

**M.SC. (GEOGRAPHY)
SCHEDULE OF EXAMINATIONS**

Semester and Course No.	Nomenclature	Max. Marks	Hours of Teaching per week
SEMESTER I			
COURSE-I	Geomorphology	100	6 Hours
COURSE-II	Climatology	100	6 Hours
COURSE-III	Human Geography	100	6 Hours
COURSE-IV	Cartography	100	6 Hours
SEMESTER-II			
COURSE-V	Spatial Patterns of Economic Activities	100	6 Hours
COURSE-VI	Population Geography	100	6 Hours
COURSE-VII	Bio-geography	100	6 Hours
COURSE-VIII	Map Projection & GIS	100	6 Hours
SEMESTER-III			
COURSE-IX	Regional Planning	100	6 Hours
COURSE-X	Quantitative Techniques in Geography	100	6 Hours
COURSE-XI	History of Geographical Thought	100	6 Hours
COURSE-XII	Physico-Socio-Economic	100	6 Hours
SEMESTER-IV			
COURSE-XIII	Geography of Himachal Pradesh	100	6 Hours
COURSE-XIV	Cultural Geography	100	6 Hours
COURSE-XV	Political Geography	100	6 Hours
COURSE-XVI	Remote Sensing	100	6 Hours
	Total	1600	96 Hours

GEOMORPHOLOGY

Maximum Marks: 100
(Theory 80 + I.A. 20 marks)

Unit-I

Definition, nature and scope of geomorphology. Fundamental concepts: geological structures and landforms, Uniformitarianism, assemblages of landforms, sequential changes in landforms, climatic geomorphology.

Unit-II

Earth movements: Epeirogenic and Orogenic, Topographic expressions of fault and fold structures, Orogenic forces with reference to the evolution of the Himalayas. Forces of crustal instability: Isostasy, Plate tectonics and Volcanoes.

Unit-III

Exogenic processes: Definition, causes and types of weathering and mass movements, landforms produced. Hill slope: Definition and forms of slopes, Geomorphic processes and slope forms, Slope evolution: down wearing, parallel retreat and slope replacement models.

Unit-IV

Geomorphic processes: Fluvial, Glacial, Aeolian, Marine and Karst processes and resulting landforms.

Unit-V

Drainage Systems and patterns: Meaning, major drainage systems and patterns, Concept of river capture, Applied geomorphology: Meaning and concept, Hydro geomorphology, urban geomorphology, environmental geomorphology, geomorphic hazards.

Notes:

1. The paper would be set from the syllabus covering the full content. Ten questions, two from each unit, are to be framed. Candidates will have to attempt five questions, one from each unit.
2. All questions will carry equal marks.

Suggested Readings:

1. Bloom, A.L. (1979) **Geomorphology**, New Delhi: Prentice Hall of India Pvt. Ltd.
2. Dayal, P. (1995) **A Textbook of Geomorphology**, Patna: Shukla Book Depot.
3. Embleton, C. and King, C.A.M. (1975) **Glacial Geomorphology**, London: Edward Arnold.
4. Fairbridge, R.W. (1968) **Encyclopedia of Geomorphology**, New York: Reinholds.
5. Morisawa, M (1968) **Streams**, New York: McGraw Hill.
6. Pitty, A.F. (1982) **The Nature of Geomorphology**, New York: Methuen.
7. Rice, R.J. (1990) **Fundamentals of Geomorphology**, London: ELBSL.
8. Schumn, S. (1977) **The Fluvial System**, New York: John Wiley and Sons.
9. Sharma, Anurag (1993) **Ecology of Landslide Damages**, Jaipur: Pointer Publishers.
10. Sharma, H.S.(ed.) (1980) **Perspectives in Geomorphology**, New Delhi: Concept.
11. Sharma, V.K. (1986) **Geomorphology**, New Delhi: Tata McGraw Hill.
12. Singh, Savindra (1998) **Geomorphology**, Allahabad: Prayag Pustak Bhawan.
13. Small, R.J. (1978) **The Study of Landforms**, Cambridge: Cambridge University.
14. Sparks, B.W. (1960) **Geomorphology**, London: Longman.
15. Strahler, A.N. (1992) **Physical Geography**, New York: John Wiley and Sons.
16. Thornbury, W.D. (1969) **Principles of Geomorphology**, New York: John Wiley and Sons.

Unit-I

Compositional and thermal structure of the atmosphere, Insolation: Solar source, heat balance of the earth, green house effect and global warming, vertical and horizontal distribution of temperature.

Unit-II

Atmospheric motion: Forces controlling motion of air, vertical motion and vorticity, local winds, jet stream, general circulation in the atmosphere; Atmospheric moisture: humidity, evaporation, condensation, precipitation: formation, types, acid rain, world pattern of precipitation.

Unit-III

Tropical, temperate and high latitude weather systems- concept of air masses and atmospheric disturbances, ocean atmospheric interaction- El Nino, southern oscillation (ENSO) and La Nina, monsoon winds, norwesters and cyclones, Tropical and Temperate phenomena, climate of India and its controls: Western disturbances.

Unit – IV

Climatic classification of Köppen and Thornthwaite, Major climates of the world-tropical, temperate, desert and mountain climate.

Unit-V

Climatic Changes: Ozone Depletion; Global Warming: Strengthening of Greenhouse effect; Evidences and Possible causes of global warming; Environmental impacts of global warming and societysøresponse.

Notes:

1. The paper would be set from the syllabus covering the full content. Ten questions, two from each unit, are to be framed. Candidates will have to attempt five questions, one from each unit.
2. All questions will carry equal marks.

