Simple line graph – Semi log – Log Log graph – Lorenz curve – Age and sex pyramid - Triangular graph – Population Potential map.**
- UNIT II** **Transport analysis – Connectivity measures – Alpha, Beta and Gamma indices. Accessibility measures – Binary matrix, shortest path matrix, Associated Numbers, Shymbel Index, Distance Matrix – Detour index.**
- UNIT III** **Agricultural Data Analysis – cropped areas of individual crops – crop ranking – crop combination analysis - Weaver's, Doi and Rafiullah's methods – crop diversification Bhatia's method**
- UNIT IV** **Index of Industrial Diversification - Hierarchy of Industrial centers - Rank Size rule – Functional Classification – Nelson's and Rafiullah's methods – Nearest Neighbor Technique.**

BOOKS FOR REFERENCE

- 1. F.J.Monkhouse & H.R.Wilkinson – Maps and Diagrams, Dirton Co- New York 1971**
- 2. R.L Singh – Elements of Practical Geography – Kalyani Publishers New Delhi, 1979**
- 3. Kansy, Y. – The Structure of Transportation Network.**
- 4. Tafée, E.J.& H.L Gauthier – Geography of Transportation, Prentice Hall, New York.**

SEMESTER – II

ELECTIVE – II - ENVIRONMENTAL GEOGRAPHY

- UNIT I** **Environment – Elements and Types Man and environment relationships – determinism – possibilism, changing nature of concept – lithosphere – hydrosphere – biosphere – multi disciplinary approach**
- UNIT II** **Concept of Ecosystem – Ecosystem – structure – classification – Biomes – functioning of the ecosystem – food web – food pyramid – nutrient cycle – biodiversity – types .**
- UNIT III** **Natural disruptions of the ecosystem – natural hazards – land slide, earth quake, volcano , floods, droughts, pollution, human interference on ecosystem – population growth and its impact – Man’s modifications of the biosphere – agriculture – Green Revolution – HYV and pesticides – mining, soils – coastal areas.**
- UNIT IV** **Environmental planning and management; objectives and strategies; natural resource management and conservation (land, water and forest) – sustainable development concept, need, problems and strategies – EIA principles and procedures.**
- UNIT V** **The Stockholm conference, the earth summits and round tables, climate change (causes and consequences), Kyoto Protocol, world climate data monitoring programme (WCD MP) Environment related policies and programmes in India pertaining to wild life, water, forest and environment; Environment Governances**

BOOKS FOR REFERENCE

- 1 Trivedi, R.N - A Text Book of Environmental Sciences, Anmol Publications Pvt.Ltd New Delhi, 1997**
- 2 Sexna, H.M – Environmental Geography, Rawat Publications Jaipur, 1999**
- 3 Savindhra Singh – Environmental Geography Prayag Pushtak Bhawan University Road, Alagabad 1991**
- 4 Gillbert White – Environment as a Hazard, Toronto, 1978**
- 5 Bruce Mitchell – Resources and Management Orient Long Man London, 1991**

SEMESTER – III

CORE – IX - GEOGRAPHICAL THOUGHT

- UNIT – I** Contributions of Greek,Roman, Arab, Chinese and Indian scholars to geography – Beginning of modern Geography – varenions, kant, Alexander Von Humboldt, Carl Ritter – German, French, British and American schools of geographical thought.
- UNIT – II** Major geographic traditions – earth science, man – Environment relationship – area studies spatial analysis.
- UNIT – III** Dualism in Geography, physical Vs human, regional Vs systematic, determinism Vs possibilism, qualitative Vs quantitative, ideographic Vs nomothetic
- UNIT – IV** Forms of explanations in geography – Models, Theories and laws in geography.
- UNIT – V** Perspectives in geography – possibilism, behaviouralism, humanism – Marxism and structuralism, feminism – postrodemisim.

