

**JAI PRAKASH UNIVERSITY
CHAPRA**



**REGULATION AND COURSES OF STUDIES
FOR
MASTER OF GEOGRAPHY**

BASED ON SEMESTER SYSTEM

w.e.f. The Session-2012-13

Study Raw.Com

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MA Geography Syllabus

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M.A. Geography: 2 Years Semester Course outline
SEMESTER I

Sl. No	Papers	University Examination	Internal Examination	Credit Hours
1	Theory core Paper I - History of Geographical Thought	70	30	5
2	Theory core paper II- Physical Landscap	70	30	5
3	Theory core paper III - Climatology and oceanography	70	30	5
4	Practical core paper IV Group- A	50	-	2.5
5	Practical core paper IV Group- B	50	-	2.5
		310	90	20
Total- 400 Marks				

SEMESTER II

Sl. No	Papers	University Examination	Internal Examination	Credit Hours
1	Theory core paper V- Regional Geography of India	70	30	5
2	Theory core paper VI- Economic Geography	70	30	5
3	Theory core paper VII- Population Geography	70	30	5
4	Practical core paper VIII Group- A	50	-	2.5
5	Practical core paper VIII Group- B	50	-	2.5
		310	90	20
Total- 400 Marks				

SEMESTER III

Sl. No	Papers	University Examination	Internal Examination	Credit Hours
1	Theory core paper IX- Regional Planning and Development	70	30	5
2	Theory core paper X- Settlement Geography	70	30	5
3	Theory core paper XI- Environmental Geography	70	30	5
4	Practical core paper XII Group- A	50	-	2.5
5	Practical core Paper XII Group B	50	-	2.5
		310	90	20
Total- 400 Marks				

SEMESTER IV

Sl. No	Papers	University Examination	Internal Examination	Credit Hours
1	Theory core paper XIII- Quantitative Geography	70	30	5
2	Theory Elective Paper XIV Group 'A' : Geography of Landuse	70	30	5
3	Theory Elective Paper XV Group 'A' : Agricultural Geography	70	30	5
4	Practical Elective Paper XV (Section A) Geography of Landuse	50	-	2.5
5	Practical Elective Paper XV (Section B) : Agriculture Geography.	50	-	2.5
6	Theory Electric Paper XIV Group B: Fundamentals of Urban Geography	70	30	5
7	Theory Electric Paper XV Group B : Urban and Regional Planning	70	30	5
8	Practical Elective Paper XIV (Section A): Fundamental of Urban Geography	50	-	2.5

9	Practical Elective Paper XV (Section B) :			
	Urban & Regional Planning	50	-	2.5
10	Theory Elective Paper XIV Group 'C' :			
	Geographical Information System	70	30	5
11	Theory Elective Paper XV Group-C :			
	Remote Sensing Techniques	70	30	5
12	Practical Elective Paper XIV (Section A) :			
	Geographical Information System	50	-	2.5
13	Practical Elective Paper XV (Section B) :			
	Remote Sensing Techniques	50	-	2.5

JAI PRAKASH UNIVERSITY, CHAPRA
P. G. DEPARTMENT (GEOGRAPHY)
SYLLABUS (2012-2013)

SEMESTER I

PAPER - I

HISTORY OF GEOGRAPHICAL THOUGHT

Time : 3:00 Hours

Credit - 5

Full Marks -70

Sessional - 30

The question paper will consist of a 13 questions. The candidate will be required to attempt 09 Questions in all. Question No- 01 will be compulsory (10 Marks) and short-type four questions consisting on from each unit 05 marks. The remaining 08 Questions will be from of four units. The candidate will be required to attempt one Question from each unit. (10 marks)

Unit - I Nature of Geography: as an interdisciplinary science, as a chorological and Ecological Science, Development of Geography during 18 Century.

Unit - II Modern Geography: Contribution of Humboldt, Ritter, Vidal de la Blache and E.C. Sample.

Unit - III Development of Quantitative, Behavioral, Applied and Radical Geography.

Unit - IV Concept of Region, Use and classification of models, Trend of modern Geography in India, Development of Physical Geography in Ancient India.

Books Recommended:

1. Claval, P: Epistemology and History of Geography thought.
2. Chorley, R.J and Haggett P. Models in Geography.
3. Pradeshik Niyojan aur santulit vikas - Dr. Nandeshwar Sharma
4. Bhogolik Chintan ke Itihas - Dr. Majid Hussain

5. Bhougolik Chintan ke Itiyhas - B.C. Jat
6. Bhougolik Chintan and Vidhi Tantra. M.S. Jain
7. Regional planning - R. P. Mishra
8. Regional Planning & Development - K. V. Sundram
9. Modern Geographical thought- Peet, R.
10. Regional Development - Munish Raza
11. Arthik Vikas Avam Niyojan - Jhingan, ML
12. Urban and Regional Planning - Hall, P
13. A Fundamentals of Geographical Thought - Adikari, S
14. Makers of Modern Geography - Dickinson, RE
15. Stamp, L.D.: Applied Geography.