Suggested Readings

1. Barry, R.G. and Chorley, P.J., *Atmosphere, Weather and Climate*, Routledge, London and New York, 1998.
2. Critchfield, J.H.: *General Climatology*, Prentice Hall, India, New Delhi, 1993.
3. Das, P.K.: *Monsoons*, National Book Trust, New Delhi, 1987.
4. Fein, J.S. and Stephens, P.N.: *Monsoons*, Wiley Inter-science, 1987.
5. India Met, Deptt.: *Climatological Tables of Observatories in India*, govt. of India, 1968.
6. Lal. D.S.: *Climatology*, Chaitanya Publications, Allahabad, 1986.
7. Lydolph, P.E.: *The Climate of the Earth*, Rowman, 1985.
8. Menon, P.A.: *Our Weather*, N.B.T., New Delhi, 1989.
9. Oliver, J.E. and John J. Hidore. 2002. *Climatology- An Atmospheric Science* (2nd Ed.) Pearson Education (Low Price Edition).
10. Peterson, S.: *Introduction to Meteorology*, McGraw Hill Book, London, 1969.
11. Robinson, P.J. and Henderson S.: *Contemporary Climatology*, Henow, 1999.
12. Thompson, R.D. and Perry, A (ed.): *Applied Climatology, Principles and Practice*, Rourtledge, London 1997.

-III: HUMAN GEOGRAPHY

Max. Marks: 100
(Theory 80 + I.A. 20 marks)

Objectives:

The objective of this course is to acquaint the students with the emerging issues in Human Geography in the 21st century.

UNIT-I

THE WORLD BEFORE GLOBALIZATION: CHANGING SCALES OF EXPERIENCE

- Pre capitalist worlds: A classification Human Societies, cities and civilization, Pre-capitalist societies.
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- The rise and spread of capitalism: Defining capitalism, Transition from feudalism to capitalism, Urbanization
- The making of the twentieth-century world: Organized capitalism, Communism and Command Economy, The Disorganization of Capitalism

UNIT-II

SOCIETY, SETTLEMENT AND CULTURE

- Cities: Defining cities in social context, Urban heterogeneity
- Rural alternatives: Defining rural, a typology of the rural, Encroachment
- Geography, culture and global change: Cultural globalization, Impact of globalization on culture, Multi and hybrid cultures

UNIT-III

POPULATION, RESOURCES AND DEVELOPMENT

- Demographic transformations: Growth of world population, Differential, Population change, The progress of Demographic Transition, Population Agency
- Resources and development: Natural resources, Fuelling the Planet, Energy and Development.
- Changing geographies of global food production: Population Growth and Food Supply, globalization and Food Regimes, Reorientation of developing world Agriculture
- Alternative geographies of global development and inequality

UNIT-IV

PRODUCTION, EXCHANGE AND CONSUMPTION

- The geography of the economy: The rise of Global Economy, Importance of INCS
- The global production system: from Fordism to post-Fordism: Defining Fordism, Geography of Fordism, A new Global Production system
- The global financial system: worlds of monies
- Worlds of consumption: global and Local geographies of consumption

UNIT-V

GEOPOLITICS, STATES AND CITIZENSHIP

- Geopolitical traditions: Organic Theory of State, Heartland, German Geopolitics, Policy of Containment
- The place of the nation-state: Diversity of nations and states, Relationship between nations, states and territory.
- States, citizenship and collective action: Development of modern citizenship, collective action and policy, Linking formal and Internal politics

Notes:

1. The paper would be set from the syllabus covering the full content. Ten questions, two from each unit, are to be framed. Candidates will have to attempt five questions, one from each unit.
2. All questions will carry equal marks.

Books Recommended:

1. Bergman, Edward E: (1995) Human Geography: Culture, Connections and Landscape, prentice-Hall, New Jersey.
2. Carr, M. : Patterns, Process and change in Human Geography, MacMillan Education, London, 1987.
3. Cloke, P., Crang, P. and Goodwin, M (1999) Introducing Human Geographies, Arnold, London.
4. Daniels, P., Bradshaw, M., Shaw, D and Sidaway, J., (2001) Human Geography: Issues for the 21st Century, Pearson, Delhi.
5. Fellmah, J.L.: Human Geography- Landscapes of Human Activities. Brown and Benchman Pub., U.S.A., 1997.
6. DeBlij H.J.: Human Geography, Culture, Society and Space John Wiley, new York, 1996.
7. Johnston, R.J. (editor): Dictionary of Human Geography Balckwell, oxford, 1994.
8. McBride, P.J.: Human Geography Systems, Patterns and Change, Nelson, U.K. and Canada, 1996.
9. Michael, Can: New Patterns: Process and Change in Human Geography Nelson, 1997.

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| (i) | A written paper of 3 hours duration
In the departmental lab | 50 Marks |
| (ii) | Practical record book | 20 Marks |
| (iii) | Viva-voce | 10 Marks |
| (iv) | Internal Assessment | 20 Marks |

UNIT-I

Nature and history of cartography
Types of data and symbols
Cartographic design & generalization

UNIT-II

Mapping physical phenomena:

- (i) Depiction of relief: contour method, spot heights and layer shading
- (ii) Profiles: Serial, longitudinal, transverse, superimposed, composite and projected.
- (iii) Methods of slope analysis: Wentworth, Smith, and Robinson.
- (iv) Representation of climatic data: Hythergraphs, Climograph, Windrose Diagram.

UNIT-III

Mapping Social Phenomena: Distribution of population, density, growth, age & sex composition, urbanisation, literacy and occupational composition.

UNIT-IV

Mapping Economic data: Land use, Cropping pattern and irrigation, employment, traffic flow and accessibility

Note: (i) The question paper in this course will consists of EIGHT questions covering the entire syllabus. Candidates will be asked to attempt any FOUR questions. All questions will be of equal marks.

(ii) The examination of this paper will be conducted in the department by an external examiner who will be assisted by an internal examiner who would generally be the course teacher. The external examiner will be appointed by the Vice Chancellor out of a panel of five experts submitted to him in this regard by the Chairman of the Department.

