

FACULTY OF ARTS & SOCIAL SCIENCES

SYLLABUS

FOR

M.A. (Geography)

(SEMESTER: I - IV)

Examinations: 2017-18



GURU NANAK DEV UNIVERSITY

AMRITSAR

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M.A. GEOGRAPHY (SEMESTER SYSTEM)**OUTLINES OF TESTS, SYLLABI AND COURSES OF READING IN THE SUBJECT OF GEOGRAPHY FOR M.A. (SEMESTER SYSTEM)**

There will be four papers, three compulsory and one optional (out of the offered optional papers), of 100 marks each including practical examination as under:

SEMESTER-I:

Paper-I	:	Geographic Thought	100
Paper-II	:	Geomorphology	100
Paper-III	:	Cartography (Theory and Practical)	100
Paper-IV	:	Any one of the following optional courses:	
Option (i)	:	Fundamentals of Population Geography	100
Option (ii)	:	Political Geography	100
Option (iii)	:	Medical Geography	100
			<u>Total: 400</u>

SEMESTER-II:

Paper-I	:	Climatology	100
Paper-II	:	Geography of India (Systematic and Regional)	100
Paper-III	:	Fundamentals of Remote Sensing (Theory and Practical)	100
Paper-IV	:	Any one of the following optional courses:	
Option (i)	:	Urban Geography	100
Option (ii)	:	Fundamentals of Natural Hazards and Disaster Management	100
Option (iii)	:	Geography of Settlement with Special Reference to India	100
			<u>Total: 400</u>

M.A. GEOGRAPHY (SEMESTER SYSTEM)**SEMESTER III**

Paper	Title	Marks
Paper-I	Town and Country Planning	100
Paper-II	Research Methodology in Geography	100
Paper-III	Fundamentals of GIS and GPS (Theory and Practical)	100
Paper-IV	<i>Any one of the following optional courses :</i>	
Option (i):	Regional Development and Planning in India	100
Option (ii):	Social Geography	100
Option (iii):	Geography & Eco Systems	100
Total :		400

SEMESTER-IV

Paper	Title	Marks
Paper-I	Regional Planning	100
Paper-II	Field Based Project Report (Practical only)	100
Paper-III	Quantitative Methods in Geography (Theory and Practical)	100
Paper-IV	<i>Any one of the following optional courses :</i>	
Option (i):	Geography of Manufacturing Industry	100
Option (ii):	Geography of Migration	100
Option (iii):	Fundamentals of Agricultural Geography	100
Total :		400

M.A. GEOGRAPHY (SEMESTER – I)**Paper-I: GEOGRAPHIC THOUGHT****Time: 3 Hours****Max. Marks: 100****Note: Question paper shall consist of two sections as follows:**

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 18 marks. The total weightage of this section shall be 72 marks.

Objectives:

Main objectives of this course are to acquaint the students with the philosophy, methodology and historical development of geography as a professional field. This should enable the student to critically look at the contents of other courses at Postgraduate level as logically integrated with the broad currents of thought the subject has witnessed in the distant and recent past. The course aims at developing critical thinking and analytical approaches.

UNIT-I

Historical Developments upto 19th Century: Contributions of the Greeks and Romans with special reference to Herodotus, Eratosthenes, Strabo and Ptolemy.

Geography in the Muslim World.

Geography in the Modern Period: Contributions of Varenus, Kant, Humboldt and Ritter.

UNIT-II**Philosophical Foundations**

(a) Geography as a science of : (i) distributions; (ii) relationships; (iii) areal differentiation; and (iv) spatial organisation.

(b) Dualism between

(i) systematic and regional geography;

(ii) physical and human geography.

UNIT-III**Methodological Issues**

Modes of explanation (a) major concerns of scientific thinking; (b) the routes to scientific explanations.

Conceptual methodological developments.

UNIT-IV**Contemporary Developments**

Geography in the Twentieth Century: The changing paradigms, Determinism and possibilism.

Quantitative Revolution, Positivism, behaviouralism, radicalism and humanism.

M.A. GEOGRAPHY (SEMESTER – I)**Books Recommended:****Essential Readings:**

1. Dikshit, R. D. (ed.), *Geographical Thought: A Contextual History of Ideas*, Prentice Hall of India, New Delhi, 1999.
2. Dikshit, R. D. (ed.), *The Art & Science of Geography, Integrated Readings*, Prentice Hall of India, New Delhi, 1994.
3. Hartshorne, R., *Nature of Geography*, Association of American Geographers, Fourth Print, 1969.
4. Hartshorne, R., *Perspectives on Nature of Geography*, Rand, McNally & Co., 1959.
5. Harvey, D., *Explanation in Geography*, Edward Arnold, London, 1973.
6. Husain, M., *Evolution of Geographic Thought*, Rawat Pub., Jaipur, 1988.
7. Johnston, R. J., *The Future of Geography*, Methuen, London, 1988.
8. Peet, Richard, *Modern Geographical Thought*, Blackwell, Massachusettes, First Indian Reprint, 2004.
9. Preston E. James, *All Possible Worlds*, The Odssey Press, Indianapolis.
10. Tozer, F.A., *History of Ancient Geography Cambridge* : Cambridge University Press, 1957.

Further Readings :

1. Abler, Ronald F. Marcus, Melvin, G. Olson, Judy, M., *Geography's Inner Worlds Pervasive Themes in Contemporary American Geography*, Rutgers University Press, New Jersey, 1992.
2. Abler, Ronald; Adams, John S. Gould, Peter, *Spatial Organization : The Geographer's View of the World*, Prentice Hall, N. J., 1971.
3. Ali, S. M., *The Geography of Puranas*, Peoples Publishing House, Delhi, 1966.
4. Amedeo, Douglas, *An Introduction to Scientific Reasoning in Geography*, John Wiley, U.S.A., 1971.
5. Board, Christopher, R.J., Haggett, P., Stoddart, D.R. (ed.), *Progress in Geography: International Review of Current Research, Vol. I to VIII*, Edward Arnold, London.
6. Jensen, A.H., *Geography : Its History and Concepts*, Sage Publications, Thousand Oaks, London, 1999, Thousand Oaks, New Delhi.
7. Johnston, R. J. & Claval, P., *Geography Since the Second World War: An International Survey*, Crown Halm, Sydney, 1984.
8. Johnston, R. J. and Sidaway, J.D., *Geography and Geographers: Anglo-American Human Geography Since 1945*, Arnold, London, 2004.
9. Johnston, R. J., *Philosophy and Human Geography*, Edward Arnold, London, 1983.
10. Minshull, R., *The Changing Nature of Geography*. Hutchinson, University Library, London, 1970.
11. Pedagogy : The students are to be encouraged to interact with students from other streams of knowledge i.e. physical, social sciences and humanities for a proper grounding into geography. All issues relating to philosophy, methodology and history of the discipline are to be explained by asking the students to prepare write ups on specific problems. Emphasis will be both on theoretical and practical aspects.

M.A. GEOGRAPHY (SEMESTER – I)**Paper-II: GEOMORPHOLOGY****Time: 3 Hours****Max. Marks: 100****Note: Question paper shall consist of two sections as follows:**

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 18 marks. The total weightage of this section shall be 72 marks.

Objectives:

This course represents the interface between physical aspects of Geography and Geology, Oceanography, Glaciology etc. The course aims to sensitise the student to this interface.

The course aims to familiarize the student with the conceptual framework for understanding the existing geomorphological landscapes and related processes.

The course is designed to provide the student with a theoretical and empirical framework for understanding landscape evolution and the characteristics of individual types of geomorphic landscapes.

UNIT-I

Nature, Scope, Approaches and recent developments.

Important concepts in geomorphology.

Relationship between process and landform.

UNIT-II

Earth Movements: Epeirogenic, orogenic, cymatogenic.

Morphogenetic regions.

Mass movement of debris.

UNIT-III

Volcanic topography.

Karst topography.

Fluvial, Aeolian, Glacial and Marine Landforms and their processes.

UNIT-IV

Models of landscape evolution and slope development: Ideas of Davis, Penck, and King.

Multicyclic and polygenetic evolution of landscapes.

M.A. GEOGRAPHY (SEMESTER – I)**Books Recommended:****Essential Readings:**

1. Bloom, Arthur L., *Geomorphology: A Systematic Analysis of Late Cainozoic Landforms*, Prentice Hall, Englewood Cliffs, N.J. (Pearson Edition, 2003), 1997.
2. Davis, W. M., *Geographical Essays*, Dover, Boston, 1909.
3. Fairbridge, R. W., *Encyclopaedia of Geomorphology*, Reinhold, New York, 1969.
4. Holmes, A., *Principles of Physical Geology*, Nelson, London, 1968.
5. King, L.C., *The Morphology of the Earth*, Hafner, New York, 1962.
6. Penck, W., *Morphologic Analysis of Landforms*, St. Marisip Press, London, 1953.
7. Pitty, A. F., *Introduction to Geomorphology*, Methuen, London, 1971.
8. Singh, Savinder, *Geomorphology*, Prayag, Prakashan, Allahabad, 1998.
9. Small, R. J., *The Study of Landforms*, Cambridge University Press, Cambridge, 1970.
10. Thornbury, W. D., *Principles of Geomorphology*, John Wiley, New York, 1969.
11. Twidale, C. R., *Analysis of Landforms*, John Wiley, London, 1976.
12. Twidale, C. R., *Structural Landforms*, A.N.U. Press, Canberra, 1971.

Further Readings:

1. Cooke, R. U. and A., Warren : *Geomorphology in Deserts*, Batsford, London, 1973.
2. Embleton, C. and C. A. M., King : *Glacial and Periglacial Geomorphology*, Arnold, London, 1968.
3. Melhorn, W. N. and R. C., Flemal : *Theories of Landform Development*, State University of New York, Binghamton, 1976.
4. Scheideguer, A. E., *Theoretical Geomorphology*, S. V., Berlin.
5. Skinner, B. J. and S.C., Porter : *The Dynamic Earth*, John Wiley, New York, 1995.

Pedagogy:

The study of this paper needs adequate understanding of geomorphic forms and processes. It can be achieved through suitable use of audio-visual aids, photographs, maps, other forms of illustrations and, depending upon feasibility, field visits.