SEMESTER I
PAPER - II
PHYSICAL LANDSCAPE

Time : 3:00 Hours
Credit - 5

Full Marks -70
Sessional - 30

Unit - I Isoslasy and its applications, Plate tactionics, Sea-floor spreading, Earthquake:- causes & Effects.

Unit - II Concept of the evolution of landforms with special reference to W.M Davis, W. Penck and, L.C. King, Concept of Slope.

Unit - III Arid, Karst, Glacial and Periglacial cycles.

Unit - IV Geomorphic evolution of Peninsular India, Chotanagpur highlands, fluvial Geomorphology of North Bihar Plain. Applied Geomorphology.

Books Recommended:

1. Singh, Savindra - Bhoo Akritik Vigyan
2. Von Engel - Geomorphology
3. Methorn, W.N. & Flemal, R.C. - Theories of landform development
4. Jat, B. C. - Bhoo-Akriti Vigyan.
5. King, L.C. - Geomorphology.
6. Ahmad, E. - Physical Geography
7. Thornthbury, W. D. - Principles of Geomorphology.
8. Singh, S. - Geomorphology
9. Kumar, A. - Facts of Geomorphology
10. Sparks. B. W. - Geomorphology

11. Worcester, P. G. - A Text Book of Geomorphology
12. Wooldrige, S.W. & R. S. Morgan, R. S. : An outline of Geomorphology.
13. Ahmad, E. : Bihar.
14. Dayal, P. : Bhoo-Akriti Vigyan
15. Stears, J. A. : The Unstable Earth.

SEMESTER I
PAPER - III
CLIMATOLOGY AND OCEANOGRAPHY

Time : 3:00 Hours
 Credit - 5

Full Marks - 70
 Sessional - 30

Unit - I Nature and Scope of Climatology; Applied Climatology, Classification of Climate : Schemes of Koppen and Thornthwaite; Green House effect.

Unit - II Air Masses ; Classification and Characteristics of Air Masses evidence of Climatic change, Global warming and Cooling.

Unit - III Ocean Science; Bottom configuration of Indian and Atlantic oceans; Submarine Canyons, Theories of origin of Tides.

Unit - IV Theories of origin of Coral reefs; Marine deposits. Salinity of Ocean water, Hydrological Cycle.

Books Recommended:

1. Sharma, R. C. & Vatal - The Oceanography for Geographers.
2. Lal, D.S. - Climatology.
3. King, C. A. N; Oceanography for Geographers.
4. Lydolph. P. E; The Climate of the Earth.
5. Gribbon; J; Climatic Change.
6. Miller, A. A, Climatology.
7. Das; P. K; Monsoon.
8. Davis, R. J. A; Oceanography: An Introduction to the Marine Environment.
9. Critchfield; J. H; General Climatology.
10. Hussain; M. Climatology.
11. Shapely, Climatic Change.
12. Lockwood - World Climatic System.
13. Barry, R. G. et, el - Atmosphere, Weather and Climate
14. General, S; General Oceanography
15. Weisberg, J. & P. Howard. Introductory - Oceanography.

SEMESTER I

CORE PRACTICAL, PAPER - IV (GROUP-A)

CARTOGRAPHIC REPRESENTATION AND QUANTITATIVE TECHNIQUES.

Time : 4:00 Hours

Full Marks -50

Credit - 2.5

Unit - I Construction and Interpretation of Climograph, Hythergraph, Ergographs, Preportionate Circle, Rainfall dispersion diagram.	15
Unit - II Measurement of mean deviation, Standard deviation Spearman's rank correlation. Pearson's Product movement of co-efficient.	10
Unit - III Construction and Interpretation of Choropleth, Isopleth Scatter Diagram.	15
Unit - IV Record of Practical work and Viva - Voce.	10

Books Recommended :

1. Robinson, A.H. and others - Elements of Cartography.
2. Shringar, R. : Prayogatmak Bhoogol.
3. Sharma, J. P. Prayogatmak Bhoogol.
4. Memoria, C. B. and Jain : Elements of Cartography.
5. Robinson, A.H.: Elements of Cartography.
6. Blackwell, B. : Statistics in Geography.
7. Monkhouse, F. J. and Wilkinson, H. R., : Maps and Diagrams.
8. Singh, L. R. : Mapwork and Practical Geography.
9. Yadav, H. C. : Prayogik Bhoogol.
10. Singh, R. L. : Elements of Practical Geography.

SEMESTER I

CORE PRACTICAL, PAPER - IV (GROUP-B)

GEOLOGICAL MAPS, TOPOGRAPHIC ANALYSIS AND MAP PROJECTION

Time : 4:00 Hours

Full Marks -50

Credit - 2.5

Unit - I Geological Maps :- Construction of sections and Interpretation.	15
Unit - II ` Map Projections:- Construction and use of Bonne's, Polyconic, Sinusoidal and equatorial. Gnomonic.	15
Unit - III Topographical Analysis - Superimpose Projected and Composite Profiles, Slope analysis, Smith's and Wentworth's Methods.	10
Unit - IV Record of practical works and Viva-voce	10

Books Recommended :

1. Singh, J. - Bhaumikiya Manchitor Ki Ruprekha
2. Mamoria of Jain - Manchitrakan and Proyogik Bhoogol.
3. Monkhouse, F. J. and H. R. Wilkinson - Maps and Diagrams.
4. Singh, R. L. - Elements of Practical Geography.
5. Steers, J. A. - Map Projection.
6. Kellavey - Map Projection.
7. Sharma, J. P. - Prayogik Bhoogol.
8. Singh, R. L. - Prayogik Bhoogol Ke Mooltatv
9. Chouhan, P. R. - Prayogik Bhoogol.
10. Yadav, H. L. - Prayogik Bhoogol.