(iii) The external examiner who will set the question paper in assistance with internal examiner shall have the freedom to decide the nature of questions (whether MCQ type or otherwise) to be put in the question paper covering the entire syllabus

BOOKS RECOMMENDED

1. Keats, J.S. (1973): Cartographic Design and production Longman, London
2. Monkhouse, F.J. and H.R. Wilkinson (1967) Maps and Diagrams, B.T. Publications Pvt. Ltd., Delhi 1989.
3. Raisz Erwin (1962): Principles of Cartography, McGraw Hill, New York.
4. Misra R.P. and A. Ramesh (1989): Fundamentals of Cartography, Concept Publishing Company New Delhi.
5. Singh L.R. and R.N. Singh (1975): Map work and Practical Geography, Central Book Depot, Allahabad.
6. Singh R.L. (1979): Elements of Practical Geography, Kalyani Publishers, new Delhi.
7. John Compbell (1991):Map Use and Analysis, WCB Dubuque.
8. Dent Borden D. (1990): Cartography, Thematic Map Design, Wim.C. Brown Publishers.
9. Kraak, M.J. and Ferjan Ormeling (2003): Cartography, Visualization of Geospatial Data, Pearson Education Limited, Patparganj, Delhi, India.
10. Robinson, Arthur and et.al.(2005): Elements of Cartography, John Wiley and Sons, New York.

PATTERN OF ECONOMIC ACTIVITY

Max. Marks: 100
(Theory 80 + I.A. 20 marks)

UNIT-I

NATURE OF ECONOMIC ACTIVITY

- Types of Economic Activity
- International Trade: Historical Perspective, Contemporary World trade
- Geographical Configuration of World trade
- Open World Trading System: Merits & Demerits.

UNIT-II

LOCATION AND LAND USE

- Central Place Theory: Christaller's Model
- Agricultural Land Use: Von thunen's Model
- Industrial location: Weber's Model
- Modifications to Central Place Theory and the rank size rule
- The internal structure of the City

UNIT-III

TRANSPORT AND MOVEMENT

- Transport routes and networks
- Transport costs and modes
- Movement in space: the gravity model
- Movement in Space overtime: Diffusion (Hagerstand Model)

UNIT-IV

ECONOMIC GROWTH

- The Sector Model
- Rostow's Stage Model
- Polarized Development: Models of Myrdal, Hirshman and Friedmann

UNIT-V

ECONOMIC DEVELOPMENT IN INDIA

- Regional Disparities in the levels of Development
- Impact of Green Revolution on Indian economy and Environment
- Need for New Green Revolution

Notes:

1. The paper would be set from the syllabus covering the full content. Ten questions, two from each unit, are to be framed. Candidates will have to attempt five questions, one from each unit.
2. All questions will carry equal marks.

Suggested Readings

1. Abler, R., Adams, J.S., and Gould, P., Spatial Organization (Prentice Hall, 1991).
2. Berry, B.J.L. Corkling, E.C., Ray, D.M., The Geography of Economic System Prentice Hall, 1976.
3. Broadford, M.G. and Kent, W.A., Human Geography: Theories and their Application, Oxford University Press, 1977.
4. Haggett, P., Locational Analysis in Human Geography, Arnold, 1965.
5. Losen, A, The Economics of Location, Yale University Press, 1954.

POPULATION GEOGRAPHY

100 Marks

Distribution of Marks:

Theory Paper 80 Marks

Internal Assessment: 20 Marks

UNIT-I

- (i) Nature and Scope of population geography.
- (ii) Sources of population data; their quality and reliability.
- (iii) Major theories of population: Malthusian perspective and Marxist perspective, Demographic transition theory.

UNIT-II

Concept, determinants & world pattern of the following attributes of population:

- (i) Density and distribution
- (ii) Growth
- (iii) Literacy

UNIT-III

Concepts, determinants and patterns in India of the following attributes of population:

- (i) Age & Sex Composition
- (ii) Occupational composition
- (iii) Urbanisation

UNIT-IV

- (i) Migration, types, determinants and consequences
- (ii) Laws of migration: Reverbstein's and Lee's laws of migration.
- (iii) International migration pattern.

UNIT-V

- (i) Population and resources: Concepts of optimum population over population and under population.
- (ii) Population policy: Concept, population policy of India.
- (iii) A comparative study of population problems and policies of following countries:
 - (i) USA
 - (ii) Japan
 - (iii) China
 - (iv) India

Note: There will be ten questions in all at least TWO questions from each unit. The candidates will have to answer FIVE questions selecting ONE question from each unit. All questions carry equal marks.



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BOOKS RECOMMENDED

1. Beaufeu Garnier, J. (1966): *Geography of Population*, Longman, London.
2. Brooks, S. (1977): *The World Population Today (Ethnodemographic Processes)*, USSR Academy of Sciences; Moscow.
3. Chandna, R.C. (2000): *Geography of Population Concepts Determinants and Patterns*, Kalyani Publishers, New Delhi:
4. Clarke, John, I (1972): *Population Geography*, Pergamon Press, New York.
5. Charles B. Nam & Susn G. Philliber (1984): *Population A Basic Orientation*, Prentice Hall, New Jersey.
6. Demko, G.J and Others (Eds) (1971): *Population Geography- A Reader*, McGraw-Hill Books Co. New York.
7. Ghosh, B.N. (1985): *Fundamentals of Population Geography*, Sterling Publishers Private Limited, New Delhi.
8. Jones, H.R. (1981): *A Population Geography*, Harper and Row London.
9. Petrov, V. (1985): *India: Spotlight of population*, Progress Publishers, Moscow.
10. Trewartha, G.T. (1969): *A Geography of Population: World Patterns*, Wiley, New York.
11. Trewartha, G.T. (1972): *The Less Developed Realm- A Geography of its population*, Pergamon Press, New York.
12. Trewartha, G.T. (1978): *The More Developed Realm- A Geography of its population*, Pergamon Press, New York.
13. Weeks, John R. (1978): *Population, An Introduction to Concepts and Issues*, Wadsworth Publishing Company, Belmont, California.
14. Woods R.I. (1979): *Population Analysis in Geography*, Longman, London.
15. Zelinsky, W. (1970): *A Prologue to population*, Prentice Hall, London.