REFERENCE BOOKS

- 1. Negi B.S. Geographical thought – Karinath Ramnath meerat 1994.**
- 2. Freeman. R. Hundred Years of geography – Hutchinson London 1970.**
- 3. Harvey D. explanation to geography Edward Arnold publication, London.**

SEMESTER – III

CORE – X- REMOTE SENSING, GIS and GPS

- UNIT I** Remote Sensing- definition-Types – Basic Principles – Ideal Remote Sensing System – Aerial Photography – Types of Photographs – Photo Mosaics – elements - photo Interpretation - Limitations of Aerial Photographic Technique – Photogrametry .
- UNIT II** Space borne Remote Sensing – EMR – Platforms – Sensors – Resolution – Spectral signatures – visual image interpretation - Fundamentals – equipments – digital image processing .
- UNIT III** Development of Remote Sensing programs in the world – USA, USSR, FRANCE, U.K and India – Development of remote sensing in India
- UNIT IV** Application of Remote Sensing – land form inventory – water resources – urban studies , waste land management , disaster management, land use planning .
- UNIT V** GIS – Definition – Basic Principles – Elements – DBMS – Geographic Database – GIS – Hardware and Software – Use of GIS – Application of GIS – resource mapping – natural hazards , flood and drought management in India – GPS –Historical development – components – differential GPS – applications

BOOK FOR REFERENCE.

1. C.S.Agarwal & P.K.Grag – Text Book of Remote Sensing – Wheeler Publishing 2000
2. Ball D.R. – Babbage – Geographic Information System for Defence Application – Pergamon Press – Australia
3. Barrette & Burough – Principles of GIS for Land Resource Assessment – Clarendon Press – Oxford
4. Bidhanesh Misra – Geographic Information System & Economic Development.
5. Gampbell. James B.I Introduction to Remote Sensing – The Guild Press , New York
6. Lan Heywod, Sarah Cornelines, An Introduction to Geographical Information System I Addison – Wesley, Longman Ltd,2000

SEMESTER – III

CORE – XI - CARTOGRAPHY AND QUANTITATIVE METHODS

- UNIT - I** **Meaning, Scope and Development of Cartography - Fundamentals of Map Projections- Types - Uses and choice of map Projection - Compilation and Generalization of Maps-Compilation of Base Maps.**
- UNIT - II** **Simple and Complex - Thematic maps – Qualitative and Quantitative- Point, line, Area and Volume Symbols - Map Design and Layout- Lettering and Toponymy - Tools and Techniques for map drawing – map construction and production – photographic and non - photographic processes , printing processes – stencil cutters.**
- UNIT - III** **Hypothesis Testing – Needs & Types – Significance & Confidence Level – Parametric – Non Parametric Produce – Chi Square Testing, T- test-Test**
- UNIT - IV** **Data collection – sources of data – secondary , primary and spatial data – data processing – measures of central tendency – mean , median , mode – standard deviation - coefficient of variation.**
- UNIT - V** **Data analysis – co relation – Pearson’s product movement correlation – Spearman’s rank correlation- Regression analysis – residual mapping – factor analysis - ANOVA**

BOOKS FOR REFERENCE

- 1. Monkhouse F.J. and Wilkinson H.R.-Maps and Diagrams-Dirton Co.,Newyork.**
- 2. R.P.Mishra and A.Ramesh-Fundamentals of Cartography- Concept publishing Company,New Delhi.**
- 3. Raise E.-Principles of Cartography M.C.Graw Hill.**
- 4. Robinson A.H. and R.D.Sale-Elements of Cartography-Hjohn Wiley and Sons, NewYork..**
- 5. Singh R.L. and P.K.Dutt-Elements of Practical Geography.**
- 6. Subramaniam-Introduction to Computer.**
- 7. M.D.Zulfequar ahamad Khan –Text Book of Practical Geography, Concept Publishing Company, NewDelhi.**

SEMESTER – III

CORE – XII- PRACTICAL – III - CARTOGRAPHY AND GEO INFORMATICS

- UNIT I** **Preparation of Thematic Maps – Representation of Statistical Data by Point, Area, Line and Volume Symbols.**
- UNIT II** **Interpretation of Survey of India Toposheet.**
- UNIT III** **Visual Interpretation of Aerial Photographs, satellite Imageries.**
- UNIT IV** **Digital image processing technique .**