SEMESTER II

PAPER-V

REGIONAL GEOGRAPHY OF INDIA

Time : 3:00 Hours

Credit - 5

Full Marks -70

Sessional-30

Unit-I Bases of dividing India into structural, Physiographic and agro-climatic regions, Attempts to dividing India into natural regions.

Unit-II Study of extra peninsular and peninsular macro regions under following heads- Structure & Relief, Agriculture and Population.

Unit-III Detailed Studies of the following mesorisions: Middle Ganga plain, Punjab Plain, Malabar Coast and Deccan trap.

Unit-IV Special Area planning: Flood prone Area, Drought prone Area, Hill Area, Study of Bihar Under the following Heads: Physiography, population Agricultural Regions and Industrial Regions.

Books Recommended:-

1. R. C. Tiwari- Bharat Ka Bhoogol
2. Chand, Mahesh and Puri, V.K.- Regional Planning in India
3. Bansal S.C.- Bharat ka Brihad Bhoogol
4. Khullar- Geography of India
5. Singh, G.N.- Adhunik Bharat ka Bhugolic Swaroop
6. Sharma Narmdeshwar- Adhunik Bharat ka Bhugolic Swaroop
7. Singh, J- Bharat Bhugolic Adhar and Auyam
8. Chaohan Prasad- Bharat ka Brihad Bhoogole
9. Sharma, N.- Bihar ka Bhoogole
10. Robinson, H- Mansoon Asia

11. Singh, R. L.- India : A Regional Geography.
12. Spate, O. H. K. - India & Pakistan.
13. Johnson, BLC- India: Resource & Development.
14. Mishra, R. P. - Regional Development Planning in India.
15. Bhatt, L. S. - Regional Planning in India.

SEMESTER II

PAPER - VI

ECONOMIC GEOGRAPHY

Time : 3:00 Hours

Full Marks - 70

Credit - 05

Sessional - 30

Unit - I Meaning and Scope of Economic Geography, Resource its use, misuse & conservation, Physical and Economic factors of location of Economic Activities.

Unit - II Concept and Techniques of delimitation of Agricultural Regions, Crop - Combination and Diversification. Von Thunen's models and its modifications, Impact of Green revolution on Indian agriculture.

Unit - III Theory of Industrial location Weber and losch, case studies of selected industries, Iron and Steel and Cotton textile.

Unit - IV Typology of market, Development regions of India, Role of market in Development of trade and Commerce. Globalization and Indian Economy and its impact on environment.

Books Recommended :

1. Guha and Chattoraj - Economic Geography.
2. Ray, Prithvi - Economic Geography.
3. Alexander, J.W.- Economic Geography.
4. Von Royan, W. Fundamentals of Economic Geography
5. Majid Hussain - Economic Geography
6. Rita Mayar - Arthik Vikash and Prakritik Sansadhan
7. Gautam, A. Arthik Bhoogol Ke Mooltatv.
8. Miller, E. & Willard, E. : A Geography of Manufacturing.
9. Boesch, H. - A Geography of World Economy.
10. Wheeler, J. O.- Economic Geography.
11. Singh, J. : Resource Geography.
12. Hartshorne, T. N. & Alexander, J. W.- Economic Geography
13. Jones, C.F. & Darkenwald, G.G. - Economic Geography.
14. Singh, K. N.-Arthik Bhoogol Ke Mooltatv
15. Zimmermann, E.W., World Resources & Industries.

SEMESTER II
PAPER - VII
POPULATION GEOGRAPHY

Time : 3:00 Hours

Full Marks -70

Credit - 05

Sessional - 30

Unit - I Meaning and Scope of Population Geography, Sources of population data Development of population Geography in India.

Unit - II Distribution and Growth of World population, Concept of under, over and optimum population, Population Composition in India: age and Sex, Literacy and Education, urbanization and occupational Structure.

Unit - III Population dynamics, Measurement of fertility and mortality, Types and Courses of migration, national and international, Labour migration in India.

Unit - IV Population resource regions in the world, Population Policies in under developed and developed countries, India's population policies population and environment.

Books Recommended :

1. Tripathi, R.D. - Population Geography
2. Dubey & Singh - Population Geography
3. S.D. Maurj - Population Geography
4. Negi, B.S. - Population Geography
5. M. Hussain - Population Geography
6. Graham, D. - Population Geography
7. Livi Bacci, M. - Population and and Developing countries
8. Singh, C.D.- Population Geography
9. Chandana, R. C.- Population Geography
10. Chandana, R. C.- Jansankhya Bhoogol
11. Hiralal - Jansankhya Bhoogol
12. Dixit, S. K.- Jansankhya Bhoogol
13. Kayastha, S.L.- Population Geography
14. Sundram, K. V. - Population Geography.
15. Bose, S. R. - Bihar's Population Problem

SEMESTER II

PAPER VIII A

FIELD WORK SOCIO-ECONOMIC SURVEY (WRITTEN)

Time : 4:00 Hours

Full Marks -50

Credit - 2.5

Unit-I "Need and Principles of Socio-Economic survey, sources of information, Definition and classification of terms facts and data" Significance of field work in Geographical Studies.

