



PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)
(Estd. under the Panjab University Act VII of 1947—enacted by the Govt. of India)

FACULTY OF ARTS

SYLLABI

FOR

M.A. GEOGRAPHY (SEMESTER SYSTEM)
EXAMINATIONS, 2011-2012

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**APPLICABILITY OF REGULATIONS FOR THE TIME
BEING IN FORCE**

Notwithstanding the integrated nature of a course spread over more than one academic year, the regulations in force at the time a student joins a course shall hold good only for the examinations held during or at the end of the academic year. Nothing in these regulations shall be deemed to debar the University from amending the regulations subsequently and the amended regulations, if any, shall apply to all students whether old or new.

GUIDELINES FOR CONTINUOUS INTERNAL ASSESSMENT (20%) FOR REGULAR STUDENTS OF POST-GRADUATE COURSES of Geography (Semester System) (Effective from the First Year Admissions for the Academic Session 2008-2009)

1. The Syndicate has approved the following guidelines, mode of testing and evaluation including Continuous Internal Assessment of students :

- (i) Terminal Evaluation : 80 %
- (ii) Continuous Assessment : 20 %
- (iii) Continuous Assessment may include written assignment, snap tests, participation in discussions in the class, term papers, attendance etc.
- (iv) In order to incorporate an element of Continuous Internal Assessment of students, the Colleges/Departments will conduct **one** written test as quantified below :

(a)	Written Test	:	25 (reduced to 5)
(b)	Snap Test	:	25 (reduced to 5)
(c)	Participation in Class discussion	:	15 (reduced to 3)
(d)	Term Paper	:	25 (reduced to 5)
(e)	Attendance	:	10 (reduced to 02)

Total : 100 reduced to 20

2. Weightage of 2 marks for attendance component out of 20 marks for Continuous Assessment shall be available only to those students who attend 75% and more of classroom lectures/seminars/workshops. The break-up of marks for **attendance component** for theory papers shall be as under :

<i>Attendance Component</i>	<i>Marks for Theory Papers</i>
(a) 75 % and above upto 85 %	1
(b) Above 85 %	2

3. It shall **not be compulsory** to pass in Continuous Internal Assessment. Thus, whatever marks are secured by a student out of 20% marks, will be carried forward and added to his/her score out of 80 %, i.e. the remaining marks allocated to the particular subject and, thus, he/she shall have to secure pass marks both in the University examinations as well as total of Internal Continuous Assessment and University examinations.

4. Continuous Internal Assessment awards from the affiliated Colleges/Departments must be sent to the Controller of Examinations, by name, **two weeks before** the commencement of the particular examination on the *proforma* obtainable from the Examination Branch.

SPECIAL NOTE :

- (i) The theory question paper will be of 80 marks and 20 marks will be for internal assessment.
- (ii) In the case of Postgraduate Course in the Faculties of Arts, Science, Languages, Education, Design & Fine Arts, and Business Management & Commerce (falling under the purview of Academic Council), where such a provision of Internal Assessment/Continuous Assessment already exists, the same will continue as before.

(ii)

PANJAB UNIVERSITY, CHANDIGARH

OUTLINES OF TESTS, SYLLABI AND COURSES OF READING IN THE SUBJECT OF
GEOGRAPHY FOR M.A. (SEMESTER SYSTEM) EXAMINATION 2011-2012.

SEMESTER-I (*for the examination of November/December, 2011*)

	<i>Title</i>	<i>Marks</i>	<i>Credits</i>
Paper-I	: Geographic Thought	100	4
Paper-II	: Geomorphology	100	4
Paper-III	: Cartography (Theory and Practical)	100	4
Paper-IV	: <i>Any one of the following optional courses:</i>		
Option (i)	: Fundamentals of Population Geography	100	4
Option (ii)	: Fundamentals of Agricultural Geography	100	4
Option (iii)	: Political Geography	100	4
Option (iv)	: Geographical Perspectives on Sustainable Development	100	4
Option (v)	: Geography and Ecosystems	100	4
Total :		400	16

SEMESTER-II (*for the examination of April/May, 2012*)

	<i>Title</i>	<i>Marks</i>	<i>Credits</i>
Paper-I	: Climatology	100	4
Paper-II	: Geography of India (Systematic and Regional)	100	4
Paper-III	: Fundamentals of Remote Sensing (Theory and Practical)	100	4
Paper-IV	: <i>Any one of the following optional courses:</i>		
Option (i)	: Urban Geography	100	4
Option (ii)	: Population and Development Planning	100	4
Option (iii)	: Fundamentals of Natural Hazards and Disaster Management	100	4
Option (iv)	: Marketing Geography	100	4
Option (v)	: Contemporary issues in Human Geography	100	4
Total :		400	16

(ii)

SEMESTER-III (for the examination of November/December, 2011)

	<i>Title</i>	<i>Marks</i>	<i>Credits</i>
Paper-I	: Town and Country Planning	100	4
Paper-II	: Research Methodology in Geography	100	4
Paper-III	: Fundamentals of GIS and GPS (Theory and Practical)	100	4
Paper-IV	: <i>Any one of the following optional courses:</i>		
Option (i)	: Regional Development and Planning in India	100	4
Option (ii)	: Special Themes in Agricultural Geography	100	4
Option (iii)	: Bio Geography	100	4
Option (iv)	: Social Geography	100	4
Option (v)	: Political Geography of India	100	4
Option (vi)	: Applied Climatology	100	4
		Total :	400
			16

SEMESTER- IV (for the examination of April/May, 2012)

	<i>Title</i>	<i>Marks</i>	<i>Credits</i>
Paper-I	: Regional Planning	100	4
Paper-II	: Field Based Project Report (Practical only)	100	4
Paper-III	: Quantitative Methods in Geography (Theory and Practical)	100	4
Paper-IV	: <i>Any one of the following optional courses:</i>		
Option (i)	: Administrative Geography	100	4
Option (ii)	: Geography of Water Resources	100	4
Option (iii)	: Geography of Food Security	100	4
Option (iv)	: Economic Geography (with special reference to India)	100	4
Option (v)	: Geography of Rural Settlements	100	4
		Total :	400
			16

**OUTLINES OF TESTS, SYLLABI AND COURSES OF READING FOR M.A. GEOGRAPHY
(SEMESTER SYSTEM) W.E.F. ADMISSION, 2011**

SEMESTER-I

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 :

	<i>Title</i>	<i>Marks</i>	<i>Credits</i>
Paper-I	Geographic Thought	100	4
Paper-II	Geomorphology	100	4
Paper-III	Cartography (Theory and Practical)	100	4
Paper-IV	<i>Any one of the following optional courses:</i>		
Option (i)	: Fundamentals of Population Geography	100	4
Option (ii)	: Fundamentals of Agricultural Geography	100	4
Option (iii)	: Political Geography	100	4
Option (iv)	: Geographical Perspectives on Sustainable Development	100	4
Option (v)	: Geography and Ecosystems	100	4
Total :		400	16

- Note :*
1. There will be continuous assessment of 20% of the Maximum Marks of each paper. The final award in each paper will be determined by the marks obtained by the candidate in the terminal examination and the continuous assessment.
 2. Options to be offered for teaching in a particular academic session in each class will be decided by the respective Board of Control.

Paper-I : Geographic Thought

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

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.

Course Content :**UNIT-I : Historical Developments upto 19th Century**

- (i) Contributions of the Greeks and Romans with special reference to Herodotus, Eratosthenes, Strabo and Ptolemy.
- (ii) Geography in the Muslim world.
- (iii) Geography in the Modern Period : Contributions of Varenus, Kant, Humboldt and Ritter.