BOOKS FOR REFERENCE

- 1. Monkhouse F.J. and Wilkinson H.R.-Maps and Diagrams-Dirton Co.,Newyork.**
- 2. R.P.Mishra and A.Ramesh-Fundamentals of Cartography-Concept publishing Company,New Delhi.**
- 3. Robinson A.H. and R.D.Sale-Elements of Cartography-Hjohn Wiley and Sons, NewYork..**
- 4. Singh R.L. and P.K.Dutt-Elements of Practical Geography.**
- 5. M.D.Zulfequar ahamad Khan –Text Book of Practical Geography, Concept Publishing Company, NewDelhi.**

SEMESTER – III

ELECTIVE – III - GEOGRAPHY OF ECONOMIC ACTIVITIES

- UNIT – I** **Economic activities – factors affecting spatial organization of economic activities (Primary, secondary, tertiary and quaternary) – Natural resources – classification – World distribution and associated problems – resource management – World energy crises in developed countries.**
- UNIT- II** **Classification of industries – bases and characteristics – factors of industrial localization – concepts and theories related to localization on industries – Weber, Hoover, August Losh, Pres and Smith _world industrial regions – tourism industry potentials and problems.**
- UNIT- III** **World distribution and growth on information and communication technology – spatial interaction ideas of Edward Ullman , functional approach of m.E.Hurst , Models of transport and transport cost.**
- UNIT-IV** **Measures and indices of connectivity and accessibility , spatial flow models – gravity model and its variants – allocation models.**
- UNIT-V** **World Trade Organizations, Globalization and liberation and world trade patterns –problems and prospects of inter and intra regional co – operation and trade .**

BOOKS FOR REFERENCE:-

1. **Gopal Singh – Geography of India, Atma Ram & Sons, New Delhi, 1995**
2. **Sharma T.C. and Countinho. O – Economic and Commercial Geography of India, Vikas publishing house Pvt. Ltd, New Delhi, 1998**
3. **Memoria, C.B, Economic and Commercial Geography of India, Sivalal agrawal and company, Agra 1995**
4. **Tirtha, Geography of India, 1996**
5. **Dubey and Negi – economic and commercial geography 1999**

SEMESTER – IV

CORE – XIII- POPULATION GEOGRAPHY

- UNIT I** Nature, scope and significance of population geography – *sources* of populations data – Reliability of population data. Distribution and density of world population - Factors and pattern distribution.
- UNIT II** Dynamics of population – fertility – its measures and determinants and world pattern - mortality – its measures and determinants and world trend – world population growth and its trend – theories of populations growth - Malthus , Ricardo and Marx.
- UNIT- III** Demographic transition - Migration types – determinants – consequences of migrations– laws of migration – policies of migrations.
- UNIT – IV** Populations composition characteristics – age . sex, rural, urban, occupation education – literacy – determinants and world pattern
- UNIT – V** Population resource relationship – optimum population under population – over population - population policies.

Reference Books

1. Chandna R.S – A Geography of Population Concepts, Determinants and patterns, Kalyani Publishers., New Delhi 1980
2. Clark John. I.- Population Geography Pergamum Press Ltd. Oxford 1981
3. Gosh, B.N – Population Geography, Sterling Publications. 1987
4. Beauju- Garneir.J –Geography of Population, Longman group Ltd, 1978

SEMESTER – IV

CORE – XIV– RESEARCH METHODOLOGY

- UNIT – I** **Research meaning and need for scientific research – approaches to research – interdisciplinary and trends in geography**
- UNIT – II** **Research design – identification selection and definition of problem – selection of topic – formulation of hypothesis – testing of hypothesis**
- UNIT – III** **sampling techniques – types – construction of Schedule / questionnaire – quantitative techniques used to analysis the data**
- UNIT - IV** **Collection of data – sources of data – primary , secondary, data – data transformation, tables charts diagrams and maps**
- UNIT – V** **Library and thesis writing – bibliography – cards – glossary – appendix – languages presentation – review of work done in the field – review of books and journals – writing of project reports.**

Reference Books

- 1. B.N.Ghosh ,, scientific method and social research, strelling publishing , pvt limited , 1982**
- 2. Good and Hatt , method in social research , Mc Graw hill book company , 1981.**