Unit-II Techniques of Socio-Economic Survey: Types of observation and Research Hypothesis, Interview as a tool in field research, Preparation of Questionnaires and Schedules.

Unit-III Socio-Economic research design: Component part, operational Sequences- Survey analysis and formulation, Micro Group/area research.

Unit-IV Record of field work and viva-voce.

SEMESTER II

PAPER VIII- B

FIELD WORK SOCIO-ECONOMIC SURVEY (GROUP DISCUSSION)

Time : 4:00 Hours

Full Marks -50

Credit - 2.5

The Students will be required to submit a Project report on the topic approved by the head of the Department. They will be evaluated by a set of examiners who will assess examinees level of comprehension and ability of exposition.

Books Recommended :-

1. Glodard, R.H. - Field techniques and Research Methods in Geography
2. Mohammad, A.C. and Harding, M.- Geographical Field work
3. Archeer, J.E and Dalton, T.H. -Field work in Geography
4. Sharma, J. P. - Prayogik Bhoogol
5. Singh, R. L. - Elements of Practical Geography
6. Shrivastava, V. K. - Bhoogol Me Sankhiki
7. Yadav, H. L, Prayogik Bhoogol
8. Young, P. V. - Scientific Social Survey and Research
9. Ahmad, E. - Village, Survery
10. Tondon, B. C. - Research Method in Social Science.

SEMESTER III
CORE PAPER - IX
REGIONAL PLANNING AND DEVELOPMENT

Time : 3:00 Hours

Credit - 5

Full Marks - 70

Sessional - 30

Unit - I Concept of Space and location attributes, Types of regions Formal and functional, Uniforms and Nodal, Regional Hierarchy.

Unit - II Special purpose regions: River valley regions, Metropolitan regions, Problem regions - Hilly Regions and flood regions.

Unit - III Short term and long terms Prospective of Planning, Measuring levels of Regional Development and Disparities in Indian Context. Planning regions of India Planning for developed and developing Countries.

Unit - IV Concept of multi level planning, Role of Panchayati Raj System in Regional Planning, Role of Panchayati Raj Institutions (Panchayat Samiti and Zila Prishad) and Administrative structure (Village, Block and District).

Books Recommended:

1. Chandana, R.C. - Regional planning
2. Chand, M, Ruri BVK - Regional Planning in India
3. Mishra, R.P - Regional Planning Concepts techniques polices.
4. Ray Chaudhari, J. An Introduction to development and Regional Planning.
5. V.Nath - Regional development and planning in India.
6. Jhingan, Arthik Vikas Avam Niyojan (Hindi)
7. Singh, S.B. - Pradeshik Niyojan (Hindi)
8. Chandana, R.C. Pradeshik Niyojain
9. Sharma, N - Pradeshik Niyojan avam Santulit Vikas
10. Needleman - Regional Planning
11. Glikson, A - Regional planning
12. Bhat, L.S. - Regional planning in India, Micro Level Planning
13. Friedman, J. (et) - Regional Development and Planning : A Reader
14. Hall, P - Urban and regional Planning
15. Hilhorst, J.G.M. - Regional Planning

SEMESTER III
CORE PAPER - X
SETTLEMENT GEOGRAPHY

Time : 3:00 Hours

Group C

Full Marks -70

Credit - 5

Sessional - 30

Unit - I Meaning and Scope of Settlement Geography, History of Settlement Geography in India, Evolution and Growth of human settlement, Theories of evolution of settlement.

Unit - II Types of Rural Settlements, Location types of Urban Settlement, Patterns of rural Settlements, Functional Structure of towns in India.

Unit - III Environmental, Socio - economic and Cultural factors influencing the dynamics of rural settlements structures, Rural house types, Types of house in Middle Ganga Plain and Chotanagpur highlands.

Unit - IV Settlement Hierarchy: Theory of Christaller and Losch, Factors Contributing to hierarchy, Hierarchy of Settlements in India, Rural Service Centers .

Books Recommended :

1. Mandal, R.B. Introduction of Rural Settlement.
2. Ghosh, S - Introduction of Rural Settlement.
3. King, seslit, J. : Control Place Theory -
4. Urbanization and Urban Systems in India.
5. Rao, B.P. Adhiwas Bhoogal.
6. Singh, R.Y. Adhiwas Bhoogal
7. Maurya, S.D. Adhiwas Bhoogal
8. Singh, U.P. Adhiwas Bhoogal.
9. Bansal, S.C. Gramin Basti Bhoogal.
10. Bansal, S.C : Adhiwas avam Jansankhaya Bhoogol
11. Tiwary, R.C - . Adhiwas Bhoogal.
12. Sinha , M.P.- Nagariya Bhoogal
13. Singh, Ujagir - Nagariya Bhoogal
14. Sharma, N.(ed) : Nagariya Bhoogal
15. Singh, K.N. (ed) : Rural Development of India : Problems, Strategis and Approaches.