UNIT-II : Developments in 20th Century

- (iv) Geography in the Twentieth Century : The changing paradigms, Determinism and possibilism.
- (v) Quantitative Revolution, Positivism, behaviouralism, radicalism and humanism.

UNIT-III : Philosophical Foundations

- (vi) Geography as a science of : (i) distributions; (ii) relationships; (iii) areal differentiation; and (iv) spatial organisation.
- (vii) Dualism between (i) systematic and regional geography; (ii) physical and human geography.

UNIT-IV : Methodological Issues

- (viii) Modes of explanation (a) major concerns of scientific thinking; (b) the routes to scientific explanations.
- (ix) Conceptual methodological developments.
- (x) Impact of technological advances on geographic methodology.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidates(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put**

BOOKS RECOMMENDED:

Essential Readings :

1. Barnes, T.J., The Place of Locational Analysis : A Selective and Interpretive History, Progress in Human Geography 27 : 169-195, 2003.
2. Dikshit, R. D. (ed.), Geographical Thought : A Contextual History of Ideas, Prentice Hall of India, New Delhi, 1999.
3. Dikshit, R. D. (ed.), The Art & Science of Geography, Integrated Readings, Prentice Hall of India, New Delhi, 1994.
4. Hartshorne, R., The Nature of Geography, Association of American Geographers, Fourth Print, 1939.
5. Hartshorne, R., Perspectives on the Nature of Geography, Rand, McNally & Co., 1959.
6. Harvey, D., Explanation in Geography, Edward Arnold, London, 1973.
7. Husain, M., Evolution of Geographic Thought, Rawat Pub., Jaipur, 1988.
8. Johnston, R. J., The Future of Geography, Methuen, London, 1988.
9. Peet, Richard, Modern Geographical Thought, Blackwell, Massachusettes, First Indian Reprint, 2004.
10. Preston E. James, All Possible Worlds, A History of Geographical Ideas, The Odyssey Press, Indianapolis, 1972.
11. Tozer, F.A., History of Ancient Geography, Cambridge : Cambridge University Press, 1957.
12. Martin, G., All Possible Worlds, A History of Geographical Ideas, Fourth Edition, Oxford University Press, New York, 2005.

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. and Gould, Peter, Spatial Organization : The Geographer's View of the World, N. J., Prentice Hall, 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, Thousand Oaks, New Delhi, 1999.
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.

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.

Paper-II : Geomorphology

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

- (a) 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.
- (b) The course aims to familiarize the student with the conceptual framework for understanding the existing geomorphological landscapes and related processes.
- (c) 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.

Course Content :

UNIT-I

- (i) Nature, Scope, Approaches and recent developments.
- (ii) Important concepts in geomorphology.

- (iii) Relationship between process and landform.

UNIT-II

- (iv) Earth Movements: Epeirogenic, orogenic, cymatogenic.
(v) Morphogenetic regions.
(vi) Mass movement of debris.

UNIT-III

- (vii) Volcanic topography.
(viii) Karst topography.
(ix) Fluvial, Aeolian, Glacial and Marine Landforms and their processes.

UNIT-IV

- (x) Models of landscape evolution and slope development: Ideas of Davis, Penck, and King.
(xi) Multicyclic and polygenetic evolution of landscapes.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidates(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Bloom, Arthur L., *Geomorphology: A Systematic Analysis of Late Cainozoic Landforms*, Pearson Education, Singapore, 3rd Edition, 2003.
2. Davis, W. M., *Geographical Essays*, Dover, Boston, 1909.
3. Fairbridge, R.W., *Encyclopedia 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. Skinner, B. J. and S.C., Porter, The Dynamic Earth, John Wiley, New York, 1995.
5. Strahler, Alan and Arthur Strahlur, Physical Geography : Science and Systems of the Human Environment, John Wiley & Sons, New York, 3rd Edition, 2005.

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.

Paper-III : Cartography (Theory and Practical)

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Distribution of Marks :

- (i) Written paper of three hours duration in which candidates will be required to attempt five questions. 50 Marks

Objectives :

The objective of this course is to promote awareness of the M.A. students 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

- (i) Cartography - Nature, history and recent trends.
- (ii) GIS and Computer Assisted Cartography (four practical exercises as per the availability of equipment/hardware & software).
- (iii) Types of data and symbols.

UNIT-II*Landform Mapping and Analysis :*

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

UNIT-III

- (v) Calculation of Gradient, scales of slopes. Methods of slope analysis; Wentworth, Henry and Raisz, Robinson.
- (vi) Mapping of climatic data: Temperature and Rainfall.

UNIT-IV

- (vii) Representation of Population data.
- (viii) Representation of Agriculture data.

- 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 carrying nine marks. These will be in addition to the compulsory question at serial number 1.
 3. 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.

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4. 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.
5. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.

BOOKS RECOMMENDED :

Essential Readings :

1. Keates, J.S., Cartographic Design and Production, Longman, London, 1998.
2. Misra, R.P. and Ramesh, A., Fundamental of Cartography, Concept Publishing Company, New Delhi, 1989.
3. Monkhouse, F.J., 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 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.

Paper- IV : *Any one of the following optional courses:*

Option (i) : Fundamentals of Population Geography

Max. Marks : 100

Terminal Exam. : 80 Marks

Internal Assessment : 20 Marks

Time : 3 Hours

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.

Course Content :

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:
 - (a) Distribution and density.
 - (b) Vital rates : Birth and death rates.
 - (c) Growth.
 - (d) Migration (including laws of migration).
 - (e) Age and sex composition.
 - (f) Literacy.
 - (g) Urbanization.
 - (h) Occupation.

UNIT-III

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

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

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UNIT-IV

- (vi) A comparative study of the population problems and policies of developed and less developed countries with special focus on the following countries :
- (a) Developed: Canada, Japan.
 - (b) Less developed: China, India.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidates(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Chandna, R.C., Regional Planning and Development, Kalyani Publishers, New Delhi, 2008.
2. Chandna, R.C., A Geography of Population (9th Edition), Kalyani Publishers, New Delhi, 2010.
3. Chandna, R.C., Jansankhya Bhoogol (Hindi – 7th Edition), Kalyani Publishers, New Delhi, 2010.
4. Clarke, J.L., Population Geography, Pergamon Press Oxford (2nd edition), 1972.
5. Demko, G.J. et. al., Population Geography: A Reader, McGraw Hill Books Co., New York, 1971.
6. Hauser, P.M. & Duncan, O.D., The Study of Population, University Press Chicago, 1959.

7. Hornby, F. William and Jones, M., An Introduction to Population Geography, Cambridge University Press, Cambridge, 1987.
8. Hussain Majid, Human Geography, Jaipur, Rawat Publication (3rd edition), 2006-10.
9. Jones, U.K., A Population Geography, Harper & Row Publishers, London, 1981.
10. Kayastha, S.L., Geography of Population : Selected Essays, Rawat Publications, 1998.
11. Weeks, John, Population : An Introduction to Concepts and Issues, Wadsworth/Thomson Learning Belmont, LA, USA, 2002.
12. Zelinsky, W. and et. al, Geography and a Crowding World, University Press, Oxford, 1970.