M.A. GEOGRAPHY (SEMESTER – I)**Paper-III: CARTOGRAPHY (THEORY AND PRACTICAL)****Time: 3 Hours****Max. Marks: 100****Distribution of Marks:**

- (i) Theory Written paper will be three hours carrying 50 Marks
- (ii) **Practical will be 50 Marks.**
 - a) Practical record and viva voce (20+10) 30 Marks
 - b) Two practical exercises set on the spot by the examiner 20 Marks

Note: Question paper shall consist of two sections as follows:

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 2 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 14 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 9 marks. The total weightage of this section shall be 36 marks.

Objectives:

The objective of this course is to promote awareness of the various cartographic techniques available for graphic representation of relief, population, agriculture, industrial and transport data, the steps of construction of the techniques - their merits and demerits. An effort is made to help them develop manual skills of drawing maps based on some of the above-mentioned data. They are also told about benefits of GIS and computer-assisted cartography.

UNIT-I

Cartography - Nature, history and recent trends.

GIS and Computer Assisted Cartography (four practical exercises as per the availability of equipment/hardware & software).

Types of data and symbols.

UNIT-II

Landform Mapping and Analysis :

Problems of Landform Mapping : Elementary conventional methods and profiles (serial, longitudinal, superimposed, composite and projected).

UNIT-III

Calculation of Gradient, scales of slopes. Methods of slope analysis; Wentworth, Henry and Raisz, Robinson.

Mapping of climatic data: Temperature and Rainfall.

M.A. GEOGRAPHY (SEMESTER – I)**UNIT-IV**

Representation of Population data.

Representation of Agriculture data.

1. Each candidate shall prepare a Practical File containing at least 15 exercises under the supervision and guidance of the teacher concerned. The candidate shall submit his Practical File at least 10 days before the commencement of the theory examination to the concerned department duly approved and signed by the faculty member teaching the course.
2. Assessment of practical record and viva voce on it will be done by a Board of Examiners, consisting of one external examiner and one internal examiner, as practical examinations.

Books Recommended:**Essential Readings:**

1. Keates, J.S., Cartographic Design and Production, Longman, London, 1973.
2. Misra, R.P. and Ramesh, A., Fundamental of Cartography, Concept Publishing Company, New Delhi, 1989.
3. Monkhouse, F.J. and H.R. Wilkison, Maps and Diagrams, Methuen and Co., London, 1994.
4. Raisz, Erwin, Principles of Cartography, McGraw Hill, New York, 1962.
5. Robinson, A.H. and Others, Elements of Cartography, John Willy & Sons, New York, 6th edition, 1992.

Further Readings:

1. Birch, T., Maps- Topographical and Statistical, Clarendon Press, Oxford, 1949.
2. Brown, L.A., The Story of Maps, Cressit Press, London, 1951.
3. Garnett, Alice, Geographical Interpretation of Topographical Maps, George Harrap and Co., London, 1945.
4. Gregory, S., Statistical Methods and the Geographer, Longmans, London, 1963.
5. Ramamurthy, K., Maps Interpretation : India Landscapes Through Survey of India, Topographic Maps, R.K. Mutt Road, Madras, 1982.
6. Wood Clifford H. and Keller C., Cartographic Design - Theoretical and Practical Perspectives, John Wiley & Sons, 1996.

Pedagogy:

There should be adequate interaction between the teacher and students. The teacher should make maximum use of wall maps and other illustrations like maps from geography books, Ph.D. thesis, research reports and atlases while teaching the use of different cartographic techniques. This course is concerned with visual techniques, therefore maximum use of the visual illustrations should be made while teaching this course.

M.A. GEOGRAPHY (SEMESTER – I)**Paper- IV: Any one of the following optional courses:****Option (i) : FUNDAMENTALS OF POPULATION GEOGRAPHY****Time: 3 Hours****Max. Marks: 100****Note: Question paper shall consist of two sections as follows:**

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 18 marks. The total weightage of this section shall be 72 marks.

Objectives:

The aim of this course is to explain the geographical approach to the study of population. It focuses on analysis of broad spatial patterns of world population examining population resource relationship and population problems and policies of developed and less developed countries of the world.

UNIT-I

- (i) Nature and scope of population geography; methodological problems in population geography; recent developments in population geography; population geography in India.
- (ii) Sources of population data: Quality and reliability of data; problems of mapping population data.

UNIT-II

- (iii) Concepts, determinants and world patterns of following attributes of population:
 - Distribution and density.
 - Vital rates : Birth and death rates.
 - Growth.
 - Migration (including laws of migration).
 - Age and sex composition.
 - Literacy.
 - Urbanization.
 - Occupation.

UNIT-III

Population and resources: Concepts of optimum population, over-population and under-population.

Population - resource regions, theories of population (Malthus, Ricardo and Marx).

M.A. GEOGRAPHY (SEMESTER – I)**UNIT-IV**

A comparative study of the population problems and policies of developed and Developing countries with special focus on the following countries :

Developed(A) USA, Great Britain

(b) Developing: China, India.

Books Recommended:**Essential Readings:**

1. Barret, H.R., Population Geography, Oxford & Boyd, Oxford, 1997.
2. Chandna, R.C., Population, Kalyani Publishers, New Delhi, 1998.
3. Chandna, R.C., A Geography of Population (Third Edition), Kalyani Publishers, New Delhi, 2006.
4. Chandna, R.C., Jansankhya Bhoogol (Hindi - Third Edition), Kalyani Publishers, New Delhi, 2006.
5. Clarke, John I., Population Geography and the Developing Countries, Pergamon Press, New York, 1971.
6. Demko, G.J. and Others (Eds.), Population Geography: A Reader, McGraw Hill Books Co., New York, 1971.
7. Trewartha, G.T., The Less Developed Realm: A Geography of its Population, John Wiley & Sons., Inc., New York, 1972.
8. Trewartha, G.T., The More Developed Realm: A Geography of its Population, Pergamon Press, New York, 1978.
9. Zelinsky, Wilbur, A Prologue to Population Geography, Prentice Hall, New Jersey, 1966.

Further Readings :

1. Beaujeu Garnier, J., Geography of Population, Longman, London, 1966.
2. Brooks, S., The World Population Today (Ethnodemographic Processes), U.S.S.R. Academy of Sciences, Moscow, 1977.
3. Chandna, R.C., Environmental Awareness, Kalyani Publishers, New Delhi, 1998.
4. Crook, Nigel, Principles of Population and Development, edited by Ian, M. Timacus, Oxford University Press, Oxford, 1997.
5. Jones, H.R., A Population Geography, Harper and Row Publishers, London, 1981.
6. U.N.D.P., Human Development Report, Oxford University Press, Oxford, 1997.
7. United Nations, World Population Situation in 1983, U.N. Publications, New York, 1984.
8. Woods, R., Population Analysis in Geography, Longman, London, 1979.

Pedagogy:

The students may be encouraged to interact with census officials so as to understand the census operations in the country. The students may also interact with the students from other disciplines, which study population in order to understand the geographical approach to the study of population.

M.A. GEOGRAPHY (SEMESTER – I)**Paper IV: Option–(ii): POLITICAL GEOGRAPHY****Time: 3 Hours****Max. Marks: 100****Note: Question paper shall consist of two sections as follows:**

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 18 marks. The total weightage of this section shall be 72 marks.

Objectives:

The course is designed to acquaint the student with the conceptual framework for the study of geographical bases for political phenomena.

To create awareness about the role of geographical factors in influencing political character of individual countries/regions.

UNIT-I

Definition, approaches, scope and importance of Political Geography.
Study of different geographical-political schools of thought.
Recent developments in political geography.

UNIT-II

Elements of Political Geography :
Physical elements (location, size and shape).
Human elements (Population-size, density & distribution, growth, composition, race, ethnographic and religious composition).
Economic elements (Transportation- surface, air & water; foreign trade and investment).

UNIT-III

Special themes in Political Geography :
State and Nation.
Frontiers and Boundaries.
Geo-strategic views: The contributions of H. Mackinder, A.T. Mahan, N.J. Spykman.

UNIT-IV

Federalism: Definition, concept, approaches and types, geography and federalism.
Place of electoral study in political geography; geographical approaches to the study of elections;
Electoral abuse.

M.A. GEOGRAPHY (SEMESTER – I)**Essential Readings:**

1. Alexander, I.M., World Political Patterns, Rand McNally, Chicago, 1963.
2. De Blij, Harm J., Systematic Political Geography, John Wiley & Sons, New York, 1973.
3. Dikshit, R.D., Political Geography–A Contemporary Perspective, McGraw Hill, New Delhi, 1985.
4. Fisher, Charles A., Essays in Political Geography, Methuen & Co., London, 1968.
5. Kasperson, R. E. et.al. (ed.), The Structure of Political Geography, University of London Press, London, 1970.

Further Readings:

1. Carlson, Lucie, Geography and World Politics, Prentice Hall, New Jersey, 1971.
2. Cohen, S.B., Geography and Politics in a Divided World, Methuen & Co., London, 1968.
3. Edward K. Bergman, Modern Political Geography, WMC Brown Company, Dubuque, Iowa, 1975.
4. Goblet, Y. M., Political Geography and the World Map, Philip & Sons, London, 1955.
5. Moodie, A. R., Geography Behind Politics, Hutchinson, London (Latest Edition), 1957.
6. Muir, Richard, Modern Political Geography, Macmillan, London, 1995.
7. Percy, G. E. et.al., World Political Geography, Second Edition, Thomas Y. Growell Company, New York, 1957.
8. Pounds, N.J.G., Political Geography, 2nd Ed., McGraw-Hill, N.Y., 1972.
9. Short, John R., An Introduction to Political Geography, Routledge & Kegan Paul, London, 1982.

Pedagogy :

The students should be encouraged to engage in classroom discussions on the geographical aspects of political problems at the national and international levels.

M.A. GEOGRAPHY (SEMESTER – I)**Paper IV: Option – iii: MEDICAL GEOGRAPHY****Time: 3 Hours****Max. Marks: 100****Note: Question paper shall consist of two sections as follows:**

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 18 marks. The total weightage of this section shall be 72 marks.