Unit-I

Meaning and field of biogeography, Environment, Habitats, Microhabitats and Niches.
Concept, Components, types and functioning of ecosystem.

Unit-II

Soils: Definition, Function, Components and characteristics, Soil Profile, Biomes of the World: Meaning and types.

Unit-III

The evolution of life, Characteristics, of living matter, Lamarck and Darwin views, Factors affecting distribution of organisms Life on islands.

Unit-IV

Plants and animals in relation to man. Animal migration. Plant association and succession. Difference between plants, animals and microbes.

Unit-V

Plant life: What is phytogeography, Classification and characteristics of plants, Taxonomic and Raunkiaer's classifications, A Study of Floristic regions, Animal life: What is zoogeography, Classification and characteristics of animals. A study of zoogeographical realms.

Notes:

1. The paper would be set from the syllabus covering the full content. Ten questions, two from each unit, are to be framed. Candidates will have to attempt five questions, one from each unit.
2. All questions will carry equal marks.

Suggested Readings:

1. Chapman, J.L. and Reiss, M.J. (1997) Ecology, London: Cambridge University Press.
2. Cox, C.D. and Moore, P.D. (1993) Biogeography: An Ecological and Evolutionary Approach, Blackwell.
3. Hoyt, J.B. (1992) Man and the Earth, USA: Prentice.
4. Huggett, R.J. (1998) Fundamental of Biogeography, London: Routledge.
5. Illies, J. (1974) Introduction to Zoogeography, London: Macmillan
6. Lapedes, D.N. ed. (1974) Encyclopedia of Environment Science, London: McGraw Hill.
7. Mathur, H.S. (1988) Essentials of Biogeography, Jaipur: Pointer Publishers.
8. Pears, N. (1985) Basic Biogeography, London: Longman.
9. Robinson, H. (1978) Biogeography, London: The English Language Book Society.
10. Simmon, I.G. (1974) Biogeography, Natural and Cultural, London: Longman.
11. Singh, Svindra (1991) Environmental Geography, Allahabad Prayag Pustak Bhawan.

Division of Marks:

(i)	A written paper of 3 hours duration In the departmental lab	50 Marks
(ii)	Practical record book	20 Marks
(iii)	Viva-voce	10 Marks
(iv)	Internal Assessment	20 Marks

UNIT-I

Geographical Information System: definition, purpose and components, Geographic phenomena: geographic field, geographic objects and boundaries. Computer representation of geographic phenomena: Regular tessellations, Irregular tessellations, Vector representations and Raster representation.

UNIT-II

Spatial referencing: The geoid and vertical datum, the ellipsoid and horizontal datum, the local and global datum, datum transformations, measuring the locational errors on the maps, The Satellite Based Positioning.

UNIT-III

Data in GIS: Spatial and Non-spatial, Spatial data input: direct spatial data acquisition, digitising paper maps, obtaining spatial data elsewhere, data preparation, data checks and repairs, combining multiple data sources.

UNIT-IV

Spatial data analysis: Classification of analytical GIS capabilities; measurement, retrieval and classification functions, overlay functions, neighbourhood functions, connectivity functions, Data visualization, GIS and maps, visualization process.

- Note:**
- (i) The question paper in this course will consist of EIGHT questions covering the entire syllabus. All questions will be of equal marks.
 - (ii) The examination of this paper will be conducted in the department by an external examiner who will be assisted by an internal examiner who would generally be the course teacher. The external examiner will be appointed by the Vice-Chancellor out of a panel of FIVE experts submitted to him by the Chairman of the Department.
 - (iii) The external examiner who will set the question paper in assistance with the internal examiner shall have the freedom to decide the nature of questions (whether MCQ type or otherwise) to be put in the question paper. The question paper, however, will cover the entire syllabus.

Books Recommended

1. Kang-tsung Chang (2002): Geographic Information System, Tata-McGraw Hill, New Delhi.
2. Ian-Haybood et.al.(2002): An Introduction to Geographical Information System.
3. C.P. Lo and Albert K.W. Yeung (2002): Concepts and Techniques of Geographic Information System, Prentice-Hall of India Private Limited, New Delhi.
4. Paul, A. Longley et.al. (): Geographic Information Systems and Science, John Wiley and Sons Ltd. New York.
5. Michael N. Demers (2000): Fundamentals of Geographic information Systems, John Wiley and Sons, Inc, New York.
6. Keith C. Clarke (1997): Getting Started with Geographic Information Systems, Prentice Hall, New Jersey.
7. Peter A. Burrough and Rachael A. McDonnell (1998): Principles of Geographic Information Systems, Oxford University Press.

**COURSE-IX
REGIONAL PLANNING**

Max. Marks: 100
(Theory 80 + I.A. 20 marks)

UNIT-I

BASIC CONCEPTS AND HISTORICAL DEVELOPMENT

- Regional Planning: Concept, Nature and scope, Aims and objectives, Rationale of Regional Planning, Principles, Relation of Regional Development Planning with other Planning activities.
- Historical Development: Regional Planning in the Developed World, Regional Planning in Less Developed World

UNIT-II

GEOGRAPHY AND REGIONAL PLANNING

- Background and Philosophical Base.
- Role of Geography in Regional Planning
- Methodology: Design Method, Regional Method.
- Techniques of Regional Planning: Analytical technique, Procedural techniques

UNIT-III

REGIONS FOR PLANNING

- Concept of Regions: Delineation and variables.
- Types of Regions
- Planning Region: Concept and Characteristics
- Hierarchy of Planning Region
- Need and Importance of Planning Region
- Principle, Criterion and Method for Planning Region.
- Planning Regions of India

UNIT-IV

SURVEYS AND METHODS FOR PLANNING

- Concept and Functions of Surveys
- Types of surveys: Regional and Diagnostic survey
- Concept of Watershed for Regional Planning
- Remote Sensing and its application in Planning
- Geographic Information System as a tool for Planning
- RS, GIS and Planning Synergy.
- Environment Impact Assessment

UNIT-V

REGIONAL PLANNING IN INDIA

- Regional Planning in India in Retrospect.
- Objectives and performance of India's Five Year Plans
- Problems and Prospects of Regional Planning.
- Future of Regional Planning.
- Detailed Study of Damodar Valley Corporation (DVC)

Notes:

1. The paper would be set from the syllabus covering the full content. Ten questions, two from each unit, are to be framed. Candidates will have to attempt five questions, one from each unit.
2. All questions will carry equal marks.