Further Readings :

1. Barclay, G.W., Techniques of Population Analysis, John Wiley & Sons, New York, 1958.
2. Berelson, B. (ed.), Population Policy in Developed Countries, McGraw Hill Book Co., 1974.
3. Bose, Ashish, Population Profile and Religion in India, B.R. Publications, Delhi, 1997.
4. Crook, Nigel (ed.), Principles of Population and Development, Oxford University Press, 1997.
5. Ford, T.R. and Delong, F.F., Social Demography, Prentice Hall Inc., London, 1970.
6. Knowled, R. & Wareing, J., Economic and Social Geography : Made Simple Books, Rupa & Co., New Delhi, 2007.
7. www.prb.org
8. Premi, Mahendra K., India's Changing Population Profile, National Book Trust India , New Delhi, 2009.
9. Robinson, W.C., Population and Development Planning, The Population Council, New York, 1976.
10. Sundaram, K.V. and Nangia, Sudesh (eds.), Population Geography, Heritage Publishers, New Delhi, 1985.
11. Woods, Robert, Theoretical Population Geography, Longman Inc., New York, 1982.
12. World Population Policies, Social & Economic Affairs, United Nations, 2001-10 (annual).

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.

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OR

Option (ii) : Fundamentals of Agricultural Geography

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

- To familiarise 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.

Course Content :

UNIT-I

- (i) The nature, subject matter and progress in Agricultural Geography.
- (ii) Approaches : (i) commodity, (ii) systematic, (iii) regional.
- (iii) Determinants: (i) physical, (ii) economic, (iii) socio-cultural.

UNIT-II

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

UNIT-III

- (v) Land-use survey and classification (British and Indian).
- (vi) Land capability classification (U.S. and Britain).

UNIT-IV

- (vii) A critical evaluation of the classification of world agriculture with special reference to Whittlesey.
- (viii) New perspectives in Agriculture : Contract Farming, Agri-business and Food Security.

Note : 1. A compulsory question containing 15 short answer type questions shall be set covering the

whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidates(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

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.

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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.

OR

Option (iii) : Political Geography

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

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.

Course Content :

UNIT-I

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

UNIT-II

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

UNIT-III

- (v) Special themes in Political Geography :

- (a) State and Nation.
- (b) Frontiers and Boundaries.
- (c) Geo-strategic views: The contributions of H. Mackinder, A.T. Mahan, N.J. Spykman.

UNIT-IV

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

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt all 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidates(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

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.
6. Sudipta, Adhikari., Political Geography, Rawat Publications, Jaipur, 1997.

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.
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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. Muir, Richard, Modern Political Geography, Macmillan, London, 1995.
6. Percy, G. E. et.al., World Political Geography, Second Edition, Thomas Y. Growell Company, New York, 1957.
7. Pounds, N.J.G., Political Geography, 2nd Ed., McGraw-Hill, N.Y., 1972.
8. 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.

OR

Option (iv) : Geographical Perspectives on Sustainable Development

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives : The course aims at creating better understanding of sustainable development and of the geographical perspectives of it. Being concerned with the planet as a whole, geographers are ideally suited to studying sustainable development, a field of truly global dimension.

The course attempts to grapple with the diversity both of political views on the subject and theoretical approaches, and to show how thinking geographically can enhance our understanding of them. A variety of geographical perspectives presented will demonstrate to a student of geography that there is more to subject than they realize, and encourage them to pay greater attention to sustainable development in the future.

UNIT-I

Sustainable Development : Definition, concept and historical developments; difference between economic growth, economic development and sustainable development; economic theories of sustainable development, reconciliation between political and theoretical discourses.

UNIT-II

Geography and Sustainable Development : Sustainable development in disciplinary perspective, sustainable development and geographical agenda, geography and the pursuit of sustainable development.

Sustainable Development and the Spatial Scale and Spatial Interaction : Structuring global scale, achieving sustainable development at local, regional, national and global scales, sustainable development and open economies, interaction between different spatial scales.

UNIT-III

Sustainable Development of Urban Regions : Impacts of urban development, urban modelling and sustainability assessment, models of sustainable urban development, problems and prospects.

Making Cities Sustainable : Continuity and change in urban problems, defining sustainable urban development, urban challenges in developing world.

Sustainable Economic Development : Business and the environment, sustainable economic development as Eco-efficiency, sustainable farming, resource efficiency and resource redistribution, and sustainable futures.

UNIT-IV

Climate change, Energy, and Sustainable Development : Climate change as a threat to sustainable development, current and future climate regimes, mitigating climate change.

Sustainable Development and International Relations : International relations theories, climate change and global discourse, discourses in conflict at international forums.

Future Perspectives : Existing strategies for sustainable development, consensus and contest, challenge of sustainable development, sustainable development and societal change.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion

in the class, term papers, attendance etc.

4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

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BOOKS RECOMMENDED :

Essential Readings :

1. Adams, W.M. (2001), Green Development : Environment and Sustainability in Developing Countries, 2nd edition, Routledge, London.
2. Barbier, E.B. (1987), The Concept of Sustainable Development, Environmental Conservation, 14(2), 101-110.
3. Daly, H.E. (1999), "Towards Some Operational Principles of Sustainable Development", Ecological Economics, 2(1), 1-6.
4. World Commission on Environment and Development (1987), Our Common Future, Oxford University Press, Oxford.
5. Purvis, M. and Alan Grainger (2004), Exploring Sustainable Development : Geographical Perspectives, Earthscan, London.

Further Readings :

1. Bhoovigyan Vikas Foundation (2001), International Conference on Sustainable Life Styles and Sustainable Development, Contributory Papers, New Delhi.
2. World Development Report (2003), Sustainable Development in a Dynamic World, Oxford University Press, 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 Sustainable Development.

OR

Option (v) : Geography and Ecosystems

Max. Marks : 100

Terminal Exam. : 80 Marks
Internal Assessment : 20 Marks
Time : 3 Hours

Objectives :

- To appraise the students with the interrelationship between man and the environment in which he lives and also his linkages with other organisms.

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- 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.

Course Content :

UNIT-I

- (i) Components of the ecosystem : Abiotic, biotic.
- (ii) Functional characteristics of ecosystems : Food chains and food webs; trophic levels; ecological pyramids; energy flow; nutrient cycling.
- (iii) Ecological succession and equilibrium.

UNIT-II

- (iv) Major ecosystems of the world : Tropical and temperate forest ecosystems, boreal ecosystems, grassland ecosystems, desert ecosystems.
- (v) Biodiversity : Concept; importance; hot spots; causes for the loss of biodiversity.

UNIT-III

- (vi) Ecological changes over space and time.
- (vii) Ecosystem stability and disturbance.
- (viii) Managed ecosystems : Agricultural, urban.

UNIT-IV

- (ix) Case studies of human induced ecological changes :
 - (a) Hill ecosystems with specific reference to Punjab Shivaliks.
 - (b) Wetland ecosystems with specific reference to the Punjab wetlands.
 - (c) Agricultural ecosystems with specific reference to the Green Revolution in Punjab.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.

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3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

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.
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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.

SEMESTER II**Outlines of Tests**

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-II (for the examination of April/May, 2012)

	<i>Title</i>	<i>Marks</i>	<i>Credits</i>
Paper-I	Climatology	100	4
Paper-II	Geography of India (Systematic and Regional)	100	4
Paper-III	Fundamentals of Remote Sensing (Theory and Practical)	100	4
Paper-IV	<i>Any one of the following optional courses:</i>		
	Option (i) : Urban Geography	100	4
	Option (ii) : Population and Development Planning	100	4
	Option (iii) : Fundamentals of Natural Hazards and Disaster Management	100	4
	Option (iv) : Marketing Geography	100	4
	Option (v) : Contemporary Issues in Human Geography	100	4
Total :		400	16

1. There will be continuous assessment of 20% of the Maximum Marks of each paper. The final award in each paper will be determined by the marks obtained by the candidate in the terminal examination and the continuous assessment.
2. Options to be offered for teaching in a particular academic session in each class will be decided by the respective Board of Control.