SEMESTER III
CORE PAPER - XI
ENVIRONMENTAL GEOGRAPHY

Time : 3:00 Hours

Group C

Full Marks - 70

Credit - 5

Sessional - 30

Unit - I Meaning and Scope of Environmental Geography, Fundamental Concepts in Environmental Geography, Concept of Eco-systems-Mountain and Desert eco-systems, Major eco-systems of India.

Unit - II Environmental degradation, Problems and types of pollution, Air and Water, Global Warming, depletion of Ozone layers..

Unit - III Environmental Hazards and management in India : Earth-quake, Flood, Draught and Cyclone.

Unit - IV Environmental management and policies in India, Construction and Management in Coastal, Industrial, Environmental Planning in India.

Books Recommended :

1. Shirivastava, K.P. Introduction to environmental study.
2. Kumar, A. & Singh, U.P. Environmental protection and Industrial Development.
3. Gauta, A.- Paryawaran Bhoogol.
4. Singh, S.- Paryawaran Bhoogol
5. Chandana, R.C.- Environmental Awareness.
6. Gupta, P.D - Environmental Issues for the 21th Century.
7. Saxena, H.M- Environmental studies .
8. Verma, S.B. Shiva, K.S - Protection and Development.
9. Gujar, R.K. Paryawaran Bhogool.
10. Prasad.K.. Paryawaran Bhogool.
11. Singh, A - Environmental degradation in flood prone Area.
12. Johnson, R.J. - Geographies of Global change.
13. Purty, C.V- Environmental Geography.
14. Detwyler, J.R. - Urbanization and Environmental.
15. Harvey, B.- Environment and Society.

SEMESTER III
CORE PRACTICAL PAPER XII
GROUP - A
FIELD WORK - PHYSICAL SURVEY

Time:- 4 Hours

Total:- 50 Marks

Unit-I Identification and construction of salient features of selected area on the topo sheet map, preparation of Transect Diagram.

Unit -II Exercise and use of plane Table, Dumpy level and Theodolite in triangulation survey.

Unit -III Interpretation of the physical determinates on the cultural landscape of selected topo sheet and an area.

Unit -IV Record of practical work and viva-voce.

Books Recommended :

1. Robinson, A.H. and others - Elements of Cartography.
2. Shringar, R. : Prayogatmak Bhoogol.
3. Sharma, J. P. Prayogatmak Bhoogol.
4. Memoria, C. B. and Jain : Elements of Cartography.
5. Robinson, A.H.: Elements of Cartography.
6. Blackwell, B. : Statistics in Geography.
7. Monkhouse, F. J. and Wilkinson, H. R., : Maps and Diagrams.
8. Singh, L. R. : Mapwork and Practical Geography.
9. Yadav, H. C. : Prayogik Bhoogol.
10. Singh, R. L. : Elements of Practical Geography.

SEMESTER III
CORE PRACTICAL PAPER XII
GROUP-B
VIVA-VOCE

Time:- 4 Hours

Total:- 50 Marks

Credit- 2.5

The paper will be all together of 50 Marks of which for 25 marks students will have to prepare a field report based on Geographical Excursion in any one of the following region as directed and organized by the department.

- (i) Deccan Region
- (ii) Rajasthan Desert
- (iii) North Eastern India

- (iv) Tamilnadu
- (v) Malabar Coast
- (vi) Chotanagpur Highlands
- (vii) Sub-Himalyan Region
- (viii) Any interfluvial area in the indo gangetic plain

For the remaining 25 marks survey camp has to be locally organized and its report needs to be supplemented maps scathes, photographs etc.

There will be a set of two examiners the examined the students in the Viva-Voce on the field report and the instrumental survey.

SEMESTER IV
CORE PAPER - XIII
QUANTITATIVE GEOGRAPHY

Time : 3:00 Hours
 Credit - 5

Full Marks -70
 Sessional - 30

Unit - I Meaning and Scope of Quantitative Geography, Quantitative Revolution in Geography, Historical Perspective of Quantitative Geography in India. Merits and limitations of Quantitative techniques in Geography.

Unit - II Methods of data collection and classification, Questionnaire and schedules . Sampling ; Procedures and Types of Sampling : Random Sampling, Purposive Sampling.

Unit - III Needs and Types of Hypothesis, Parametric and non Parametric, Procedure Chi-Square Test, and Analysis of Variance (ANOVA).

Unit - IV Regression Analysis, Spearman's Rank Correlation, Gravity potential model Population Potential.

Books Recommended :

1. Mahmood, A - Statistical Method in Geographical Studies.
2. Gregory, S - Statistical Method and the Geographer.
3. Coles King - Quantitative Method and Techniques in Geography.
4. Mandal, R.B.- Statistic for Geographer and Social Scientist.
5. Gupta, S. - Research Methodlogy and Statistical Techniques.
6. Sharma, B.P.- Research Methodlogy ..
7. Shaw, G& Wheeler - Statistical Techniques in Geographical Analysis.
8. King, L.J. - Statistical Analysis in Geography.
9. Chorley & Heggett - Models in Geography.
10. Berry, B.JL - Spatial Analysis A Reader in Statistical Geography.