Books Recommended:

1. Abler, R.et.al.: Spatial Organisation: The Geographer's View of the World, Prentice Hall, Englewood Cliffs, N.J., 1971.
2. Bhat, L.S.: Regional Planning in India, Statistical Publishing Society, Calcutta, 1973.
3. Bhat, L.S. et.al.: Micro-Level Planning: A Case Study of Karnal Area, Haryana, K.B. Publications, New Delhi, 1976.
4. Chandna, R.C. 2000. Regional Planning- A Comprehensive Text, Ludhiana: Kalyani Publishers.
5. Chorley, R.J. and Haggett, P.: Models in Geography, Methuen, London, 1967.
6. Christaller, W. Central Places in Southern Germany, Translated by C.W. Baskin, Prentice Hall, Englewood Cliff, New Jersey, 1966.
7. Friedmann, J. and Alonso, W., Regional Development Policy- A Case Study of Venezuela, M.I.T. Press Cambridge, Mass, 1966.
8. Friedmann, J. and Alonso, W.: Regional Development and Planning- A Reader, M.I.T. press, Cambridge, Mass, 1967.
9. Glikson, Arthur: Regional Planning and Development, Netherlands Universities foundation for International Co-operation, London, 1955.
10. Gosal, G.S. and Krishan, G.: Regional Disparities in Levels of Socio-Economic Development in Punjab, Vishal Publications, Kurukshetra, 1984.
11. Government of India, Planning Commission: Third Five Year Plan, Chapter on Regional Imbalances in Development, New Delhi, 1961.
12. Indian Council of Social Science Research: Survey of Research in Geography, Popular Prakashn, Bombay, 1992.
13. Johnson, E.A.J.: The Organisation of Space in Developing Countries, Harvard University Press, Cambridge, 1970.
14. Kuklinski, A.R.(ed): Growth Poles and Growth Centres in Regional Planning, Mouton, The Hague, 1972.
15. Kundu, A. and Raza, Moonis: Indian Economy- The Regional Dimension, Spectrum Publishers, new Delhi, 1982.
16. Losch, A.: The Economics of location, University Press, Yale, New Haven, 1954.
17. Misra, R.P.: Regional Planning: Concepts, Techniques and Policies, University of Mysore, Mysore, 1969.
18. Misra, R.P. and Others (editors): Regional Development Planning in India- A Strategy, Institute of Development Studies, Mysore, 1974.
19. Mitra, A. : Levels of Regional Development, Census of India, Vol.I, Part IA (I) and (ii), New Delhi, 1965.
20. Myrdal, G.: Economic Theory and Under-Development Regions, Gerald Duckworth, London, 1957.
21. Nangia Sudesh, Delhi Metropolitan Region Rajesh Publication, Delhi, 1976.
22. Richardson, H.W.: Regional Economics, Weidenfeld and Nicolson, London, 1969.
23. Sundaram, K.V. (ed.): Geography and Planning, Essays in Honour of V.L.S. Prakasa Rao, Concept Publishing Co., New Delhi, 1985.
24. Tarlok Singh India's Development Experience, McMillan new Delhi, India, 1974.
25. Raza Moonis (editor) Regional Development Heritage Publishers, Delhi, 1988.
26. Misra, R.P. et.Al. Multi-Level Planning, Heritage Publishers, Delhi, 1980.

Max. Marks: 100
(Theory 80 + I.A. 20 marks)

UNIT-I

Measures of Central tendency: Mean, median and mode. Measures of Central locations in spatial situation: Mean centre, median point, point of minimum aggregate travel distance.

UNIT-II

Measures of dispersion: Mean deviation, standard deviation, coefficient of variation, index of spatial dispersion, median distance, standard distance, Lorenz curve and nearest neighbour analysis.

UNIT-III

Probability: Classical and relative frequency approaches to probability, calculation of probability: Law of addition, law of multiplication. Probability distributions: normal and binormal. Sampling: Basic concept, sampling frame, different sampling designs.

UNIT-IV

Measuring the strength of relationship: Scatter diagram, Spearman's rank correlation, Karl Pearson's product moment correlation coefficient, co-efficient of variation and determination.

UNIT-V

Regression analysis: Fitting a regression line by semi-averages and least square methods, coefficient of regression; residual from regression; analysis of variance (ANOVA)

Note: There will be ten questions in all, two questions from each unit. Candidates will have to attempt FIVE questions selecting one question from each unit. All questions carry equal marks. Candidates are allowed to use simple four functions calculator.

BOOKS RECOMMENDED

1. Cole, John P. and Cuchlaine a. M. King (1968): Quantitative Geography, Technique3s and Theories in Geography, John Wiley and Sons Ltd., London.
2. Taylor, Peter J. (1977): Quantitative Methods in Geography, An Introduction to Spatial Analysis. Houghton Mifflin Company, Boston, USA.
3. Hammond, R. and Patrik McCullagh (1974): Quantitative Methods in Geography, Clarendon Press, Oxford.
4. Smith, David M. (1975): Patterns in Human Geography, An introduction to Numerical Methods, Crane Russak & Company, Inc New York.
5. Frank Harry and Steven C. Althoen (1994): Statistics Concepts and Applications, Cambridge University Press.
6. Gulot, S.K. (): Statistical Methods
7. Elhance, D.N. (1972): Fundamentals of Statistics, Kitab Mahal, Allahabad.