Paper- I : Climatology

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

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

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Course Content :**UNIT-I**

- (i) Climatology : History, development, subdivisions, importance.
- (ii) The earth's atmosphere : Composition and structure.
- (iii) Atmospheric energy and terrestrial radiation : Solar radiation; mechanism of heat transfer (conduction, convection, radiation); distribution of solar radiation over the earth; global radiation budget.
- (iv) Temperature : Concept, measurement, scales, daily and annual cycles of temperature; vertical distribution; world distribution.

UNIT-II

- (v) Atmospheric pressure and winds : Vertical variation of pressure; horizontal variation of pressure; forces affecting wind : pressure systems; surface winds.
- (vi) Atmospheric moisture and precipitation : Concept and measurement of atmospheric moisture; condensation - forms of condensation; adiabatic temperature changes, hydrologic cycle; formation and types of precipitation; global distribution of precipitation.

UNIT-III

- (vii) Air masses : Origin, classification and types of modification.
- (viii) Fronts : Types and characteristics, tropical and temperate cyclones.

UNIT-IV

- (ix) Need for and criteria of climatic classification.
- (x) Climatic classification with special reference to Koppen and Thornthwaite.

- Note :*
- 1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.

3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Barry, R.G. & Chorley, R.J., Atmosphere, Weather and Climate, Methuen Co. Ltd., London, 5th Edition, 1987.
2. Bhutani, Smita, Our Atmosphere, Kalyani Publishers, Ludhiana, 2000.
3. Critchfield, H.J., General Climatology, Prentice Hall, N.J., 1975.
4. Frederick K. and Edward J. Tarbuck, The Atmosphere: An Introduction to Meteorology, Prentice Hall of India Pvt. Ltd., New Delhi, 1995.
5. Strahler, A.N., Modern Physical Geography, John Wiley and Sons, New York, Singapore, 1987.
6. Trewartha, G.T., An Introduction to Climate, McGraw Hill, New York, 1980, Fifth Edition (International Student Edition).

Further Readings :

1. Lydolph, P.E., The Climate of the Earth, Rowman Nad Allanheld, Totowa, New Jersey, 1985.
2. Rumney, G.R., Climatology and the World Climates, Macmillan, London, 1968.
3. Thompson Russell D., Applied Climatology - Principles & Practice, John Willey, New York, 1997.

Pedagogy :

If possible, audio-visual aids will be arranged to explain weather phenomena to the students. Visits for the students to the nearest Weather Observatory and Meteorological Department will be arranged to know the functioning of various weather instruments and to understand weather conditions with the help of Weather and Climate Charts.

Paper-II : Geography of India (Systematic and Regional)

Max. Marks : 100
Terminal Exam. : 80 Marks

Internal Assessment : 20 Marks
Time : 3 Hours

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.

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Course Content :

UNIT-I

- (i) Unity in diversity of India : Unifying mechanism and divisive streaks.
- (ii) Evolution of the administrative map of India since Independence.

UNIT-II

- (iii) Role of language, religion and culture in the formation of regions.
- (iv) The question of regional disparity and identity in India.

UNIT-III

- (v) Regionalisation schemes of India : Physiographic (SP Chatterjee), Climatic (Koeppen and Trewartha), Agricultural (Jasbir Singh and CB. Mamoria), and Industrial (BN Sinha).

UNIT-IV

Northwest India :

- (vi) Northwest India as a Geographic Entity : Jammu & Kashmir, Himachal Pradesh, Haryana, Punjab and Union Territories of Delhi and Chandigarh.
- (vii) Land : Physiography and drainage.
- (viii) People : Population number, distribution and density, growth and urbanization.
- (ix) Economy : Agriculture, Industry and Transport.

Note : 1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.

3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

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. Gautam, A. : Advanced Geography of India, Sharda Pustak Bhawan, Allahabad, 2009.
4. Hussain, M. : Geography of India, Tata Mc. Graw Hill Publishing Company, Limited, New Delhi, 2008.
5. India, A Reference Annual : Ministry of Information & Broadcasting, GOI, New Delhi, 2004.
6. Muthiah, S. : A Social and Economic Atlas of India, Oxford University Press, Delhi, 1987.
7. Siddhartha, K. : India : The Physical Aspects, Transworld Media & Communications Pvt. Ltd., New Delhi.
8. Singh, Jagdish, India : A Comprehensive Systematic Geography, Gyanodya Prakashan, Gorakhpur, 2003.
9. Spate O.H.K. & A.T.A. Learmonth : Geography of India and Pakistan, Methuen, London (First Indian Edition, 1984, Munshiram Manoharlal, New Delhi.), 1967.
10. Sukhwai, B. L.: India : A Political Geography, Allied Publishers, New Delhi.
11. Tirtha, Ranjit : Emerging India, Conpub. Ann Arbour, U.S.A. (Reprint Edition, 1996, Rawat Pub., Jaipur), 1992.
12. Tiwari, R.C. : Geography of India, Prayag Publishers, Allahabad, 1999.
13. 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. Desai, B. Sonalde et al, Human Development in India, Oxford University Press, New Delhi, 2010.
3. Dreze, Jean and Amartya Sen : Indian Development, Oxford University Press, Delhi, 1996.
4. Farmer, B. H. : Introduction to South Asia, Methuen, London, 1983.
5. Francis, Robinson : The Cambridge Encyclopaedia of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, and the Maldives, Cambridge University Press, London, 1989.
6. Gazetteer of India, Vol. I & II : Ministry of Information & Broadcasting, GOI, New Delhi, 1973.
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7. Singh, K.S. : People of India, Anthropological Survey of India, Dehradun, 1992.
8. Sivaramkrishnan, K.C., Amitabh Kundu and B.N. Singh, Oxford Handbook of Urbanisation in India, Oxford University Press, New Delhi, 2007.

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.

Paper-III : Fundamentals of Remote Sensing (Theory and Practical)

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Distribution of Marks :

- | | | |
|------|--|----------|
| (i) | Written paper of three hours duration along with theory papers | 50 Marks |
| (ii) | Practical record and viva voce (20+10) | 30 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.

Course Content :

UNIT-I

- (i) Historical development of remote sensing, its types and sensors used, electromagnetic energy, geographical uses of remote sensing data.
- (ii) Types of aerial-photographs and their applications, element of object identification, image interpretation techniques, photo mosaics.

UNIT-II

- (iii) Simple Geometry of aerial photos; measurement of scale, heights and slope from vertical aerial photos.
- (iv) Identification and mapping of elements of natural and cultural landscape including topography, drainage, surficial material, vegetation, settlements, transport networks, land use and field pattern.

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UNIT-III

- (v) 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

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

- 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 two 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 carrying nine marks. These will be in addition to the compulsory question at serial number 1.
 3. 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.
 4. 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.
 5. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.

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.
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.

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Paper- IV : *Any one of the following optional courses:*

Option (i): Urban Geography

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

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.

Course Content :

UNIT-I

- (i) Definition, nature, scope and approaches.
- (ii) Development and recent trends.
- (iii) Contribution of Indian scholars.
- (iv) Attributes of Modern city.