11. Singh, A. K. - Research Methods in Psychology, Social and Education.
12. Ebidon, D.S.- Statistics in Grography.
13. Pal, S.K. - Statistical Techniques
14. Shrivastava & Prasad,- Statistical Method in Geography.
15. Yadav, Hira Lal - Matratamak Bhogool.
16. Mathews, J.A. - Quantitative and Statistical Approaches to Geography.

**SEMESTER IV
PAPER - XIV**

**THEORY, ELECTIVE PAPER, GROUP-A
GEOGRAPHY OF LANDUSE**

Time : 3:00 Hours

Full Marks -70

Credit - 5

Sessional - 30

Unit - I Meaning and scope of Geography of landuse, various approaches of the study of land use, History of land use studies, fundamental concept of land use.

Unit - II Factors of land use - Physical and Socio Economic, land use survey with particular reference to Great Britain and U.S.A.

Unit - III Models of Landuse - Von - Thunen and Jonassun, Bases and Schemes of Classification of landuse, Pattern of land use in India.

Unit - IV Carrying capacity of land, land holding, land tenure; Problems and Planning of landuse in India and Bihar.

Books Recommended :

1. Nagi, B.S.- Agricultural Geography.
2. Hussain.M.- Systemic Agricultural Geography.
3. J. Singh - Agricultural Geography.
4. Sharma, B.L.- Agricultural Geography
5. Rana, J.L- Agricultural Geography
6. Mamaria,- Bhoomi Upyog and Krishi.
7. Graham,- Natural principal of landuse.
8. Chrisolem, M- Landuse and Settlement.
9. Stamp, L.D.- the land of Bratain- its use and misuse.
10. Best & Coppeck- Changing use of land in Britain.
11. Vink, APA- landuse in Advancing Agriculture.
12. Mohammed,N.- Agriculture landuse in India.
13. Mandal, R.B.- Landuse Utilization : Theory and Practice.
14. Ali, M.- Studies in Agricultural land utilization.
15. Singh. S.P. - Irrigation in Agricultural Development.

SEMESTER IV
PAPER - XV
THEORY, ELECTIVE PAPER, GROUP-A
AGRICULTURE GEOGRAPHY

Time : 3:00 Hours

Credit - 5

Full Marks -70

Sessional - 30

Unit - I Meaning and scope of Agricultural Geography, Approaches to the study of agricultural Geography, History of Agricultural Geography, Fundamental concept of Agricultural Geography.

Unit - II Factors influencing Agriculture: Physical, Social and technological, major gene centre of Agriculture. Agriculture typology-Primitive and moderns, Crop-combination and Agricultural efficiency regions.

Unit - III Agriculture in India. Wet agriculture and Dry farming, shifting cultivation, Agro-climatic, regions, impact, evaluation of Green and white revolutions, new agricultural policies in context of India and Bihar.

Unit - IV New Agricultural Technology and environmental degradation, means and use of irrigation, Problems of Indian Agricultural : Control over the food grain fluctuations, Problems of labour migration from Bihar.

Books Recommended :

1. Md. Noor - Perspective in Agriculture Geography.
2. Hussain, Majid - Perspective in Agriculture Geography.
3. Ali, Mohammad - Studies in Agriculture Geography.
4. Randhawa, M.S. - A History of Agriculture in India.
5. Shafi, M. - Agriculture Geography of South Asia.
6. Pandey, J. - Agriculture Geography of South Asia.
7. Tiwari, R.C. & Singh - Agriculture Geography.
8. Rana, J. L. - Agriculture. Geography
9. Singh, A.L. - Irrigation and Agricultural Development.
10. Singh, S.P. - Irrigation in Agricultural Development.
11. Symons, L. - Agricultural Geography
12. Gregor, HF. - Geography of Agriculture
13. Morgan, W.B. and R.J.C. Munton - Agriculture Geography.
14. Bhalla, G. S. - Performance of India Agriculture
15. Tarrent, J.R. - Agriculture Geography.

SEMESTER IV
ELECTIVE PRACTICAL, PAPER-XV, (SECTION -A)
GEOGRAPHY OF LANDUSE

Time : 4:00 Hours

Full Marks -50

Unit - I	Measure of representing landuse data, Proportionate Pie-Diagram, Ergograph, Lorenz Curve, and Triangular graph.	15
Unit - II	Correlation and Regression analysis of Landuse	15
Unit - III	Interpretation of Landuse data and Maps	10
Unit - IV	Practical Record and Viva - Voce.	10

Books Recommended :

1. Monkhouse, F.J. and H.R. Wilkinson - Maps and Diagram.
2. Millar - Skin of the Earth.
3. Singh, R.L. - Elements of Practical Geography.
4. Singh, R.L. Map work and Practical Geography.
5. Sharma, J.P. - Prayogik Bhoogol.
6. Chauhan, P.R. - Prayogatamak Bhoogol.
7. HiraLal. - Prayogik Bhoogol.
8. Singh, S.P. - Irrigation in Agricultural Development