Unit-I

The field of Geography, its place in the classification of Sciences. Geography as a social science and natural science. Selected concepts in the philosophy of geography. Geography as the study of distributions, man-nature relationship, spatial interactions and areal differentiations, Geographical concepts in ancient India

Unit-II

Historical Development: Contributions of different scholars during ancient, medieval and modern periods. Development of geographic thought upto 18th century: Contribution of Greeks and Romans. Geography in the middle ages. Geography in the 19th Century; Contribution of Humboldt and Carl Ritter to geographic thought. Geography after Humboldt and Ritter; Contributions of different scholars from Germany, France, Britain and America to geographic thought

Unit-III

Dualisms in geography: Systematic and regional geography, Physical and human geography, Determinist and possibilist geography, Historical and contemporary geography. Regional geography: The concept, attributes and classification of region.

Unit-IV

Scientific explanations: routes to scientific explanations (Inductive/ deductive), types of explanations. The historical explanation in geography; The role of time and genesis in geography, Major areas of temporal explanation in geography, Historical geography: Meaning, nature and approaches.

Unit-V

Quantitative revolution, Positivism, Behavioural geography, Models in geography, Postmodernism, Status of modern Indian geography

Notes:

1. The paper would be set from the syllabus covering the full content. Ten questions, two from each unit, are to be framed. Candidates will have to attempt five questions, one from each unit.
2. All questions will carry equal marks.

Suggested Readings:

1. Ali, S. Muzaffar (1966), The Geography of Puranas, Delhi: Peoples Publishing House.
2. Dickinson, R.E. (1969), The Maker of modern Geography, London.
3. Dikshit, R.D. (1994), The Art and Science of Geography, new Delhi: Prentice Hall of India Pvt. Ltd.
4. Dikshit, R.D. (1997) Geographical Thought, New Delhi: Prentice Hall of India, Pvt. Ltd.
5. Gauld, J.R. (1980), An Introduction to Behavioural Geography, Oxford.
6. Hartshorne, R. (1939) Nature of Geography, Pennsylvania: AAAG
7. Harvey, David (1989) Explanation in Geography, London: Edward Arnold
8. Hussain, Majid (1995) Evolution of Geographical Thought, Jaipur: Rawat Publications.
9. James, P.E. (1972) All Possible World, New York: John Wiley.
10. Minshull, R. (1970) The Changing Nature of Geography, London: Hutchinson University Library

XII: FIELD SURVEY

100 Marks

Division of Marks:

(v)	A written paper of 3 hours duration In the departmental lab	50 Marks
(vi)	Practical record book	20 Marks
(vii)	Viva-voce	10 Marks
(viii)	Internal Assessment	20 Marks

UNIT-I

Geographic Field Methods and Techniques

- Role of Field methods and techniques in modern Geographical research
- Historical development of Field investigation
- The structure of Modern Field Research
- Training in Field Geography
- Geographic Field Instruction

UNIT-II

Maps and Instruments

- Base Map for Field Survey
- Use topographic maps, Aerial photographs and Satellite Imageries for Field Survey
- Use of Brunton Compass and Abney Level
- Global Positioning System (GPS)
- Selection of Mapping Techniques

UNIT-III

Procedures for Geographical Field Survey

- Methods of Data collection : Primary/ Secondary
- Observation Method
- Census and Sampling
- Types of Spatial Sampling
- Questionnaire Design
- Administration of the questionnaire

UNIT-IV

Field Research Design & Report Writing

- Basic phases of Field Research Design
- The Problem Statement
- Hypothesis Formulation
- Project Timing and Management
- Importance of Research Design
- Mechanics of writing a report

Writing of Field Report:

Field trip to the selected station (s) shall be compulsory to all the students. They will make study of physico-cultural milieu of the selected station (s) through personal observations and questionnaire methods. On the basis of data collected from the field the students shall prepare a field report on the allotted subject/ topic and will make use of tables, figures and photo-plates.

The written paper in the department laboratory and in this course will consist of EIGHT questions covering the entire syllabus. All questions will be of equal marks.

(ii) The examination of this paper will be conducted in the department by an external examiner who will be assisted by an internal examiner who would generally be the course teacher. The external examiner will be appointed by the Vice-Chancellor out of a panel of FIVE experts submitted to him by the Chairman of the Department.

(iii) The external examiner who will set the question paper in assistance with the internal examiner shall have the freedom to decide the nature of questions (whether MCQ type or otherwise) to be put in the question paper. The question paper, however, will cover the entire syllabus.

Suggested Readings:

1. Lunsbury J.F. and Aldrich, F.T (1979) Introduction to Geographic Field Methods and Techniques, Charles E. Merrill Publishing Company, Columbus.
2. Association of American Geographer (1965) Field Training in Geography, Technical Paper No.1.
3. Anderson, Jonathan et.al. (1970) Thesis and Assignment Writing, Wiley Eastern United, New Delhi.
4. Panneerselvam, R. (2004) Research Methodology, Prentice Hall of India Pvt. Limited, New Delhi.
5. Kothari, C.R. (2004) Research Methodology, New Age International (P) Limited Publishers, New Delhi.