UNIT -II

- (v) A study of the following aspects of urban places :

- (a) Setting : Location, situation and site; definition, nature and significance.
- (b) Ecological processes and their spatial expression.
- (c) Internal structure : Theories of internal structure, internal structure of Indian cities and its comparison with western cities.
- (d) Urban fringe : Attributes, and demarcation.

UNIT-III

- (vi) City-region relations : Basis and nature, definition, demarcation, and functional structure of umland.
- (vii) Cities and Central Places : Models of Christaller, Losch, Perroux and Boudeville.

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UNIT -IV

- (viii) Urban systems : Definition, models of city size distribution; urban system in India.
- (ix) Classification of urban places :
 - (a) Non-functional classification.
 - (b) Functional Classification : Comparison of methods of functional classification.
- (x) Contemporary Urban Issues : Slums, pollution.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Carter, Harold : The Study of Urban Geography, Edward Arnold, London, 4th Edition, 1995.

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. Pacione, Michael : Urban Geography : A Global Perspective, Routeledge, New York, 3rd Edition, 2007.
7. Sharma, K.D. : Urban Development in the Metropolitan Shadow, Inter-India, New Delhi, 1985.

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8. Singh, R.L. : Urban Geography in Developing Countries, National Geographical Society of India, Varanasi, 1973.
9. 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.

OR

Option (ii) : Population and Development Planning

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

The objective of this course is to promote awareness on the interactive relationship between population and development. That is how population change affect development in general and how development affects population. The course tries to cover all the important population attributes. This relationship between population and development planning is applicable only on the national scale and not at intra-national level. It is more relevant for less developed countries as a large gap exists between the rate of population growth and rate of economic development among them. In less developed countries high population growth is seen as the chief obstacle to the development process. The course also tries to recommend strategies for integrated population and development wherever relevant.

Course Contents :**UNIT-I**

- (i) Population and development planning.
- (ii) Population, Globalisation and Development.

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UNIT-II

- (iii) Population growth in the context of :
 - (a) Manpower and employment.
 - (b) Educational planning.
 - (c) Housing needs.
 - (d) Health and family planning.
- (iv) Population distribution, migration and development.

UNIT-III

- (v) Population and environment.
- (vi) Population and world's Forests.
- (vii) Population and poverty.

UNIT-IV

- (viii) Development problems of advanced societies.
- (ix) Population and development (case studies of Japan, Brazil and India).

Note : 1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Barnett, T., Social and Economic Development: An Introduction, The Guilford Press, New York, 1989.
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2. Courteny, P.P. (ed.), Geographical Studies of Development, Longman, United Kingdom.
 3. Davis, K. and Bernstam, M.S. (ed.), Resources Environment and Population : Present Knowledge, Future Options, The Population Council, New York, 1991.
 4. Hauser, P.H., World Population and Development: Challenges and Prospects, Syracuse University Press, Syracuse, USA, 1979.
 5. Robinson, W.C., Population and Development Planning, The Population Council, New York, 1975.
 6. Singh, K.N. and Singh, D.N., Population Growth, Environment and Development : Issues, Impacts and Responses, Environment and Development Study Center, Varanasi, 1991.
 7. UNO, Population and Development Integration, Vol. I : ESCAP Regional Perspectives, Asian Population Studies Series No. 92, ESCAP Bangkok, 1988.
 8. UNO, Population and Development Integration, Vol. II : ESCAP Regional Perspectives, Asian Population Studies Series No. 92, ESCAP Bangkok, 1989.

Further Readings :

1. Allen, J.L., Environment, The Dishkin Publishing Group, Inc. Connecticut, U.S.A., 1992.
2. Cunningham, W.P. and Saigo, B.W., Environmental Science : A Global Concern, W.M.C. Brown Publishers, U.S.A., 1992.

3. De Souza, A.R., A Geography of World Economy, Merrill Publishing Co., London, 1990.
4. East-West Centre, Asia-Pacific Population and Policy, January 2003, No. 64, Honolulu, USA, 2003.
5. Lester, R.B. : State of the World, World Watch Institute Report on Progress Toward a Sustainable Society, W.W. Norton and Company, New York, 1988.
6. World Development Report (1990) : Poverty, World Bank, Oxford University Press, New York, 1990.

Pedagogy :

The students should be explained the interactive relationship between the change in different attributes of population and development. The platform from which we see this relationship remains population. In this course, we are not concerned with the mechanics of development planning. Illustrations should be used from the latest articles on the subject appearing in geographic journals and newspapers.

Option (iii) : Fundamentals of Natural Hazards and Disaster Management

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

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.

Course Contents :

UNIT-I

- (i) Concept of Hazards, Risk, Vulnerability and Disaster.
- (ii) Types of Hazards : Natural, man-made.

UNIT-II

- (iii) Natural Disasters : Floods, drought and desertification, earthquakes, landslides, avalanches, cyclones, forest fires.

UNIT-III

- (iv) Regional Dimension of Hazard : Occurrence and trends with special reference to northwest India.
- (v) Case Studies : Floods in Delhi, Major Fires in Kolkata, Earthquakes in Bhuj, Rail Accidents in India.

UNIT-IV

- (vi) Disaster Management : Concepts relating to the Pre-disaster phase, emergency phase, post-disaster phase.
- (vii) Disaster Management Mechanism in India : Agencies, Plans and Policies.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.

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3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

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.

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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.

OR

Option (iv) : Marketing Geography

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

Main objective of the course is to provide an insight into the marketing systems, their development, classification and relevance in the context of regional development.

Course Content :**UNIT-I**

- (i) Nature and scope of Geography of Marketing.

- (ii) Approaches : Functional, morphological, cultural-historical and spatial.

UNIT-II

- (iii) Development of marketing systems.
(iv) Classification of Markets : Rural, urban and intra-urban.
(v) Periodic Markets : Periodicity, locational and distributional patterns, fair as a market place.

UNIT-III

- (vi) Analysis of hinterlands, market size and hinterland relationships; modes and patterns of consumer and trader travels, consumer behaviour, functional hierarchy of markets; functional interaction between markets.

UNIT-IV

- (vii) Geographic study of markets in India, Ghana, Kenya and Germany.
(viii) Role of market centres in regional development.

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- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Barnum, G., Market Centres and Hinterlands in Baden
- Wurttemberg, Chicago, Chicago University Press, 1968.

2. Berry, B.J.L., Geography of Market Centres and Retail Distribution, Englewood Cliffs, Prentice Hall, 1967.
3. Good, C.M., Rural Markets and Trade in East Africa, Chicago University Press, 1970.
4. N.C.A.E.R., Markets, Towns and Spatial Development in India, New Delhi, 1965.
5. Saxena, H.M., Geography of Transport and Market Centres, S. Chand & Co., New Delhi, 1975.
6. Saxena, H.M., Marketing Geography, Rawat Publications, 1990.
7. Thompson, Grahame; Frances Jennifer; Levacic Rosalind & Jeremy Mitchell, Markets, Hierarchies and Networks, Sage Publications, 1994.

Further Readings :

1. Christaller, W., Central Places in Southern Germany, Englewood Cliffs, Prentice Hall, 1966.
2. Hodder, B.W., Markets in West Africa, Ibadan, Ibadan University Press, 1969.
3. Saxena, H.M., Rural Markets and Development, Rawat Publications, 1988.