Unit –I**Introduction to Medical Geography**

Nature, Scope and Recent Trends in Medical Geography, Contemporary Concepts in Medical Geography, Human Ecology of disease, Medical Geography and Epidemiology.

Unit – II**Environments and Health Care Studies**

W.H.O. Classification of Diseases ; Environmental Medicine (Water, Soil, Climate and Health) ; Medical Pluralism in developing countries with reference of India.

Unit – III**Distribution Patterns of Disease**

Geographical Patterns of Major diseases with special reference to India; Malaria, Cholera, Tuberculosis, AIDS.

UNIT – IV**Health Care and Service Systems**

Geography of Nutrition with special reference to India; Health Services System in Developed and Developing Countries-U.S.A. and India.

Recommended Readings:

1. Akhtar, R. and Learmonth, A.T. (1986) : *Geographical Aspects of Health and Disease in India*, Concept Publishers, New Delhi.
2. Mc-Glashan, N.D.(1972) : *Medical Geography, Techniques and Field Studies*, Methuen, London.
3. Pacione, M. (1986) : *Medical Geography : Progress and Prospects* ; Edited, Croam, Helm London.
4. Pyle, G.P.(1971) : *Applied Medical Geography*, Washington, D.C.V.H. Winnston and Sons.

Supplementary Readings:

1. Akhtar, R.(1982) : *The Geography of Health: An Essay and Bibliography*, Marwah, New Delhi.
2. Shannon, G.W. and Dever, G.E.A.(1973) : *Health Care Delivery, Special Perspectives*, New York.

M.A. GEOGRAPHY (SEMESTER – II)**Paper-I: CLIMATOLOGY****Time: 3 Hours****Max. Marks: 100****Note: Question paper shall consist of two sections as follows:**

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 18 marks. The total weightage of this section shall be 72 marks.

Objectives:

The overall objective of the course is to foster comprehensive understanding of atmospheric phenomena; dynamics and global climates.

UNIT – I**Introduction, Atmosphere, Insolation and Pressure System**

- (i) Nature and scope of climatology
- (ii) Composition and structure of the atmosphere
- (iii) Insolation: Horizontal and Vertical distribution, heat budget of the Earth.
- (iv) Pressure system and winds: Horizontal and vertical distribution of pressure; Winds: Factors determining the resultant winds, planetary winds, local winds. El Niño-Southern Oscillation (ENSO).

UNIT – II**Atmospheric Moisture, Disturbances and Air Masses**

- (v) **Atmospheric Moisture:** Humidity, evaporation, condensation; Precipitation: Processes of formation, types of precipitation, world patterns of precipitation.
- (vi) **Air Masses:** Source regions, classification of air masses; Fronts; Types and characteristics.
- (vii) **Atmospheric disturbances:** Mid-latitude cyclones, anticyclones; tropical cyclones.
- (viii) **Upper air circulation:** Upper air, long waves and jet streams.

M.A. GEOGRAPHY (SEMESTER – II)**UNIT – III****Climatic Changes**

- (ix) Study of evidences of climatic changes in the past.
- (x) Hypotheses and Theories regarding climatic changes in the past.
- (xi) Anthropogenic effects of environmental changes on climatic changes.

UNIT – IV**Climatic Classifications**

- (xii) Climatic classifications: A critical study of Koppen's, Thornthwaite's Climatic classifications.
- (xiii) A geographical study of following climatic types:
 - (a) Tropical rainforest
 - (b) Temperate oceanic
 - (c) Temperate continental
 - (d) Boreal climate
 - (e) Tundra climate
 - (f) Dry climate

Recommended Readings:

1. Barry, R.G. and Chorley, R.J. (1998): *Atmosphere, Weather and Climate*, Routledge London and New York.
2. Trewartha, G.T. and Horn, L.A. (1987): *Introduction to climate, International series*, McGraw Hill, New York.
3. Critchfield, J.H. (1999): *General Climatology*, Prentice Hall of India, New Delhi.
4. Das, P.K. (2002): *Monsoons*, National Book Trust, New Delhi.
5. Miller, A. Austin (1979): *Climatology*, Methuen & Co., London.
6. Stringer, E.T. (1972) *Foundations of Climatology*, W.H. Freeman & Co., San Francisco.
7. Griffiths, J.E and Driscoll, D.M. (1982): *Survey of Climatology*, Charles E. Merrile Pub. Co., Tronto & London.
8. Burroughs, William James 2001: *Climate Change- A Multidisciplinary Approach*, Cambridge University Press.
9. Oliver, John. E. and Hidore, John. J., (2003): *Climatology: An Atmospheric Science* Pearson Education, Inc., Delhi

Supplementary Readings:

10. Mather, J.R. (1974): *Climatology: Fundamentals and Applications*, McGraw Hill Book Co., New York.
11. Robinson, P.J. and Menderson, S. (1999): *Contemporary Climatology*, Henlow.
12. Lockwood, J.G. (1979): *World Climatology: An Environmental Approach*, Arnold Henemann, London.
13. Lutgen, F.K. and Tarbuck, E.J.: *The Atmosphere: An Introduction to Meteorology*. Prentice Hall, New Jersey.

M.A. GEOGRAPHY (SEMESTER – II)**Paper–II: GEOGRAPHY OF INDIA (SYSTEMATIC AND REGIONAL)****Time: 3 Hours****Max. Marks: 100****Note: Question paper shall consist of two sections as follows:**

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 18 marks. The total weightage of this section shall be 72 marks.

Objectives:

To provide an understanding of :

The geographic dimensions of India in terms of its political and administrative characteristics.

The physical and climatic attributes and their interface with developmental strategies.

The human and economic dimensions of India in a spatial perspective.

UNIT-I

Unity in diversity of India : Unifying mechanism and divisive streaks.

Evolution of the administrative map of India since Independence.

UNIT-II

Role of language, religion and culture in the formation of regions.

The question of regional disparity and identity in India.

UNIT-III

Regionalisation schemes of India : Physiographic, Climatic, Agricultural, and Industrial.

UNIT-IV**Northwest India :**

Northwest India as a Geographic Entity : Jammu & Kashmir, Himachal Pradesh, Haryana, Punjab and Union Territories of Delhi and Chandigarh.

Land : Physiography and drainage.

People : Population number, distribution and density, growth and urbanization.

Economy : Agriculture, Industry and Transport.

M.A. GEOGRAPHY (SEMESTER – II)**Books Recommended:****Essential Readings:**

1. Chandna, R.C., Geography of Population, Kalyani Publishers, Delhi, 1998.
2. Deshpande, C.D., India : A Regional Interpretation, ICSSR and Northern Book Center, New Delhi, 1992.
3. India, A Reference Annual : Ministry of Information & Broadcasting, GOI, New Delhi, 2004.
4. Muthiah, S., A Social and Economic Atlas of India, Oxford University Press, Delhi, 1987.
5. Siddhartha, K., India : The Physical Aspects, Transworld Media & Communications Pvt. Ltd., New Delhi.
6. Singh, Jagdish, India : A Comprehensive Systematic Geography, Gyanodya Prakashan, Gorakhpur, 2003.
7. Spate O.H.K. & A.T.A. Learmonth, Geography of India and Pakistan, Methuen, London (First Indian Edition, 1984, Munshiram Manoharlal, New Delhi.), 1967.
8. Sukhwai, B. L., India : A Political Geography, Allied Publishers, New Delhi.
9. Tirtha, Ranjit, Emerging India, Conpub. Ann Arbour, U.S.A. (Reprint Edition, 1996, Rawat Pub., Jaipur), 1992.
10. Tiwari, R.C., Geography of India, Prayag Publishers, Allahabad, 1999.
11. Wadia, D. N., Geology of India, Macmillan & Co., London, 1953.

Further Readings:

1. Center for Science and Environment, State of India's Environment, New Delhi, 1985.
2. Dreze, Jean and Amartya Sen, Indian Development, Oxford University Press, Delhi, 1996.
3. Farmer, B. H., Introduction to South Asia, Methuen, London, 1983.
4. Francis, Robinson, The Cambridge Encyclopaedia of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, and the Maldives, Cambridge University Press, London, 1989.
5. Gazetteer of India, Vol. I & II, Ministry of Information & Broadcasting, GOI, New Delhi, 1973.
6. Singh, K.S., People of India, Anthropological Survey of India, Dehradun, 1992.

Pedagogy:

The course should be backed up with extensive use of examples from Indian urban places with the help of audio-visual aids and, depending upon feasibility, field trips.

M.A. GEOGRAPHY (SEMESTER – II)**Paper-III: FUNDAMENTALS OF REMOTE SENSING
(Theory and Practical)****Time: 3 Hours****Max. Marks: 100****Distribution of Marks:**

- (i) Theory Written paper will be three hours carrying 50 Marks
- (ii) **Practical will be 50 Marks.**
 - a) Practical record and viva voce (20+10) 30 Marks
 - b) Two practical exercises set on the spot by the examiner 20 Marks

Note: Question paper shall consist of two sections as follows:

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 2 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 14 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 9 marks. The total weightage of this section shall be 36 marks.

Objectives:

To expose the students with one of the most modern methods of data collection, using aerial photographs and satellite-based imageries.

To develop the skill of interpretation and map making using remote sensing.

To introduce the students about the application of this new technology in management and planning of resources.

UNIT-I

Historical development of remote sensing, its types and sensors used, electromagnetic energy, geographical uses of remote sensing data.

Types of aerial-photographs and their applications, element of object identification, image interpretation techniques, photo mosaics.

UNIT-II

Simple Geometry of aerial photos; measurement of scale, heights and slope from vertical aerial photos.

Identification and mapping of elements of natural and cultural landscape including topography, drainage, surficial material, vegetation, settlements, transport networks, land use and field pattern.

M.A. GEOGRAPHY (SEMESTER – II)**UNIT-III**

Space borne RS, RS Sensors: Scanning mechanism, Resolution, RS Satellites, such as Landsat, SPOT, IRS, IKONOS, Quickbird, comparison of aerial photographs, satellite imageries with toposheets.