GRAPHY OF HIMACHAL PRADESH

Max. Marks: 100
(Theory 80 + I.A. 20 marks)

UNIT-I

Emergence of Himachal Pradesh

- Pre Independence Period
- Independence to period of Re-organisation (1947-1966)
- Modern Himachal Pradesh
- Regions of Himachal Pradesh: Criteria for Regionalisation

UNIT-II

Physical Setting

- Geology
- Relief
- Drainage
- Climate
- Natural Vegetation
- Mineral Resources

UNIT-III

Cultural Setting

- Population: Distribution, Density, Sex Ratio, Literacy etc.
- Rural Settlement
- Urbanisation
- Agriculture: Crops and Cropping Pattern, Irrigation
- Horticulture: Significance, Horticulture zones, Spatio-Temporal Development
- Transport and Communication

UNIT-IV

Socio-Economic Development

- Industries: Structure, Distribution,
- Health: Spatio-Temporal Development of health Sector
- Education: Distribution and development
- Hydro Power Generation: Potentials, Development, Achievements.
- Tourism: Different types of Tourism, Destinations

UNIT-V

Problems, Prospects and Policies

- Problems & Prospects: Physical, Economic, Social, Environmental
- Natural Hazards and Disasters: Earthquake, Floods, Cloudburst, Snow Avalanches
- Policies: Water Policy, Forest Policy, Industrial Policy, tourism Policy

Notes:

1. The paper would be set from the syllabus covering the full content. Ten questions, two from each unit, are to be framed. Candidates will have to attempt five questions, one from each unit.
2. All questions will carry equal marks.

Suggested Readings:

1. Ahmad, Enayat (1991) Geography of the Himalaya, Kalyani Publisher, Ludhiana & New Delhi.
2. Joshi, K.L (1984) Geography of Himachal Pradesh, National Book Trust of India, New Delhi.
3. Jreat, Manoj (2006) Geography of Himachal Pradesh, Indus Publishing Company, New Delhi.
4. Singh, R.L. (1992) India, A Regional Geography, National Geographical Society of India, Varanasi.
5. Spate, O.H.K and Learmonth, A.T.A. (1960) India & Pakistan. A General and Regional Geography, Methuen and Company
6. State of Environment Report- Himachal Pradesh (2000), State Council for Science, Technology & Environment, Kasumpti, Shimla.

IV CULTURAL GEOGRAPHY

Max. Marks: 100
(Theory 80 + I.A. 20 marks)

UNIT-I

Meaning and nature of cultural geography, Components of culture, cultural traits, complexes and systems. Basic cultural processes. Fundamental themes in cultural geography: Concepts of cultural region, cultural diffusion, cultural ecology, culture integrations and cultural landscape.

UNIT-II

Cultural diversity: Language, religion and tribal groups, Linguistic culture region, Language pattern in India, Linguistic diffusion, Linguistic ecology, Linguistic cultural integration, Linguistic landscapes. Religious culture region, Major religions of the world, Religious diffusion, Religious ecology, Religious cultural integration, Religious landscapes. Major tribal groups of the world and India.

UNIT-III

Folk and Popular geography. Folk culture regions, Folk culture diffusion, Folk ecology, Folk architecture in the cultural landscape, Folk dwellings: house types, structural and functional elements of a house. Popular culture, popular culture regions, popular culture diffusion, the ecology of popular culture, landscapes in popular culture.

UNIT-IV

Human Settlements, significance of settlement studies, place names versus settlements, Meaning, scope and approaches of settlement geography, Types and patterns of settlements, Causes of diverse types of rural settlements.

UNIT-V

Cultural geography of the Himalaya, The cultural patterns, Hindu, Lamaist-Buddhism, Islamic, Indo-Mongolid and Nepalic culture areas. Major communities of the Himalaya.

Notes:

1. The paper would be set from the syllabus covering the full content. Ten questions, two from each unit, are to be framed. Candidates will have to attempt five questions, one from each unit.
2. All questions will carry equal marks.

Suggested Readings:

1. Jackson, W.A.D. (1986) The shaping of Our World, New York: John Wiley and Sons.
2. Jorden, T.G. and Rowntree, L. (1990) The Human Mosaic, New York: Harper and Row.
3. Karan, P.P. (1984) A Cultural Geography of Himalaya, in ed. Eidi, R.C. Singh, R.B. and Singh, K.N. ed., Man Culture and Settlement, New Delhi: Kalyani Publishers, pp.24-30.
4. Mitra, Asok, Mukherjee S. and Bose, R. (1980) Indian Cities, New Delhi: Abhinay Publications.
5. Rubenstein, J.M. (1989) The Cultural Landscape, Columbus: Merrill Pub. Com.
6. Singh, R.L. (1993) India: A Regional Geography, Varanasi: National Geographical Society of India.
7. Singh, R.L. and Singh, K.N. (1975) Readings in Rural Settlement Geography, Varanasi: NGSI.
8. Spencer, J.E. and Thomas, W.L. (1978) Introduction to Cultural Geography, New York: John Wiley and Sons.
9. Stoddart, R.H. Wishart, D.J. and Blouct, B.W. (1989) Human Geography: People, Places and Cultures, New Jersey: Prentice Hall.
10. Wagner, P.L. and Mikesell, M.W. (1962) Readings in Cultural Geography, Chicago: The University of Chicago Press.

POLITICAL GEOGRAPHY

Max. Marks: 100
(Theory 80 + I.A. 20 marks)

Unit-I

A World-Systems Approach to Political Geography

World Systems Analysis

- Historical Systems
- The basic elements of the world economy

Dimensions of An Historical System

- The dynamics of the world-economy
- A space-time matrix for political geography

Power and Politics in the World-economy

- The nature of power: individuals and institutions
- The subtlety of power: What is a strong state
- A political geography perspective on the world-economy

Unit-II

Geopolitics Revived

The Power-Political Heritage

- Mackinder's heartland theory
- German geopolitics 1924-1941
- Containment and deterrence: the US world model

Geopolitical World-Orders

- Cycles of international politics
- The cold war as a geopolitical world order
- A new geopolitical transition

Geopolitical Codes

- Containment: the geopolitical codes of US hegemony
- Alternative geopolitical codes

Unit-III

Geography of Imperialisms

The Revolutionary Heritage

- The rise and fall of the classical theory
- A world-systems interpretation of imperialism

Formal Imperialism: The creation of empires

- The two cycles of formal imperialism
- The geography of formal imperialism
- The economics of formal imperialism
- Where the sun never set

Informal Imperialism: Dominance without empire

- The international relations of informal imperialism
- Informal imperialism as a structural relation
- Informal imperialism today

Unit-IV

Electoral Studies

- Geography and electoral studies: Geography of voting; Geographical influences on voting; geographical influences on representation

Electoral Systems and Electoral Data:

- The Plurality system, Preferential Systems, List systems, Mixed systems; Voting records and Ecological Analysis

Unit-V

Electoral Abuses:

- Numerical Discrimination: Malapportionment, Boundary Discrimination: Gerrymandering.