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Pedagogy :

Field visits should be organised to familiarize the students with markets in India and students should be encouraged to take up empirical exercises to understand patterns of distribution of markets in India.

Option (v) : Contemporary Issues in Human Geography

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

Main objective of the course is to provide an insight of social, political, economic and environmental issues emerged in the 21st century before the human societies and their social implications.

Course Content :

UNIT-I

- (i) Human Geography : Changing nature or perspectives, issues and debates, critical understanding of social theory and human geography.
- (ii) Conceptualizing Space and Place : Structure and dynamics of space; relational framework of space and place; social construction of space and time; ethics of space and place.

UNIT-II

- (iii) Geography of Difference and Exclusion : Geographies of identity and difference related to class, religion, caste, gender and location; social justice and political geography of difference.
Geographical Organisation of Power : Spatial meaning and definitions of power; dynamics of spatio-social interactions and power; geopolitics of power-territoriality and globalization.

UNIT-III

- (iv) Geography of Development : Meaning, definitions and approaches; construction of development indicators; linking globalisation and new forms of development; local initiatives towards development.

UNIT-IV

- (v) Geography of social action and movements : Reasons and approaches to social movements; aspects of social security; social-environmental movements in India.

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- Note :*
- 1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 - 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 - 4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment. The marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment.
The paper setter must put note (4) in the question paper.

BOOKS RECOMMENDED :

Essential Readings :

1. Agnew, J.A. and Corbridge, S. (1995), *Mastering Space : Hegemony, Territory and International Political Economy*, Routledge, London.
2. Benko, G. and Strohmayr, U. (1997), *Space and Social Theory : Interpreting Modernity and Postmodernity*, Blackwell Publishers, Oxford, London.
3. Bhabha, H. (1994), *The Location of Culture*, Routledge, London and New York.
4. Corbridge, S., Martin, R. and Thrift, N. (1997), *Money, Power and Space*, Blackwell, Oxford.
5. Derek, G., Martin, R., and Smith, G. (1994), *Human Geography : Society, Space and Social Science*, Macmillan Publishers, Cambridge.
6. Johnston, R.J. (1991), *A Question of Place : Exploring the Practice of Human Geography*, Blackwell Publishers, Cambridge.

Further Readings :

1. Harvey, D. (1996), *Justice, Nature and Geography of Difference*, Blackwell Publishers, Cambridge.
2. Massey, D. (1998), *Space, Place and Gender*, Polity Press, Cambridge.
3. Massey, D., Allen, J., and Sarre, P. (1999), *Human Geography Today*, Blackwell Publishers, Cambridge.

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4. Morley, D. and Robins, K. (1995), *Spaces of Identity : Global Media, Electronic Landscapes and Cultural Boundaries*, Routledge, London.
5. Redcliff, M., and Benton, T. (1994), *Social Theory and Global Environment*, Routledge, London and New York.
6. Rogers, A. and Vertovec, S. (1995), *The Urban Context*, Berg, Oxford.
7. Sack, R.D. (1997), *Homo Geographicus : A Framework for Action, Awareness, and Moral Concern*, The John Hopkins University Press, London.
8. Sibley, D. (1995), *Geographies of Exclusion : Society, and Difference in the West*, Routledge, London.
9. Werlen, B. (1993), *Society, Action and Space : An Alternative Human Geography*, Routledge, London.

Pedagogy :

Field visits should be organised to familiarize the students with changing space organization of economic, political and social activities and students should be encouraged to take up empirical exercises to understand patterns of distribution of poverty, consumerism and prosperity.

SEMESTER III

Outlines of Tests

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 III (for the examination of November/December 2011)

<i>Paper</i>	<i>Title</i>	<i>Marks</i>	<i>Credits</i>
Paper-I	Town and Country Planning	100	4
Paper-II	Research Methodology in Geography	100	4
Paper-III	Fundamentals of GIS and GPS (Theory and Practical)	100	4
Paper-IV	<i>Any one of the following optional courses :</i>		

Option (i)	:	Regional Development and Planning in India	100	4
Option (ii)	:	Special Themes in Agricultural Geography	100	4
Option (iii)	:	Bio Geography	100	4
Option (iv)	:	Social Geography	100	4
Option (v)	:	Political Geography of India	100	4
Option (vi)	:	Applied Climatology	100	4

Total : 400 16

1. There will be continuous assessment of 20% of the Maximum Marks of each paper. The final award in each paper will be determined by the marks obtained by the candidate in the terminal examination and the continuous assessment.
2. Options to be offered for teaching in a particular academic session in each class will be decided by the respective Board of Control.

Paper-I : Town and Country Planning

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

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.

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Course Content :

UNIT-I

- (i) Human Settlement : A brief history with its relevance in modern context.
- (ii) Settlement System : Types and Functions.
- (iii) Town and Country Planning Practice in India.

UNIT-II

- (iv) Town Planning - Definition, nature, importance and scope.
- (v) Preparation of town plan - Statement of 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.

- (vi) Planning of transport and public utilities.
- (vii) Problems of town planning in India.
- (viii) Urban planning policies in Indian Five Year Plans.
- (ix) Indian town planning experiences - Master Plan of Delhi and Chandigarh.

Country Planning :

UNIT-III

- (x) Country Planning : Definition, nature, importance and scope.
- (xi) Rural landuse and its determinants.
- (xii) Rural landuse, land suitability, and soil surveys.

UNIT-IV

- (xiii) Rural development in India during Five Year Plans.
- (xiv) Planning for the following problems of rural India:
(a) Drinking water, (b) Floods and Soils, (c) Public utility services, and (d) Poverty and employment.

Note : 1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
- 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
- 4. For reappear/improvement candidates(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (4) in the question paper.

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 :

Government of India, Report of the National Commission on Urbanisation, Vols. I & II, Ministry of Urban Development, New Delhi, 1988.

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.

Paper-II : Research Methodology in Geography

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

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; 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.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

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.

Paper-III : Fundamentals of GIS and GPS (Theory and Practical)

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Distribution of marks :

- (i) Written paper of three hours duration along with theory papers : 50 marks
- (ii) Practical record and viva voce (20+10). : 30 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.

Course Content :

UNIT-I

- (i) Introduction : Overview, History and Concepts of GIS, Scope and Application Areas, Purpose and Benefits of GIS, Components and Functional Elements of GIS.
- (ii) Map Concept – Map scales and representation.

- (iii) Map Projection – Coordinate system, datum, and projection systems.

UNIT-II

- (iv) 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.

UNIT-III

- (v) GPS : Introduction and usages.
- (vi) Data Acquisition, Data from Remote Sensing Imagery, Global Positioning System (GPS) based data acquisition.

UNIT-IV

- (vii) Cartography and Map Production : Nature of maps and cartography, Key map design principles, map symbology.
- (viii) Presentation of GIS Output : Layout of Maps, Charting and Tabular representation of the results using GIS.

- 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 carrying nine marks each. These will be in addition to the compulsory question at serial number 1.
 3. 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.
 4. 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.
 5. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.

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.

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.

Paper-IV : Any one of the Following Optional Courses :

Option (i) : Regional Development and Planning in India

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

- To familiarise 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.

Course Content :

UNIT-I

- (i) Concept of regional development, Regional Policies in the Indian Five Year Plans.
- (ii) Experiences of regional planning in India - multi level planning (state, district, block and panchayat level planning).

UNIT-II

- (iii) Centre state relations and the constitutional framework for multi level planning.
- (iv) Devolution of financial resources and the multi-level planning.