UNIT-IV

Application of remote sensing in management of environmental problems and natural hazards, such as floods, earthquakes, cyclones, forest fire, and droughts.

1. Each candidate shall prepare a Practical File containing atleast 15 exercises under the supervision and guidance of the teacher concerned. The candidate shall submit his Practical File atleast 10 days before the commencement of the theory examination to the concerned department duly approved and signed by the faculty member teaching the course.
2. Assessment of practical record and viva voce on it will be done by a Board of Examiners, consisting of one external examiner and one internal examiner, as practical examinations.

Books Recommended:**Essential Readings:**

1. American Society of Photogrammetry, Manual of Photogrammetry, (3rd ed.), Virginia, 1966.
2. American Society of Photogrammetry, Manual of Remote Sensing, Virginia, 1975.
3. Avery, T. E. and G. L. Berlin, Fundamentals of Remote Sensing and Airphoto Interpretation, 5th ed., New York, MacMillan Publishing Co., 1983, 1992.
4. Curran, P. J., Principles of Remote Sensing, Longman, ELBS Edition, Hong Kong, 1988.
5. Kellaway, George P., Map Projection, Methuen & Co., London, 1956.
6. Lillesand, T. M., and Kieffer, R. W., Remote Sensing and Image Interpretation, John Wiley and Sons, New York, 1979.
7. Sabins, F. F. (Jr.), Remote Sensing Principles and Interpretation, 2nd ed., W.H. Freeman and Co., New York, 1987.
8. Steers, J. A., Map Projections, University of London Press, London, 1957.

Further Readings:

1. Barret, E. C. and Curtis, L. F., Introduction to Environmental Remote Sensing, Chapman and Hall, London, 1976.
2. Barret, E.C. and Curtis, L. F., Environmental Remote Sensing, Applications and Achievements, Edward Arnold, London, 1974.
3. Colwell, R. N. (ed.), Manual of Remote Sensing, 2nd ed., Falls Church, Va.: American Society of Photogrammetry, 1983.

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4. Easts, J. E. and Sanger, L. W. (ed.), Remote Sensing Techniques for Environmental Analysis, Hamilton Publishing Co., Santa Barbara, 1974.
5. Garnett, William, Map Projections, George Phillip and Sons, London.
6. Jameson, A.H. and Ormsby, M.T.M., Mathematical Geography, Vol. I, Issac Pitman and Sons, London.
7. Lueder, D. R., Aerial Photographic Interpretation, McGraw Hill, New York, 1950.
8. Reeves, Robert, G. (ed.), Manual of Remote Sensing (2 Vols.), The American Society of Photogrammetry, Falls Church, Virginia, 1975.
9. Robinson, Arther, H. et.al , Elements of Cartography, 6th edition, John Willey & Sons, New York, 1995.
10. Tomar, M. S. and Maslekar, A. R., Aerial Photographs in Landuse and Forest Surveys, Jugal Kishore and Co., Dehradun, 1974.
11. Verstappan, H. Th., Remote Sensing in Geomorphology, Elsevier Scientific Publishing Co., Amsterdam, 1977.
12. Verbyla, David, L., Satellite Remote Sensing of Natural Resources, Lewis Publishers, New York, 2005.

Pedagogy:

Basic fundamentals of map projection are introduced by demonstrating construction exercises in the class. Students are provided aerial photographs and trained to identify and map physical and cultural features. Instruments such as pocket and mirror stereoscope are used to prepare stereo models. Students are given simple exercises on photogrammetry.

M.A. GEOGRAPHY (SEMESTER – II)**Paper- IV: Any one of the following optional courses:
Option (i): URBAN GEOGRAPHY****Time: 3 Hours****Max. Marks: 100****Note: Question paper shall consist of two sections as follows:**

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 18 marks. The total weightage of this section shall be 72 marks.

Objectives:

To familiarise the students with the theoretical foundations and recent trends in this branch of Geography.

To provide an understanding of evolutionary, morphological and, functional attributes of urban places at different scales.

To sensitize the students about contemporary urban problems.

UNIT-I

Definition, nature, scope and approaches.

Development and recent trends.

Attributes of Modern city.

UNIT -II

A study of the following aspects of urban places :

Setting : Location, situation and site; definition, nature and significance.

Ecological processes and their spatial expression.

Internal Structure: Theories of internal structure, internal structure of Indian cities and its comparison with western cities.

Urban Fringe: Attributes, and demarcation.

UNIT-III

City-region Relations : Basis and nature, definition, demarcation, and functional structure of umland.

Cities and Central Places : Models of Christaller & Losch,

M.A. GEOGRAPHY (SEMESTER – II)**UNIT-IV**

Urban Systems: Definition, models of city size distribution; urban system in India.

Classification of urban places:

(a) Non-functional classification.

(b) Functional Classification: Comparison of methods of functional classification.

Contemporary Urban Issues: Slums, Pollution.

Books Recommended:

Essential Readings:

1. Carter, Harold, *The Study of Urban Geography*, Edward Arnold, London, 1972.
2. Dickinson, R.E., *City, Region and Regionalism*, Routledge and Kegan Paul, London (Latest Edition).
3. Herbert, D.T., *Urban Geography : A Social Perspective*, David and Charles, Newton & Abbot, 1977.
4. Johnson, J.H., *Urban Geography : An Introductory Analysis*, Pergamon Press, London, 1972.
5. Mayer, H.M. & C.F. Kohn, *Readings in Urban Geography*, University Press, Chicago, 1959.
6. Sharma, K.D., *Urban Development in the Metropolitan Shadow*, Inter-India, New Delhi, 1985.
7. Singh, R.L., *Urban Geography in Developing Countries*, National Geographical Society of India, Varanasi, 1973.
8. Smailes, A.E., *Geography of Towns*, Hutchinson, London, 1965.

Further Readings:

1. Bourne, L.S., *Internal Structure of the City*, Oxford University Press, London, 1982.
2. Kundu, A., *Urban Development and Urban Research in India*, Khanna Pub., New Delhi, 1992.
3. Nangia, Sudesh, *Delhi Metropolitan Region : A Study in Settlement Geography*, Rajesh Pub., New Delhi, 1976.
4. Short, John R., *An Introduction to Urban Geography*, Routledge, London, 1984.
5. Vance Jr., J.E., *This Scene of Man*, Harper & Row, New York, 1977.

Pedagogy:

The course should be backed up with extensive use of examples from Indian urban places with the help of audio-visual aids and, depending upon feasibility, field trips.

M.A. GEOGRAPHY (SEMESTER – II)**Paper IV: Option – (ii): FUNDAMENTALS OF NATURAL HAZARDS AND DISASTER MANAGEMENT****Time: 3 Hours****Max. Marks: 100****Note: Question paper shall consist of two sections as follows:**

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 18 marks. The total weightage of this section shall be 72 marks.

Objectives:

To make students conceptually clear about the concept of disaster and interrelated concepts. Also, to familiarize with methodological tools and techniques used to study disasters.

UNIT-I

Concept of Hazards: Risk, Vulnerability and Disaster.

Types of Hazards : Natural, man-made.

UNIT-II

Natural Disasters : Floods, drought and desertification, earthquakes, landslides, avalanches, cyclones, forest fires.

UNIT-III

Regional Dimension of Hazard : Occurrence and trends with special reference to northwest India.

Case Studies : Floods in Delhi, Major Fires in Kolkata, Earthquakes in Bhuj, Rail Accidents in India.

UNIT-IV

Disaster Management : Concepts relating to the Pre-disaster phase, emergency phase, post-disaster phase.

Disaster Management Mechanism in India : Agencies, Plans and Policies.

M.A. GEOGRAPHY (SEMESTER – II)**Books Recommended:****Essential Readings:**

1. Allan, S., Adam, B. and Carter, C. eds. (2000), *Environmental Risks and the Media*, Routledge, London.
2. Ambala-Bertrand, J.M. (1993), *Political Economy of Large Natural Disasters : With Special Reference to Developing Countries*, Clarendon Press, Oxford.
3. Blaikie, P. and Others (1994), *At Risk : Natural Hazards, People's Vulnerability, and Disasters*, Routledge, London.
4. Burton, I., Kates, R.W. and White, G.F. (1993), *Environment as Hazard*, 2nd edition, Guilford Press, New York.
5. Hewitt, K. (1997), *Regions of Risk : A Geographical Introduction to Disasters*, Longman, London.

Further Readings:

1. Kasperson, J.X., Kasperson, R.E. and Turner, B. L. (1995), *Regions at Risk : Comparisons of Threatened Environments*, United Nation University Press, Tokyo.
2. Mitchell, J.K. ed. (1999), *Crucibles of Hazard : Mega-Cities and Disasters in Transition*, United Nations University Press, New York.
3. Quarantelli, E.L. ed. (1998), *What is a Disaster? Perspective on the Question*, Routledge, London.
4. Schneid, T. and Collins, L. (1998), *Disaster Management and Preparedness*, Lewis Publishers, Washington, D.C.
5. Godschalk, D.R. et.al. (1999), *Natural Hazard Mitigation: Recasting Disaster Policy and Planning*, Island Press, Washington, D.C.
6. Paraswamam, S. and Umikrishnan, P.V. (2000), *India : Disaster Report*, Oxford University Press, New Delhi.
7. Kapur, Anu and Others (2005), *Disasters in India : Studies of Grim Reality*, Rawat, Jaipur.
8. Gupta, M.C., Gupta, L.C., Tamini, B.K., Sharma, Vinod, K. (2000), *Manual on Natural Disaster Management in India*, National Disaster Management Centre, New Delhi.

Pedagogy:

The students should be explained the interactive relationship between the natural and human processes. The platform from which we see this relationship remains human activities. Illustrations should be used from the latest articles on the subject appearing in geographic journals and newspapers and field visits.

M.A. GEOGRAPHY (SEMESTER – II)**Paper IV: Option – iii: GEOGRAPHY OF SETTLEMENTS WITH SPECIAL REFERENCE TO INDIA****Time: 3 Hours****Max. Marks: 100****Note: Question paper shall consist of two sections as follows:**

Section-A: The examiner shall set 10 questions and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section-B: The examiner shall set 8 questions for the entire syllabus, 2 from each unit. The candidates shall attempt any 4 questions one from each unit. Each question shall carry 18 marks. The total weightage of this section shall be 72 marks.