SEMESTER IV
ELECTIVE PRACTICAL, PAPER-XV, SECTION - B
GEOGRAPHY OF AGRICULTURE

Time : 4:00 Hours

Full Marks -50

Unit - I	Graphs and Diagrams: Trend graphs, Scatter Diagram, Agriculture deviation graph, Transect diagram.	15
Unit - II	Correlation and Regression analysis of Landuse and Agriculture Data	15
Unit - III	Interpretation of Landuse and Agriculture data and Maps.	10
Unit - IV	Practical Record and Viva - Voce.	10

Books Recommended :

1. Monk house, F.J. and H.R. Wilkinson - Maps and Diagram.
2. Millar - Skin of the Earth.
3. Singh, R.L. - Elements of Practical Geography.
4. Singh, R.L. Map work and Practical Geography.
5. Sharma, J.P. - Prayogik Bhoogol.
6. Chauhan, P.R. - Prayogatamak Bhoogol.
7. HiraLal. - Prayogik Bhoogol.
8. Singh, S.P. - Irrigation in Agricultural Development.

SEMESTER IV
ELECTIVE THEORY PAPER - XIV, GROUP - B
FUNDAMENTALS OF URBAN GEOGRAPHY

Time : 3:00 Hours

Full Marks -70

Credit - 5

Sessional - 30

Unit - I Definition and Scope of urban Geography. Approaches of Urban Geography, Trends of urban Geography, Contribution of Indian scholars of Urban Geography.

Unit - II Site and Situation Components, Sector theory, Multi Nuclui theory and Concentric Zone theory of Internal Structure of Urban centre, Rank - Size Rule of City Distribution.

Unit - III Urban Morphology, Morphological zone, Urban land use Classification, Contemporary Pattern of Urbanization of the world.

Unit - IV Functional Classification of Urban Centre, Christaller's Central Place theory, Rural - Urban fringe, Metropolitan Region.

Book Recommended :

1. Sharma N. - Urban Geography
2. Clarke, D. - Urban Geography
3. Hall, T. Urban Geography
4. Sinha, M.M. Urban Geography. (Hindi)
5. Pacion, M. Progress in Urban Geography.
6. Jones, Urban Geography.
7. Keeble, DE- Towns and Country.
8. Taneja, Morphology of Indian Cities.
9. Mishri, RP- (ed)- Million Cities in India.
10. Wingo, L.- Cities and Space.
11. Ramchandran, CR - P Urban Geography.
12. Ujagir Singh: Nagariya Bhogool
13. Bansal, S.C.- Nagariya Bhogool
14. Prakasha Rao, VLS.- Urbanisation in India.
15. Grawspr, J.B. Urban Geography.

SEMESTER IV
ELECTIVE THEORY PAPER - XV, GROUP- B
URBAN AND REGIONAL PLANNING

Time : 3:00 Hours
Credit - 5

Full Marks -70
Sessional - 30

Unit - I Regional Disparities, Need of Urban and Regional Planning, History of Urban and Regional Planning of India, Role of Geographers in Urban and Regional Planning.
Unit - II Problems of Urbanization in India Spl. Reference to Bihar, Regional Variations in level of Urbanization of India and Bihar Theory of Regional Development.
Unit - III Concept of Principles of Urban and Regional planning Urban and Regional Survey, Mechanism of Plan formulation, Techniques of Urban and Regional Planning..
Unit - IV Planning Regions of India, Urban Regions of India and Bihar, Growth Pole theory, Programme of Rural Development in India..

Books Recommended :

1. Glasson, J. Introduction to Regional planning.
2. Dickinson, RE. - City and Region.
3. Forrester, J.W. - Urban dynamics
4. Prakash Rao, VLS.- Urbanisation in India.
5. Mishara, RP.(ed)- Urbanisation in India.
6. Chaping, FS- Urban Landuse Planning.
7. Bhatt, LS.- Regional Planning in India.
8. Gibbs, J.P. Urban Research Methods
9. Smailes ,AE.- The Geography of Towns.
10. Gist, NP & SW Fava,- urban Society.

SEMESTER IV
PRACTICAL ELECTIVE PAPER - XIV, SECTION-A
FUNDAMENTAL OF URBAN GEOGRAPHY

Time : 4:00 Hours
Credit - 2.5

Full Marks -50

Unit - I	Cartographic Representation of Urban Centres: Symbols, Proportionate circles, Proportionate spheres, Proportionate squares and Proportionate triangles.	15.
Unit - II	Methods of Mapping Urban Data: Percentage, Ratio maps, Locations quotient maps and size index maps.	10
Unit - III	Methods of future Population Estimates.	15
Unit - IV	Practical Record and Viva-Voce	10

Books Recommended :

1. Monk house, F.J. and HR. Wilkinson - Maps and Diagram.
2. Millar - Skin of the Earth.
3. Singh, R.L.- Elements of Practical Geography.
4. Singh, R.L. Map work and Practical Geography.
5. Sharma, J.P.- Prayogik Bhoogol.
6. Chauhan, P.R.- Prayogatamak Bhoogol.
7. HiraLal.- Prayogik Bhoogol.
8. Singh, S.P.-Irrigation in Agricultural Development.