UNIT-III

- (v) Regional backwardness, area development programmes for hill, drought-prone, desert and border areas.

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UNIT-IV

- (vi) Development plans for tribal areas, north- eastern region, command areas, KBK region of Orissa.

Note : 1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Brahumananda, P.R. and Others, The Development Process of the Indian Economy, Himalaya Publishing House, New Delhi, 1987.
2. Dannis, A. Randinelli et al, Decentralisation in Developing Countries : A Review of Recent Experience, World Bank Staff Working paper 581, Washington, 1981.
3. Dutt, A.K. (ed.), India : Resources, Potentialities and Planning, Kendall/Hutchinson, Iowa, 1972.
4. Fu Chen Lo (ed.), Third World Regional Development Issues, Frontier Perspectives, Murgan International, Tokyo, Japan, 1981.
5. Friedmann, J. and Alonso, W., Regional Development and Planning – A Reader, M.I.T. Press, Cambridge, Mass, 1967.
6. Gosal, G.S. and Krishan, G., Regional Disparities in Levels of Socio-Economic Development in Punjab, Vishal Publications, Kurukshetra, 1984.
7. Government of India, Report of the Working Group on Block Level Planning (M.L. Dantwala Committee), New Delhi, 1978.
8. Glikson, Arthur : Regional Planning and Development, Netherlands Universities Foundation for International Co-operation, London, 1955.
9. Mishra, R.P. et al., Multi Level Planning, Heritage Publishers, Delhi, 1980.

10. Mohan, K., Addressing Regional Backwardness, An Analysis of Area Development Programmes in India, Manak Publications, New Delhi, 2005.
11. Raza, Moonis (ed.), Regional Development, Heritage Publishers, Delhi, 1988.
12. Radha Krishna, R, India Development Report, Oxford University Press, 2008.

13. World Development Report : Sustainable Development in a Dynamic World, Transforming Institutions, Growth and Quality of Life, OUP, 2003.
14. World Development Report : Reshaping Economic Geography, The World Bank, 2009.

Further Readings :

1. Blij, H.J. and Peter O. Muller, Geography, Realms, Regions and Concept (Seventh Edition), John Wiley & Sons, Inc., New York, 1994.
2. Government of India, Report of the Working Group on District Planning (Vols. I and II) New Delhi, 1985.
3. Govt. of India, Five Year Plans, Plan 1st-11th Plan, Planning Commission, New Delhi.
4. Gulati, I.S. (ed.), Centre-State Budgetary Transfers, Oxford University Press, Delhi, 1988.
5. Jain, L.C. and Others, Grass without Roots, Rural Development under the Government Auspices, Sage Publications for Institute of Social Studies, 1985.
6. Kundu, A. and Raza, M., Indian Economy, The Regional Dimensions, Centre for the Study of Regional Development, JNU, New Delhi, 1982.
7. Kant, S. et al., Reinventing Regional Development, Rawat Publications, N. Delhi, 2004.
8. Misra, R.P. et al., Regional Development Planning in India, Concept Publishing, New Delhi, 1974.
9. Nangia, S. et al., Development Concerns in the 21st Century, Concept Publishing, 2010.
10. Prasad H. Pradhan, Political Economy of Indian Development, Oxford University Press, Delhi, 1988.
11. Sdasyuk, G.V., India, The Geography of Economy, Peoples Publishing, Moscow, 1975.
12. Raza Moonis (ed.), Regional Development, Heritage Publishers, Delhi, 1988.
13. Sen, A.K., On Economic Inequality, Oxford University Press, New Delhi, 1973.
14. Sundaram, K.V., Geography of Under Development, The Spatial Dynamics of Under Development, Concept Publishing, New Delhi, 1983.
15. 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.

Option (ii) : Special Themes in Agricultural Geography

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

- To discuss how agriculture originated, diffused and developed in different parts of the world, what are the recent approaches used to study the subject matter and how various economic laws affect agriculture.
- To familiarize the students with locational models, diffusion models and various forms of modern agriculture.
- In its second part, the course aims to apprise the students with Indian agriculture as to how it developed after Independence in the country, what are its main features, problems and policy.
- In addition, it also familiarizes the students with the process of transformation of agriculture, through their actual field visits to selected villages of the Green Revolution region.

Course Content :

UNIT-I

Origin, dispersal and development of agriculture in the world.

Economic principles and agriculture.

UNIT-II

Locational theory and landuse : Von Thunen`s model of agricultural landuse.

Diffusion of innovations : Types of spatial diffusion, T. Haggerstrand`s neighbourhood effect model of agricultural innovation diffusion.

UNIT-III

Green Revolution in India, the Punjab model of agricultural development.

Regionalisation of agriculture in India and a brief discussion of each region.

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UNIT-IV

Indian agriculture - Its characteristics and problems.

Agricultural policy in India.

Note : 1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part

shall carry 2 marks (total 20 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 15 marks.
3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Hussain, M., Agricultural Geography, Inter India Publications, Delhi, 1979.
2. Hussain, M., Systematic Agricultural Geography, Inter India Publications, Delhi, 1996.
3. Ilbery, B. W., Agricultural Geography, Oxford University Press, Oxford, 1985.
4. Singh, J. and Dhillon, S.S., Agricultural Geography, Tata McGraw Hill, New Delhi, 1984.
5. Singh, Jasbir, Dynamics of Agricultural Change, Oxford, New Delhi, 1990.
6. Shafi Mohammad, Agricultural Geography, Dorling Kindersley (India) Delhi, 2006.

Further Readings :

1. Conkling, E.C. and Yeats, M., Man's Economic Environment, McGraw, New York, 1976.
2. Deshpande, C.D., India: Regional Interpretations, ICSSR, New Delhi, 1991.
3. Mohamed Noor (ed.), Perspectives in Agricultural Geography, Vol. 1., Concept, 1981.
4. Morgan, B.W. and Munton, J.C., Agricultural Geography, Methuen, London, 1971.

Pedagogy :

The students should be acquainted with the development of agriculture over time and space in the world, and with the various models in agricultural geography. They should be sensitized to identify types of farming being practiced in different parts of India along with the problems, policy and the process of agricultural transformation especially after the mid 1960's.

Option (iii) : Biogeography

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

To introduce the student to the concept of biogeography, its interpretation and application; interaction between living organisms with climate and physical environment with special reference to India.

Course Content :

UNIT-I

Biogeography, nature, scope, significance, approaches, history, recent developments.

Spatial dimension in biogeography, pattern and causes of plant and animal distributions, factors influencing the distribution of life, biogeographical regions and realms.

UNIT-II

Historical biogeography, Patterns of life in the past and today.

Biodiversity and the source of novelty in life.

UNIT-III

Biogeography of the seas; island biogeography.

Habitat fragmentation; biogeography of linear landscape features.

UNIT-IV

Biogeographical information, collection, retrieval and application.

Projecting into the future : Climate change; biogeographical consequences of global change; changing communities and biomes; effect of climate change on biological diversity.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.