UNIT – I**General Introduction, Evolution & Distribution of Settlements**

Nature, Scope, Significance and Recent Trends in Settlement Geography;
Evolution of Settlements in India : Emergence of Village Settlements, Origin and Growth of Towns; Basic and Non-Basic Concepts in Settlement formation.
Distribution of Settlements, Spacing of Settlements -Application of Models of Christaller and Losch.

UNIT – II**Rural Settlements**

Types of Rural Settlements, House Types, Morphology and Functions of Rural Settlements;
Rural Service Centres and their Role in Urbanisation Process. 8 Periods
Indian Rural Settlements in Different Micro-Environmental Conditions:
(a) Mountains (b) Desert Region (c) In the vicinity of Urban Centres.

UNIT – III**Urban Settlements**

Classification of Urban Places: Non-Functional and Functional.
Morphology of Indian Cities and Its Comparison with Western Cities; Functional Relations Between Urban Settlements and their umlands.

UNIT – IV**Case Studies**

Settlement Geography of Selected Indian Cities: Mumbai, Kolkata, Bangalore, Delhi.

M.A. GEOGRAPHY (SEMESTER – II)**Recommended Readings:**

1. Hudson, F. S. (1976) : *Geography of Settlements*, Macdonald, London.
2. Northam Ray, M. (1979) : *Urban Geography*, John Wiley and Sons, New York.
3. Singh, R.L. and Singh K.N. (eds.) (1975) : *Reading in Rural Settlement Geography*, National Geographical Society of India, Varanasi.
4. Singh, R.L. (ed.) : *Rural Settlements in Monsoon Asia*, National Geographical Society of India, Varanasi.
5. Singh, R.Y. (1994) : *Geography of Settlements*, Rawat Publishers, New Delhi.

Supplementary Readings:

1. Mukherjee, P. K. (1969) : *Man and His Habitation*, Population Prakashan, Bombay.
2. Ucko, P.J. (1972) : *Man, Settlement and Urbanism*, Duckworth, London.

M.A. GEOGRAPHY (SEMESTER – III)**Paper–I: Town and Country Planning****Time: 3 Hours****Max. Marks: 100****Instructions for the Paper Setters:**

- Note:** 1. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 7 parts in about 25–30 words each. Each part shall carry 4 marks (total 28 marks).
2. A total of eight questions will be set out of the whole syllabus, at least two from each unit. The candidates will attempt four questions selecting one from each unit. These will be in addition to the compulsory question at serial number 1 and each question will carry 18 marks. (Total 4x18=72 Marks)

Objectives:

The major objective of this paper is to highlight the role of geographic concepts and methods in settlement planning at the micro level. Divided into four units, it deals with conceptual and methodological issues, planning strategies, and case studies.

UNIT–I

Human Settlement: A brief history with its relevance in modern context.

Settlement System: Types and Functions.

Town and Country Planning Practice in India.

UNIT–II

Town Planning: Definition, nature, importance and scope

Preparation of town plan: Objectives, surveys and data collection for town planning with special reference to urban land surveys, formulation of policies, zoning, locational and space requirements for residential, work, and play areas.

Problems of town planning in India.

Urban planning policies in Indian Five Year Plans.

UNIT–III

Country Planning: Definition, nature, importance and scope.

Rural landuse and its determinants.

Rural landuse, land suitability, and soil surveys.

UNIT–IV

Rural development in India during Five Year Plans.

Planning for the following problems of rural India:

- (a) Drinking water, (b) Floods and Soils, (c) Public utility services, and (d) Poverty and employment.

M.A. GEOGRAPHY (SEMESTER – III)**Books Recommended:****Essential Readings:**

1. Bhardwaj, R.K., Urban Development in India, National Book Trust, New Delhi, 1974.
2. Chapin, F.S. & Kaiser Edward J., Urban Landuse Planning, Harper Bros., New York, 3rd Ed., 1985.
3. Jackson, J., Surveys for Town and Country Planning, Hutchinson University Library, London, 1966.
4. Modak, V.N. and V.N. Ambedkar, Town and Country Planning and Housing, Oriental Longman, New Delhi, 1971.
5. TCPO, Regional Planning Efforts in India, Government of India, New Delhi, 1985.

Further Readings:

1. Government of India, Report of the National Commission on Urbanisation, Vols. I & II, Ministry of Urban Development, New Delhi, 1988.
2. Government of India, Plan Drafts of Different Five–Year Plans, Planning Commission, New Delhi.

Pedagogy:

Distribution of a brief synopsis among students, prior to discussions in the class, on each topic, involving students in teaching and question–answer session at the end of each lecture will form the core of approach to class teaching. Listing on the black board the main headings of the theme to be discussed and the use of audio–visual aids, such as maps, transparencies and slides will be the guiding principle of teaching methodology. Organizing occasional field visits and inviting professionals as a guest faculty will be used to create bridges between the theory and practice of urban and regional planning.

M.A. GEOGRAPHY (SEMESTER – III)**Paper–II: Research Methodology in Geography****Time: 3 Hours****Max. Marks: 100****Instructions for the paper setters:**

- Note:** 1. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 7 parts in about 25–30 words each. Each part shall carry 4 marks. (Total 28 marks).
2. A total of eight questions will be set out of the whole syllabus, at least two from each unit. The candidates will attempt four questions selecting one from each unit. These will be in addition to the compulsory question at serial number 1 and each question will carry 18 marks. (Total 4x18=72 Marks)

Objectives:

This paper is to familiarise the students with basics of research and its significance. It aims to make them understand the ways data are collected, classified, tabulated and analysed. It also trains them to differentiate between casual and research based statements that helps them in their life.

UNIT–I

Meaning and objectives of Research: Types Significance of Research; Research Process.

Research Problem: Selection and Techniques.

UNIT–II

Research Design: Meaning, Need and features of a good design.

Measurements in Research, Scales: Techniques of developing measurement tools.

UNIT–III

Data collection: Methods, Preparation of questionnaires and schedules.

Surveys and experiments.

UNIT–IV

Processing and Analysis of data: statistics in research.

Hypotheses Formulation & Testing.

Interpretation and Report Writing.

M.A. GEOGRAPHY (SEMESTER – III)**Books Recommended:****Essential Readings:**

1. Hagget, Peter and Others, Locational Analysis in Human Geography, Arnold, London, 1977.
2. Harvey, David, Explanation in Geography, Arnold, 1969.
3. Kothari, C.R., Research Methodology, Wiley Eastern Limited, New Delhi, 1988.
4. Misra, H.N. and. Vijay P. Singh, Research Methodology in Geography, Rawat Publication, Jaipur, 1998.
5. Misra, R.P., Research Methodology, Concept Publishing Company, New Delhi, 1989.

Further Readings:

1. Ralph, Berry, The Research Project, How to Write it, Routledge, London, 1990.
2. Montello, Danial R. and Paul C. Sutton, An Introduction to Scientific Research Methods in Geography, Sage Publications, London, 2006.
3. Thomas, S. Kuhn, The Structure of Scientific Revolution, University of Chicago Press, Chicago, 1970.

Pedagogy:

Students are expected to identify a small research problem. They must prepare a research proposal. Using suitable research methodology, they should try to answer their research questions.

M.A. GEOGRAPHY (SEMESTER – III)**Paper–III: Fundamentals of GIS and GPS (Theory and Practical)****Time: 3 Hours****Max. Marks: 100****Distribution of Marks:**

- (i) Theory Written paper will be three hours carrying 50 Marks
- (ii) **Practical will be 50 Marks.**
 - a) Practical record and viva voce (20+10) 30 Marks
 - b) Two practical exercises set on the spot by the examiner 20 Marks

Instructions for the paper setters:

- Note:** 1. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 7 parts in about 25–30 words each. Each part shall carry 2 marks. (Total 14 marks).
2. A total of eight questions will be set out of the whole syllabus, at least two from each unit. The candidates will attempt four questions selecting one from each unit. These will be in addition to the compulsory question at serial number 1 and each question will carry 9 marks. (Total 4x9=36 Marks).

Objectives:

The main objective of this course is to expose the students to fundamental principles of Geographical Information Systems and Global Positioning System including basic concepts and definitions, methods and techniques.

UNIT–I

Introduction: Overview, History and Concepts of GIS, Scope and Application Areas, Purpose and Benefits of GIS, Components and Functional Elements of GIS.

Map Concept: Map scales and representation.

Map Projection: Coordinate system, datum, and projection systems.

UNIT–II

Data Input, Storage and Editing: Nature of Geographic Data: Spatial and Attribute Data, Concept of vector and raster based models;

Data Input Devices: Digitization; external data bases; storage and manipulation of GIS data bases.

M.A. GEOGRAPHY (SEMESTER – III)**UNIT–III**

GPS: Introduction and usages.

Data Acquisition: Data from Remote Sensing Imagery, Global Positioning System (GPS) based data acquisition.

UNIT–IV

Cartography and Map Production: Nature of maps and cartography, Key map design principles, map symbology.

Presentation of GIS Output : Layout of Maps, Charting and Tabular representation of the results using GIS.

Books Recommended:**Essential Readings:**

1. Chang, Kang–tsung : Introduction to Geographic Information Systems, 4th ed., Tata McGraw–Hill Publishing Company Limited, New Delhi, 2008.
2. DeMeers, Michael N. : Fundamentals of Geographic Information Systems, 3rd. ed., John Wiley and Sons, Toronto, 2005.
3. Fazal, S. : GIS Basics, New Age International Publishers, New Delhi, 2008.
4. Fazal, S. and Rahman, A. : Geographic Information System (GIS) Terminology, New Age International Publishers, New Delhi, 2007.
5. Heywood, Ian Cornelius, Sarah, and Steve Carver. : An Introduction to Geographical Information Systems, 2nd ed., Pearson Education Limited, Toronto, 2006.
6. Siddiqui, M.A. : Introduction to Geographical Information Systems, Sharda Pustak Bhavan, Allahabad, 2006.