SEMESTER IV

**PRACTICE ELECTIVE PAPER - XV, SECTION-B
URBAN AND REGIONAL PLANNING**

Time : 4:00 Hours

Full Marks -50

Credit - 2.5

Unit - I	Graph and Diagrams: Proportionate, Circle, Polygraph, Traffic flow, Bus frequency and Scatter diagram.	15
Unit - II	Correlation and Regression analysis of Urban Data	15
Unit - III	Interpretation of urban maps and data	10
Unit - IV	Practical Record and Viva-Voce	10

Books Recommended :

1. Monk house, F.J. and HR. Wilkinson - Maps and Diagram.
2. Millar - Skin of the Earth.
3. Singh, R.L.- Elements of Practical Geography.
4. Singh, R.L. Map work and Practical Geography.
5. Sharma, J.P.- Prayogik Bhoogol.
6. Chauhan, P.R.- Prayogatamak Bhoogol.
7. HiraLal.- Prayogik Bhoogol.
8. Singh, S.P.-Irrigation in Agricultural Development.

SEMESTER IV
THEORY, ELECTIVE PAPER - XIV, GROUP-C
GEOGRAPHICAL INFORMATION SYSTEM (GIS)

Time : 3:00 Hours
Credit - 5

Full Marks -70
Sessional - 30

Unit - I GIS ; Concept and Basic Principles, Development of GIS, GIS as tool of special Science (Geography), Computer Environment for GIS, Function of GIS .

Unit - II GIS, Data. Model and Structure, types merits and demerits, database management, system database design, Types of DBMs Structure Data sources data input , Data editing .

Unit - III GPS and GIS Technology components of Internet Digital Elevation Model Definition and needs of Various Structures of DEM.

Unit - IV Application of GIS. GIS as a Decision Support System and Spatial Planning, Role of GIS in Urban Planning and Management , Natural resources management Cartography and GIS Digital Cartography Basic Principles of Cartography and computer assisted cartography of GIS.

Books Recommended :

1. Maquire, DJMF- Geographic Information Systems Principles and Application.
2. Fraser, TDR.- Geographic Information System.
3. Aronoff, S.- Geographic Information System.: A Management Perspective.
4. Star, J & Ester - Geographic Information System. : An Introduction
5. Goutam, NC.(eds)- Space Technology and Geography.
6. Barrell & Curtis- Fundamental of Remote Sensing.
7. Compbell, J.- Introduction to Remote Sensing.
8. Curran, PJ- Principle of remote Sensing.
9. Chaunial, D.- Sudar Sambedan avam Bhougolic Suchna Pranali. (Hindi)

SEMESTER IV
THEORY ELECTIVE PAPER - XV, GROUP-C
REMOTE SENSING TECHNIQUES

Time : 3:00 Hours
Credit - 5

Full Marks -70
Sessional - 30

Unit - I Definition and concept of Remote sensing techniques, Historical Development of Remote sensing as a Technology, Basic Principles of microwave Remote sensing, Remote sensing in India. .

Unit - II Remote Sensing plat-forms, Remote Sensing Sensors, Fundamentals of Photography, Fundamentals of visual image Interpretation. Satellite Remote sensing Platforms ; landsat, Spot, No AAHVHRA , INSAT, Remote sensing Programmes In India.

Unit - III Stereographic vision, Fundamentals of Air Photo Interpretation, Digital Image Processing, Remote Sensing and Urban land use Planning, Integration of Remote.

Unit - IV Remote sensing and land use and land cover, weather studies, studies of water resource, Remote sensing and Environmental management.

Books Recommended :

1. Chaunial, D. - Sudur Sambadan avam Bhaugolic Suchna Pranali. (Hindi)
2. Curran, P.J. - Principal of Remote Sensing.
3. Campbell, J. - Introduction to Remote Sensing.
4. Barrell, & Curties - Fundamental of Remote Sensing.
5. Goutam, N.C (eds) Space Technologies and Geography.
6. Star, J. & Easter - Geographic information system : An Introduction
7. Aronoff, S - Geographic Information system : A management Perspective.
8. Fraser, TDR. - Geographic Information system
9. Maquire, DJMF. - Geographic information Systems Principle.

SEMESTER IV

**ELECTIVE PRACTICAL PAPER XIV, SECTION- 'A'
GEOGRAPHICAL INFORMATION SYSTEM (GIS)**

Time:- 4 Hours

Total:- 50 Marks

Unit-I Basic components of GIS: General Model of GIS	10
Unit-II Areas of GIS Application, Mapping important data and information	15
Unit-III Preliminary Knowledge of computer and its use in Geographic Information illustration and function of components of computer system	15
Unit-IV Record of Practical work and Viva-Voce	10

Books Recommended:

1. Macghire, DJMF - Geographic Information System: Principles and Application.
2. Gautam, NC - Space Technology and Geography
3. Comphell, J - Introduction to Remote Sensing
4. Sharma, J.P - Prayogik Bhoogol
5. Chouhar, P.R. - Prayogik Bhoogol