Electoral Reforms:

- The Problem of Alternative Geographics; the problems of Alternative Electoral Systems.



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yllabus covering the full content. Ten questions, two from each

- unit, are to be framed. Candidates will have to attempt five questions, one from each unit.
2. All questions will carry equal marks.

Suggested Readings:

1. Dikshit R.D., Political Geography: A Contemporary Perspective, Tata McGraw Hill, 1987.
2. Kasperson, R.E. and Mingni, J.V (ed.) Structure of Political Geography, London University Press, 1970.
3. Muir, P., Modern Political Geography, Macmillan London, 1981.
4. Pounds, N.J.G., Political Geography, McGraw Hill, 1983.
5. Taylor, P.J. Political Geography, Longman, Harlow, 1992.
6. Taylor, P.J. and Johnston, R.J., Geography of Elections, Penguin Books Ltd., Harmondsworth, 1979.



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REMOTE SENSING TECHNIQUES

Maximum Marks: 100

(Practical)

Unit-I

History of remote sensing: Development of aerial photography (pre-1960 period); Development of satellite-based remote sensing (post-1960 period); Remote Sensing in India.

Unit-II

Basic principles of remote sensing; electromagnetic energy; energy source; energy and radiation principles; energy interactions in the atmosphere and with earth surface features; spectral reflectance; spectral signatures; methods of recording spectral reflectances (photographic and digital), Remote Sensing Systems (classification)

Unit-III

Air photos and photogrammetry: Elements of photographic system-types, scales and ground coverage, resolution, radiometric characteristics, films, filters, aerial cameras, photograph geometry (vertical)

Vertical aerial photogrammetry: relief displacement, image parallax, stereoscopic viewing and measurements.

Aerial photographic interpretation: elements of aerial photographic interpretation- shape, size, pattern, tone, texture, shadows and site

Unit-IV

Satellite Remote Sensing: RS Satellites- Polar sun-synchronous, geo-stationary; satellite platforms- LANDSAT, SPOT, IRS, INSAT, Principles and geometry of scanners and CCD arrays; Satellite RS data products: Imageries, computer compatible media (CCTs, CDs, Floppies etc.), MSS, TM, SPOT-PLA, SPOT-MLA, LISS-I, LISS-II, LISS-III

Unit-V

Digital Image Processing: Digital image and gray scale images; Analog-to-Digital (A to D) conversion; image rectification and restoration; image enhancement, contrast manipulation, ratioing; image classification: Supervised classification approach-minimum distance to means classification, parallelepiped classification, maximum likelihood classification; unsupervised classification approach

se would be 100.

- (2) 100 marks for the course would be divided as follows:
 - (a) Written examination 50 marks
 - (b) Record book 20 marks
 - (c) Viva Voce 10 marks
 - (d) Internal assessment 20 marks
- (3) Written examination would be of 3 hours duration and would be conducted in the Department.
- (4) Paper for the written examination shall be made by the external examiner in assistance with the internal examiner (who generally would be the course teacher)
- (5) External examiner would be appointed by the VC/PVC out of a panel of four university teachers supplied by the Department Chairman in consultation with the course teacher.
- (6) Record book would be evaluated by the external examiner.
- (7) Viva voce would be conducted by the external examiner and would pertain to the complete contents of the syllabus.
- (8) Internal assessment would be given by the course teacher on the basis of lecture attendance and classroom performance. Internal Assessment marks would be decided by the course teacher and be added to the marks obtained by the student at the time of practical examination.
- (9) Paper for the written examination would be set jointly by the external and internal examiners. Paper would comprise two parts. Part one would have two long answer type questions, each question carrying 10 marks. Part two of the paper would contain 40 objective type questions covering the full content of the syllabus each carrying one mark. Questions in this part would be multiple choice, true/false and short answer type.
- (10) Answer books would be evaluated jointly by external and internal examiners on the day of examination.

Suggested Readings:

1. American Society of Photogrammetry: *Manual of Remote Sensing*, ASP, Falls Church, V.A., 1983.
2. Barrett E.C and L.F. Curtis: *Fundamentals of Remote Sensing and Air Photo Interpretation*, Mcmillan, New York, 1992.
3. Compbell J.: *Introduction to remote Sensing*, Guilford, New York, 1989.
4. Curran, Paul J. : *Principles of Remote Sensing*, Longman, London, 1985.
5. Gibson, Paul J. 2000. *Introductory Remote Sensing- Principles and Concepts*. London & New York: Routledge.
6. Hord R.M. : *Digital Image Processing of Remotely Sensed Data*, Academic, New York, 1989.
7. Jensen, John R. 1996. *Introductory Digital Image Processing- A Remote Sensing Perspective* (2nd Ed.). Upper Saddle River, New Jersey: Prentice Hall.
8. Juder D.: *Aerial Photography Interpretation: Principles and Application*, McGraw Hill, New York, 1959.
9. Pratt W.K. *Digital Image Processing*, Wiley, New York, 1978.
10. Rao D.P. (eds.): *Remote Sensing for Earth Resources*, Association of Exploration Geophysicist, Hyderabad, 1998.
11. Thomas M. Lilesand and Ralph W.Kefer, *Remote Sensing and Image Interpretation*, John Wiley & Sons, New York, 1994.
12. Jensen, John R. *Remote sensing of the Environment – An Earth Resource Perspective*, Pearson Education, 2000.