M.A. GEOGRAPHY (SEMESTER – III)**Further Readings:**

1. Aronoff, S. : Geographic Information Systems : A Management Perspective, WDL Publications Ottawa, Canada, 1992.
2. Burrough, Peter A. and Rachael A. McDonnell. : Principles of Geographical Information Systems, Oxford University Press, Toronto, 1998.
3. ESRI : Understanding GIS, Environmental Systems Research Institute, U.S.A., 1993.
4. Jeffrey, S. & John, E. : Geographic Information Systems – An Introduction, Prentice Hall, New Jersey, USA, 1990.
5. Lo, C.P and Albert K.W., Yeung : Concepts and Techniques of Geographic Information Systems, 2nd ed., Pearson Education Inc., Toronto, Canada, 2007.
6. Longley, Paul A., Goodchild, Michael F., Maguire, David J., and David W. Rhind. : Geographic Information Systems and Science, 2nd ed., John Wiley and Sons, England, 2005.
7. Longley, Paul A., Goodchild, Michael F., Maguire, David J., and David W. Rhind. : Geographical Information Systems, 2nd ed., John Wiley and Sons, Inc., New Jersey, 2005.

Pedagogy:

Basic fundamentals of GIS and GPS are introduced by demonstrating with the help of audio visual aids. For GPS exercises students will be taken for a field trip to the university grounds. Audio visual aids like power point presentations and demonstration of practical exercises will be guiding principles of teaching methodology. Students will be preparing their practical exercises by working in the GIS lab on GIS softwares.

M.A. GEOGRAPHY (SEMESTER – III)**Paper–IV: Any one of the Following Optional Courses:
Option (i): Regional Development and Planning in India****Time: 3 Hours****Max. Marks: 100****Instructions for the paper setters:**

- Note:** 1. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 7 parts in about 25–30 words each. Each part shall carry 4 marks. (Total 28 marks).
2. A total of eight questions will be set out of the whole syllabus, at least two from each unit. The candidates will attempt four questions selecting one from each unit. These will be in addition to the compulsory question at serial number 1 and each question will carry 18 marks. (Total 4x18=72 Marks)

Objectives:

- To familiarize the student with the theoretical foundations and conceptual grounding of this branch.
- To understand the regional development process in India.
- To sensitize the student about the changes taking place in regional structure of Indian economy.

UNIT–I

Concept of regional development, Regional Policies in the Indian Five Year Plans.

Experiences of regional planning in India –multi level planning (state, district, block and panchayat level planning).

UNIT–II

Centre state relations and the constitutional framework for multi level planning.

Devolution of financial resources and the multi–level planning.

UNIT–III

Regional backwardness, area development programmes for hill, drought–prone, and desert and border areas.

UNIT–IV

Development plans for tribal areas, north– eastern region, command areas, KBK region of Orissa.

M.A. GEOGRAPHY (SEMESTER – III)**Books Recommended:****Essential Readings:**

1. Dutt, A.K. (ed.), India : Resources, Potentialities and Planning, Kendall/Huchinston, Iowa, 1972.
2. Brahumananda, P.R. and Others, The Development Process of the Indian Economy, Himalaya Publishing House, New Delhi, 1987.
3. Dannis, A. Randinelli et al, Decentralisation in Developing Countries : A Review of Recent Experience, World Bank Staff Working paper 581, Washington, 1981.
4. Fu Chen Lo (ed.), Third World Regional Development Issues, Frontier Perspectives, Murgan International, Tokyo, Japan, 1981.
5. Gosal, G.S. and Krishan, G., Regional Disparities in Levels of Socio–Economic Development in Punjab, Vishal Publications, Kurukshetra, 1984.
6. Government of India, Report of the Working Group on Block Level Planning (M.L. Dantwala Committee), New Delhi, 1978.

Further Readings:

1. Government of India, Report of the Working Group on District Planning (Vols. I and II) New Delhi, 1985.
2. Govt. of India, Five Year Plans, Plan Drafts–1st–9th Plan, Planning Commission, New Delhi.
3. Gulati, I.S. (ed.), Centre–State Budgetary Transfers, Oxford University Press, Delhi, 1988.
4. Jain, L.C. and Others, Grass without Roots, Rural Development under the Government Auspices, Sage Publications for Institute of Social Studies, 1985.
5. Kundu, A. and Raza, M., Indian Economy, The Regional Dimensions, Centre for the Study of Regional Development, JNU, New Delhi, 1982.
6. Misra, R.P. et al, Regional Development Planning in India, Concept Publishing, New Delhi, 1974.
7. Mohan, K., Addressing Regional Backwardness, An Analysis of Area Development Programmes in India, Manak Publications, New Delhi, 2005.
8. Prasad H. Pradhan, Political Economy of Indian Development, Oxford University Press, Delhi, 1988.
9. Sdasyuk, G.V., India, The Geography of Economy, Peoples Publishing, Moscow, 1975.
10. Sen, A.K., On Economic Inequality, Oxford University Press, New Delhi, 1973.
11. Sundaram, K.V., Geography of Under Development, The Spatial Dynamics of Under Development, Concept Publishing, New Delhi, 1983.
12. Sundaram, K.V., Urban Regional Planning, Concept Publishing, New Delhi, 1974.

Pedagogy:

The students should be encouraged to participate in classroom discussions on the regional dimensions of planning and regional development in India in terms of spatial structure of economy, society and associated issues such as poverty, disparities and unemployment.

M.A. GEOGRAPHY (SEMESTER – III)**Paper IV: Option (ii): Social Geography****Time: 3 Hours****Max. Marks: 100****Instructions for the paper setters:**

- Note:** 1. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 7 parts in about 25–30 words each. Each part shall carry 4 marks. (Total 28 marks).
2. A total of eight questions will be set out of the whole syllabus, at least two from each unit. The candidates will attempt four questions selecting one from each unit. These will be in addition to the compulsory question at serial number 1 and each question will carry 18 marks. (Total 4x18=72 Marks)

Objectives:

- To familiarise the student with the theoretical foundations and conceptual grounding of this branch.
- To understand the formation of socio-cultural regions in the context of historical and social factors in India.
- To sensitize the student about the process of social transformation and change and its interface with developmental and political aspects in India.

UNIT-I

- (a) **Social Geography:** Definition, nature and scope.
 (b) Social geography in the realm of social sciences.

Concepts and themes in social geography :

- (a) Social space.
 (b) Social segregation.
 (c) Social justice.
 (d) Social well-being.
 (e) Ethnicity.

UNIT-II**Evolution of socio-cultural regions in India :**

- (a) Evidence from classical literature.
 (b) Core and peripheral regions.

Attributes of spatial distribution of :

- (a) Tribes.
 (b) Religion.
 (c) Language.
 (d) Caste.

UNIT-III**Social transformation and change in India :**

- (a) Modernization and sanskritization.
 (b) Role of rural-urban interaction.
 (c) Problems of social transformation.

M.A. GEOGRAPHY (SEMESTER – III)**UNIT–IV****Social Diversity:**

- (a) Social and ethnic diversity of India and national integration.
- (b) Cultural pluralism and development.

Books Recommended:**Essential Readings:**

1. Ahmad, Aijazuddin, Social Geography, Rawat Publications, New Delhi, 1999.
2. Census of India, Economic and Socio–Cultural Dimensions of Regionalisation, Census Centenary Monograph No. 1. Govt. of India, New Delhi, 1974.
3. Ghurye, G.S., Caste and Class in India, Popular Prakashan, Bombay, 1957.
4. Jones, Emrys and John Eyles, An Introduction to Social Geography, Oxford University Press, London, 1977.
5. Jones, Emrys (ed.), Readings in Social Geography, Oxford University Press, London, 1975.
6. Mandelbaum, David G., Society in India, University of California Press, Berkley, 1970.
7. Rao, M.S.A., Urbanisation and Social Change, Orient Longmans, New Delhi, 1970.
8. Singer, Milton and B.S. Cohn (ed.), Structure and Change in Indian Society, Aldine, Chicago, 1968.
9. Singh, K.S., Tribal Situation in India, Indian Institute of Advanced Studies, Shimla, 1972.
10. Sopher, David E., An Exploration of India, Longman, London, 1980.
11. Srinivas, M.N., Social Change in Modern India, Orient Longman, 1966.
12. Subbarao, B., Personality of India, Oriental Institute, M.S. University of Baroda, Baroda, 1958.

Further Readings :

1. Atreya, B.L. et.al. (ed.), Indian Culture, Universal Publications, New Delhi, 1966.
2. Dubey, S.C., Indian Society, National Book Trust, New Delhi, 1991.
3. Guha, B.S., Racial Elements in India's Population, Oxford University Press, Calcutta, 1945.
4. Learmonth, A.T.A. et.al. (ed.), Man and Land in South Asia, Concept, New Delhi.
5. Sen, Amartya, and Dreze Jean, Indian Development : Selected Regional Perspectives, Oxford University Press, Delhi, 1996.

Pedagogy :

The students should be encouraged to participate in classroom discussions on the socio–spatial aspects of current issues of social, political and developmental importance.

M.A. GEOGRAPHY (SEMESTER – III)**Paper–IV: Option (iii): Geography and Ecosystems****Time: 3 Hours****Max. Marks: 100****Instructions for the paper setters:**

- Note:** 1. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 7 parts in about 25–30 words each. Each part shall carry 4 marks. (Total 28 marks).
2. A total of eight questions will be set out of the whole syllabus, at least two from each unit. The candidates will attempt four questions selecting one from each unit. These will be in addition to the compulsory question at serial number 1 and each question will carry 18 marks. (Total 4x18=72 Marks)

Objectives:

- To appraise the students with the interrelationship between man and the environment in which he lives and also his linkages with other organisms.
- The students are to be made aware of the importance of conserving biodiversity to maintain ecological balance.
- Examples of some man induced ecological changes have been highlighted and restoration measures suggested.

UNIT–I**Components of the ecosystem:** Abiotic, biotic.

Functional characteristics of ecosystems: Food chains and food webs; trophic levels; ecological pyramids; energy flow; nutrient cycling.

Ecological succession and equilibrium.

UNIT–II**Major ecosystems of the world:** Tropical and temperate forest ecosystems, boreal ecosystems, grassland ecosystems, desert ecosystems.**Biodiversity:** Concept; importance; hot spots; causes for the loss of biodiversity.**UNIT–III**

Ecological changes over space and time.

Ecosystem stability and disturbance.

Managed ecosystems: Agricultural, urban.**UNIT–IV**

Case studies of human induced ecological changes :

- a) Hill ecosystems with specific reference to Punjab Shivaliks.
- b) Wetland ecosystems with specific reference the Punjab wetlands.
- c) Agricultural ecosystems with specific reference to the Green Revolution in Punjab.

M.A. GEOGRAPHY (SEMESTER – III)**Books Recommended:****Essential Readings:**

1. Beeby, Alan; Annie Brennan: First Ecology: Ecological Principles and Environmental Issues, 3rd Edition Oxford University Press, 2008.
2. Brar, Karanjot Kaur, Green Revolution: Ecological Implications, Dominant Publishers, Delhi, 1999.
3. Chandna, R.C., Environmental Awareness, Kalyani Publishers, New Delhi, 1998.
4. Dhabriya, S.S., Desert Spread and Desertification: An Analysis of the Identified Aravalli Gaps on the Desert Fringe, Environmental Research Publication–1, Environmentalist, Jaipur, 1988.
5. Dhabriya, S.S., Ecocrisis in the Aravalli Hill Region, Environmental Research Publication–2, Environmentalist, Jaipur, 1988.
6. Ernst, W.G. (ed.), Earth Systems: Processes and Issues, Cambridge University Press, U.K., 2000.
7. Golley, Frank B., A Primer for Environmental Literacy, Universities Press (India) Limited, Hyderabad, 1998.
8. Kormondy, Edward J., Concepts of Ecology, Third Edition, Prentice–Hall of India, New Delhi, 1989.
9. Odum, Eugene P., Fundamentals of Ecology, Natraj Publishers, Dehra Dun, 1971.
10. Osborne, Patrick, Tropical Ecosystems and Ecological Concepts, Cambridge University Press, U.K., 2000.
11. Tivy, Joy, Biogeography: A Study of Plants in the Ecosphere, Longman Scientific & Technical, U.K., 1993.

Further Readings:

1. Agarwal, Anil; Sunita Narain and Srabani Sen, ‘The Citizens’ Fifth Report, Centre for Science and Environment, New Delhi, 1999.
2. Global Environment Outlook 2000, Earthscan Publications, London.
3. Goudie, A.S. and Thomas, D.S.G., The Encyclopedic Dictionary of Physical Geography, Blackwell, 2000.
4. Kirkby, John; Phil O’Keefe and Lloyd Timberlake (eds.), The Earthscan Reader in Sustainable Development, Earthscan Publications Ltd., London, 1995.
5. Mannion, A.M., Natural Environmental Change, Routledge, London, 1999.
6. Reid, David, Sustainable Development, Earthscan Publications Ltd., London, 1995.
7. Shafi, Mohammad and Mehdi Raza, Forest Ecosystems of the World, Rawat Publications, Jaipur, 1992.
8. Soule, Michael E. and Gary Lease (eds.), Reinventing Nature: Responses to Postmodern Deconstruction, Island Press, Washington, D.C., 1995.
9. Tivy, Joy and Greg O’Hare, Human Impact on the Ecosystem, Oliver & Boyd, Edinburgh, 1981.
10. World Resources 2000–2001, People and Ecosystems: The Fraying Web of Life, World Resources Institute, Washington.

Pedagogy:

There must be interaction between teacher and students on different aspects of ecology with the help of models, charts and pictures. Emphasis should be given to the environmental problems faced by India in recent years.

M.A. GEOGRAPHY (SEMESTER – IV)**Paper–I: Regional Planning****Time: 3 Hours****Max. Marks: 100****Instructions for the paper setters:**

- Note:** 1. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 7 parts in about 25–30 words each. Each part shall carry 4 marks. (Total 28 marks).
2. A total of eight questions will be set out of the whole syllabus, at least two from each unit. The candidates will attempt four questions selecting one from each unit. These will be in addition to the compulsory question at serial number 1 and each question will carry 18 marks. (Total 4x18=72 Marks)

Objectives:

- To understand and evaluate the concept of region in geography and its role and relevance in regional planning.
- To identify the issues relating to the development of the region through the process of spatial organization of various attributes and their interrelationship.
- To identify the causes of regional disparities in development, perspectives and policy imperatives.

UNIT–I

The planning process : Concept and types; regional planning; concept, difficulties, rationale, principles and objectives.

Role of geography in regional planning.

UNIT–II

Preparation of a regional plan.

Regions for planning : Regional awareness, region and its evolution; planning regions; characteristics, hierarchy, need, demarcation; planning regions of India.

UNIT–III

Surveys for Planning: Concept and functions; types of surveys; regional surveys, diagnostic surveys, techno–economic surveys.

Role of remote sensing, global positioning system (GPS) and geographic information system (GIS).

UNIT–IV

The process of Regional Development: Indicators of development; levels of regional development and disparities; strategies for development.

Case Studies from Selected Countries: Regional planning in USA (TVA); regional planning in India (DVC & NCR); regional planning in Netherlands (Polders).

M.A. GEOGRAPHY (SEMESTER – IV)**Books Recommended:****Essential Readings:**

1. Alden, J. & Morgan, R., Regional Planning–A Comprehensive View, Leonard Hill Books, Beds, 1974.
2. Alexander, E.R., Approaches to Planning: Introducing Current Planning Theories, Concepts, and Issues, Gordon & Breach, Philadelphia, 1992.
3. Bhat, L.S. & Others (ed.), Regional Inequalities in India, Society for the Study of Regional Disparities, New Delhi, 1982.
4. Bhat, L.S., Regional Planning in India, Statistical Publishing Society, Calcutta, 1972.
5. Branch, M.C., Regional Planning: Introduction and Explanation, Pareger, New York, 1988.
6. Chand, Mahesh and Puri, V.K., Regional Planning in India, Allied, New Delhi, 1983.
7. Chandna, R. C., Regional Planning : A Comprehensive Text, Kalyani Publishers, New Delhi, 2000.
8. Chandna, R. C., Regional Planning and Development, Kalyani Publishers, New Delhi, 2004.
9. Glasson, John, An Introduction to Regional Planning, Hutchinson Educational, London, 1974.
10. Glikson, A., Regional Planning and Development, Sijthof, London, 1955.
11. Gore, Charles, Regions in Question, Space, Development Theory and Regional Policy, Methuen, London, 1984.
12. Misra, R.P. & Others (ed.), Regional Development Planning in India, Vikas, New Delhi, 1974.
13. Prakasa Rao V.L.S., Regional Planning, Asia Publishing House, Bombay, 1968.
14. Sundaram, K.V. (ed.), Geography and Planning, Concept, New Delhi, 1985.

Further Readings:

1. Bludon, John & Others (ed.), Regional Analysis and Development, Harper & Row, London, 1973.
2. Burrough, A., Principles of Geographic Information Systems for Land Resource Assessment, Clarendon Press, Oxford, 1986.
3. Chadwick, G., Systems View of Planning, Pergamon Press, Oxford, 1971.
4. Faludi, Andreas, Reader in Planning Theory, Pergamon Press, Oxford, 1976.
5. Freeman, T.W., Geography and Planning, Hutchinson, London, 1958.
6. Friedman, John and Clyde Weaver, Territory and Function: The Evolution of Regional Planning, Edward Arnold, London, 1979.
7. Lavrov, S. and Sdasyuk, G., Concepts of Regional Development, Progress Publishers, Moscow, 1988.
8. Misra, R.P. & Others (ed.), Regional Planning and National Development, Vikas, New Delhi, 1978.
9. Misra, R.P. & Others (ed.), Regional Planning: Concepts, Techniques, Policies and Case Studies, University of Mysore, Mysore, 1969.

Pedagogy:

The students should be made to do sessional assignments based on diverse data to formulate regions at the local and regional levels and to identify the regional differentiations. They should be made conversant with the trends in the development of the regional aspects using 'space' in the multi disciplinary approach to regional development.

M.A. GEOGRAPHY (SEMESTER – IV)**Paper II: Field Based Project Report (Practical only)****Max. Marks: 100*****Distribution of Marks:***

Field Report:	80
Viva on Field Report:	20

Objectives:

1. The paper is designed to acquaint the student with the importance of field work as one of the methodologies in Geography.
2. The students are to be sensitized about pre-field work preparations, conduct of the field work, post-field work based and the writing of a field work report.

(Since this paper is of practical nature only, therefore contents of syllabus need not to be organized into units).

Field Based Project Report in Geography:

The project report will involve statement of objectives and scope of field investigation; methods of field work for studies of different scales (macro, meso, and micro); preparation of a questionnaire; sampling techniques, collection, processing, representation, analysis and interpretation of data/information. The candidates are required to write a project report on small assigned problem involving field investigations.

- Note :**
1. The candidates are required to submit their project reports one week before the commencement of examination to the concerned Head of the Postgraduate Department.
 2. Assessment of practical record and viva voce on it will be done by a Board of Examiners, consisting of external examiner, internal examiner and the chairperson of the department.
 3. Improvement/repeat cases must prepare either an improved form of their earlier practical record or prepare a new one. They must get it approved and signed by the faculty member teaching the course at their parent department.

Books Recommended:

1. Archer, J.E. and Dalton, T.H., Field Work in Geography, E.T. Bastaford Ltd., London, 1968.
2. Jones, P.A., Field Work in Geography, Longman, London, 1968.
3. Elhance, D.N., Fundamentals of Statistics, Kitab Mehal, Allahabad, 1972.
4. Gregory, S., Statistical Methods and the Geographers, Longman, London, 1963.

Pedagogy:

The field-work exercises should aim at identification of locational attributes of selected elements and their areal associations. The students are to be trained through taking up exercises requiring field visits and generation of primary data, its processing and statistical and cartographic representation.

M.A. GEOGRAPHY (SEMESTER – IV)**Paper–III: Quantitative Methods in Geography (Theory and Practical)****Time: 3 Hours****Max. Marks: 100****Instructions for the paper setters:**

- Note:** 1. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 7 parts in about 25–30 words each. Each part shall carry 2 marks. (Total 14 marks).
2. A total of eight questions will be set out of the whole syllabus, at least two from each unit. The candidates will attempt four questions selecting one from each unit. These will be in addition to the compulsory question at serial number 1 and each question will carry 9 marks. (Total $4 \times 9 = 36$ Marks)

Objectives:

- To provide knowledge of statistical techniques and their application in geography;
- To train the students to apply these techniques and methods to the analysis of the geographic problems.

Distribution of Marks:

- (i) Theory Written paper will be three hours carrying 50 Marks
- (ii) **Practical will be 50 Marks.**
- a) Practical record and viva voce (20+10) 30 Marks
- b) Two practical exercises set on the spot by the examiner 20 Marks

UNIT–I

Quantification in Geography: Types of spatial data (point, line and area) and levels of their measurement (nominal, ordinal, interval and ratio), census, and sample surveys, sampling designs (with special reference to spatial data).

UNIT–II

Measures of Central Tendency: Mean, median and mode; mean centre, median point, point of minimum aggregate travel distance, and population potential.

UNIT–III

Measures of Dispersion: Range, quartile deviation, mean deviation, standard deviation and variance; coefficient of variability and Lorenz Curve, index of spatial dispersion, median distance, standard distance and nearest neighbor analysis.

UNIT–IV

Correlation and Regression : Scatter diagram, correlation by Spearman's Rank Difference and Karl Pearson's Product Moment Methods, regression analysis, construction of regression line; Coefficient of areal correspondence.

M.A. GEOGRAPHY (SEMESTER – IV)**Books Recommended:****Essential Readings:**

1. David M. Smith, Patterns in Human Geography, Penguon, Harmondsworth, 1975.
2. Elhance, D.N., Fundamentals of Statistics, Kitab Mehal, Allahabad, 1972.
3. Gupta, S. P., Statistical Methods, Sultan Chand and Sons, Latest Edition.
4. Peter, J. Taylor, Quantitative Methods in Geography, Houghton Mifflin Company, Boston, 1977.
5. Robert Hammond and Patrik McCullagh, Quantitative Methods in Geography, Clarendon Press, Oxford, 1974.

Further Readings:

1. Gupta, C.B., An Introduction to Statistical Methods, Ram Prasad and Sons, Agra, 1971.
2. Peter Haggett, Andrew D. Cliff and Allan Frey, Locational Models, Vols. I and II, Arnold Heinemann, New Delhi, 1977.

Pedagogy:

The students should be made to understand the importance of quantification in Geography. They should be taught the basic techniques and their application in geographic research by giving simple and small examples from the field of Geography.

M.A. GEOGRAPHY (SEMESTER – IV)**Paper IV: Any one of the Following Optional Courses:
Option (i): GEOGRAPHY OF MANUFACTURING INDUSTRIES****Time Allowed: 3 Hours****Max. Marks: 100****Instructions for the paper setters:**

- Note:** 1. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 7 parts in about 25–30 words each. Each part shall carry 4 marks. (Total 28 marks).
2. A total of eight questions will be set out of the whole syllabus, at least two from each unit. The candidates will attempt four questions selecting one from each unit. These will be in addition to the compulsory question at serial number 1 and each question will carry 18 marks. (Total 4x18=72 Marks)

Unit–I**General Introduction:**

Nature, Scope and objectives of Geography of Manufacturing Industries.

Classification of Industries: Technological, Size and Sectoral.

Process of Industrialisation : Historical Perspective of Industrial Revolution.

Unit–II**Location of Manufacturing Industries:**

Factors of Localisation of Manufacturing Industries.

Theories for Industrial Location: Weber, Losch, and Smith.

Concentration and Dispersion of Industries.

Unit–III**Patterns and Problems of Industries:**

Geography of the following Industries of the World: Iron and Steel, Jute Textiles, Cotton Textiles, Oil Refining, and Engineering Industries.

Unit–IV**Case Studies:**

A study of the following major manufacturing regions: Hooghly Belt of India, Ruhr Valley Region, Ural Region, Lake Chicago and Mid–Atlantic Regions of U.S.A.

13 Periods

Essential Readings:

1. Alexanderson, G. : *Geography of Manufacturing*, Prentice Hall, Pvt. Limited, (1988) New Delhi.
2. Alexanderson, J. W. : *Economic Geography*, Prentice Hall Inc., (1963) Englewood Cliffs, N.J. (Revised edition).
3. Eliot Hurst, M.E.(1972) : *A Geography of Economic Behaviour*, Duxbury Press, Balmont, California.
4. Jarrett, H.R. (1977) : *A Geography of Manufacturing*, Duxbury Press, Balmont California.

M.A. GEOGRAPHY (SEMESTER – IV)**Paper–IV (Option–ii): GEOGRAPHY OF MIGRATION****Time: 3 Hours****Max. Marks: 100****Instructions for the paper setters:**

- Note:** 1. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 7 parts in about 25–30 words each. Each part shall carry 4 marks. (Total 28 marks).
2. A total of eight questions will be set out of the whole syllabus, at least two from each unit. The candidates will attempt four questions selecting one from each unit. These will be in addition to the compulsory question at serial number 1 and each question will carry 18 marks. (Total 4x18=72 Marks)

Unit–I

Geography of Migration : meaning, nature, scope and significance
 Determinants of migration.
 Types of migration.

Unit–II

Theories and Models of Migration : E. G. Ravenstein, J.Q. Stewart, G.K. Zipf, S. A. Stouffer, E.S. Lee, T. Hagerstrand and W. Zelinsky

Unit–III

Some important international migrations in 20th century.
 Recent trends of migration in migration patterns in India & Punjab; female component in migration.
 Causes and consequences of migration.

Unit–IV

Migration and its Demographic significance.
 Migration and Development.
Migration and Environment.
 Patterns of Refugee Migration on Global Level.

Recommended Readings:

1. Brown, A.A. ed. (1977) : *Internal Migration: A Comparative Perspective*, Academic Press, New York,
2. Demko, G. et. al (1977) : *Population Geog : A Reader*, New York, McGraw Hill.
3. Jones, E. ed. (1975) : *Readings in Social Geography*, Oxford University Press, Oxford.
4. Jackson, J. A. (1969) : *Migration*. University Press, Cambridge.
5. Kosinski, L.A. et.al. eds (1975) : *People on The Move*, Methuen, London.
6. O'Neill, B. C. O. (2001) : *Population and Climate Change*, Cambridge University, Press, Cambridge.
7. Sinha, P. C. (1998) : *Population explosion*, Anmol Publications, New Delhi.
8. Petersen, W. (1975) : *Population*. Macmillon Publishing Co., New York.

M.A. GEOGRAPHY (SEMESTER – IV)**Paper–IV (Option–iii): Fundamentals of Agricultural Geography****Time: 3 Hours****Max. Marks: 100****Instructions for the paper setters:**

- Note:** 1. A compulsory question containing 10 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 7 parts in about 25–30 words each. Each part shall carry 4 marks. (Total 28 marks).
2. A total of eight questions will be set out of the whole syllabus, at least two from each unit. The candidates will attempt four questions selecting one from each unit. These will be in addition to the compulsory question at serial number 1 and each question will carry 18 marks. (Total 4x18=72 Marks)

Objectives:

- To familiarize the students with the basics in agricultural geography, starting from its nature, contents, progress, approaches, determinants etc., to the important concepts like cropping intensity, crop–concentration, crop pattern, crop combinations, diversification, commercialization, agricultural development etc.
- To provide them with the understanding of agricultural regionalization, landuse and land capability classifications as well as classification of agricultural types.

UNIT–I

The nature, subject matter and progress in Agricultural Geography.

Approaches: (i) commodity, (ii) systematic, (iii) regional.

Determinants: (i) physical, (ii) economic, (iii) socio–cultural.

UNIT–II

Selected agricultural concepts and their measurement – (a) intensity of cropping, (b) degree of commercialization, (c) diversification and specialization, (d) efficiency and productivity.

UNIT–III

Land–use survey and classification (British and Indian).

Land capability classification (U.S. and Britain).

UNIT–IV

A critical evaluation of the classification of world agriculture with special reference to Whittlesey.

New perspectives in Agriculture: Contract Farming, Agri–business and Food Security.

M.A. GEOGRAPHY (SEMESTER – IV)**Books Recommended:****Essential Readings:**

1. Hussain, M., Systematic Agricultural Geography, Rawat Publications, Jaipur, 1996.
2. Ilbery. B. W., Agricultural Geography, Oxford University Press, Oxford, 1985.
3. Singh, J. and Dhillon, S.S., Agricultural Geography, Tata McGraw Hill, New Delhi, 1984.
4. Singh, Jasbir, Agricultural Geography, 3rd edition, Oxford, New Delhi, 2003.
5. Symons, L., Agricultural Geography, G. Bells, London, 1967.

Further Readings:

1. Alexander, J.W., Economic Geography, Prentice Hall, N.J., 1968.
2. Gosal, G.S. and Krishan, Gopal, Regional Disparities in Levels of Socio-Economic Development in Punjab, Vishal Publications, Kurukshetra, 1984.
3. Grigg, D.B., The Agricultural Systems of the World: An Evolutionary Approach, Cambridge University Press, Cambridge, 1978.
4. Hussain, M., Agricultural Geography, Inter India Publications, Delhi, 1979.
5. Morgan, B.W. and Munton, J.C., Agricultural Geography, Methuen, London, 1971.
6. Shafi, M., Agricultural Productivity and Regional Imbalances, Concept, New Delhi, 1984.
7. Singh, Jasbir, Dynamics of Agricultural Change, Oxford, New Delhi, 1990.
8. Tarrant, J.R., Agricultural Geography, Davis and Charles, Newton Abbot, 1974.
9. Whealler, K.E., Ladley, A.M. and Leong, F.C., Studies in Agricultural Geography, Bland Educational, London, 1970.

Pedagogy:

The course should fully acquaint the students with the understanding of agricultural geography as a developed branch of geography. The students should be made to learn the major concepts, factors affecting agricultural landuse, different types of agricultural landuse etc. by giving simple examples from their own and neighboring areas.