3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Brown, J. H., & A. C. Gibson, Biogeography, St. Louis, Mosby, 1983.
2. Brown, J.H. and Lomolino, M.V., Biogeography, Second Edition, Sinauer Associates, Inc. Sunderland, Massachusetts, 1998.
3. Cox, C.B., Moore, P.D., Biogeography, An Ecological and Evolutionary Approach, 5th ed., Blackwell Science, Cambridge, 1993.
4. MacDonald, Glen, Biogeography : Introduction to Space, Time and Life, John Wiley, New York, 2002.
5. Robinson, H., Biogeography, The English Language Book Society and Macdonald and Evans, London, 1982.
6. Spellerberg, Ian F. and John, W.D. Sawyer, An Introduction to Applied Biogeography, Cambridge University Press, Cambridge, 1999.
7. Tivy, Joy, Biogeography, A Study of Plants in the Ecosphere, Longman Scientific & Technical, UK, 1993.
8. Tivy, Joy and Greg O'Hare, Human Impact on the Ecosystem, Oliver & Boyd, Edinburgh, 1981.

Further Readings :

1. Dansereau, P., Biogeography, An Ecological Perspective, Ronald Press, New York, USA, 1957.

2. Kormondy, Edward J., Concepts of Ecology, Third Edition, Prentice Hall of India, New Delhi, 1989.
3. Mani, M.S. (ed.), Ecology and Biogeography in India, Dr. W. JUNK b.v. Publishers, The Hague, 1974.
4. Mathur, H.S., Essentials of Biogeography, Pointer Publishers, Jaipur, 1988.
5. Mielke, Howard W., Patterns of Life : Biogeography of a Changing World, Unwin Hyman : London, 1989.
6. Myers, A. A. & P. S. Giller (ed.), Analytical Biogeography : An Integrated Approach to the Study of Animal and Plant Distributions, Chapman & Hall, London, 1989.
7. Odum, Eugene P., Fundamentals of Ecology, Natraj Publishers, Dehra Dun, 1971.
8. Osborne, Patrick, Tropical Ecosystems and Ecological Concepts, Cambridge University Press, UK, 2000.
9. Pears, Nigel, Basic Biogeography, Second Edition, Longman Scientific & Technical, UK, 1985.
10. Quammen, David, The Song of the Dodo : Island Biogeography in an Age of Extinction, Simon & Schuster, 1996.
11. Saharia, V.B., Wildlife in India, Natraj Publishers, Dehra Dun, 1982.
12. Seddon, B., Introduction to Biogeography, Duckworth, London, 1971.
13. Simmons, I.G., Biogeography, Natural and Cultural, Arnold-Heinemann, London, 1979.
14. Taylor, J.A. (ed.), Themes in Biogeography, Croom Helm, London, 1984.
15. Udvardy, M.D.F., Dynamic Biogeography : With Special Reference to Land Animals, Van Nostrand Reinhold, N.Y., 1969.
16. Watts, David, Principles of Biogeography : An Introduction to the Functional Mechanisms of Ecosystems, McGraw-Hill, London, 1971.
17. World Resources 2000-2001, People and Ecosystems : The Fraying Web of Life, World Resources Institute, Washington.

Pedagogy :

The students should be taken on field visits to the local floral-fauna zones; they should be acquainted with the local biogeography of the areas. Seminars/lectures should be organized where speakers from the allied disciplines—environmental sciences, ecology, biosciences, should be invited to discuss with the students various issues of biogeography with a multidisciplinary approach.

Option (iv) : Social Geography

Max. Marks : 100

Terminal Exam. : 80 Marks

Internal Assessment : 20 Marks

Time : 3 Hours

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.

Course Content :

UNIT-I

- (i) (a) Definition, nature and scope of social geography.
(b) Social geography in the realm of social sciences.
- (ii) Concepts and themes in social geography :
 - (a) Social space.
 - (b) Social segregation.
 - (c) Social justice.
 - (d) Social well-being.
 - (e) Ethnicity.

UNIT-II

- (iii) Evolution of socio-cultural regions in India :
 - (a) Evidence from classical literature.
 - (b) Core and peripheral regions.

- (iv) Attributes of spatial distribution of :
 - (a) Tribes.
 - (b) Religion.
 - (c) Language.
 - (d) Caste.

UNIT-III

- (vi) Social transformation and change in India :
 - (a) Modernization and sanskritization.
 - (b) Role of rural-urban interaction.
 - (c) Problems of social transformation.

UNIT-IV

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

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Ahmad, Aijazuddin : Social Geography, Rawat Publications, New Delhi, 1999.
2. Jones, Emrys and John Eyles : An Introduction to Social Geography, Oxford University Press, London, 1977.
3. Jones, Emrys (ed.) : Readings in Social Geography, Oxford University Press, London, 1975.
4. Khare, R.S. : Cultural Diversity and Social Discontent, Sage India, New Delhi, Sage India, 1998.
5. Mandelbaum, David G. : Society in India, University of California Press, Berkley, 1970.
6. Rao, M.S.A. : Urbanisation and Social Change, Orient Longmans, New Delhi, 1970.
7. Sareen, T.R. and S.R. (ed.) : Castes and Tribes of India, Anmol, New Delhi, 1993.
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. Srinivas, M.N. (ed.) : Caste : Its Twentieth Century Avatar, Penguin India, New Delhi, 1997.

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. 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.

Option (v) : Political Geography of India

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Course Content :

UNIT-I

Geographical Bases of the Indian State : Territoriality, Location and size; Population : Distribution, ethnic and religious composition, quality; Implications in the current geopolitical context.

UNIT-II

Geographical Factors in India's Political History : Centripetal and centrifugal forces; Role of terrain, rivers and sea coasts in shaping political history; Geography of internal conflicts and problems of Nation Building : Religious conflicts : Linguistic conflicts, separatist movements, terrorism; environmental movements, river water disputes.

UNIT-III

Geography of Electoral support and Representation : Constituencies and their evolution; Redistricting : Issues and concerns; Patterns of electoral support and representation; politico-electoral regions of India.

UNIT-IV

Geography of International Relations : India's bilateral relations with SAARC nations; India's position in the Indian ocean region; Between two worlds India's position in world politics.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :**Essential Readings :**

1. Adhikari, S. (1997), Political Geography, Rawat Publications, Jaipur and Delhi.
2. Bandhopadhyaya, J. (1991), The Making of India's Foreign Policy, Allied Publications, Delhi.
3. Bhambri, C.P. (1991), Political Process in India, Vikas, New Delhi.
4. Brass, P. R. (1990), The Political Economy of India Since Independence, Cambridge University Press, New Delhi.
5. Brass, P.R. (1983), Caste, Faction and Party in Indian Politics, Vol. I and II, Chankya Publications, Delhi.
6. Brass, P. R. (2003), The Production of Hindu Muslim Violence in Contemporary India, Oxford University Press, Delhi.

Further Readings :

7. Basu, S. (1992), Regional Movement : Ethnicity Identity, Indian Institute of Advanced Study, Shimla.
8. Deshpande, C.D. (1992), India : A Regional Interpretation, I.C.S.S.R, New Delhi.
9. Harrisson, S. et. al. (ed.) 1999, India and Pakistan : The First Fifty Years, Woodrow Wilson Centre and Cambridge University Press.
10. Oommen, T.K. (1990), Protest and Change Studies in Social Movements, Sage, New Delhi.
11. Pannikar, K.N. (1955), Geographical Factors in India's History, Bharatiya Vidya Bhavan, Bombay.
12. Rudolph and Rudolph (1987), In Pursuit of Lakshmi : Political Economy of India Since Independence, Oxford University Press, Delhi.
13. Schwartzberg, J. (1989), A Historical Atlas of South Asia, Oxford University Press, Delhi.
14. Weiner, M. and J. Osgoodfield (ed.) (1975), Electoral Politics in the Indian States, Centre for International Studies, MIT.
15. Varshney, A. (2002), Ethnic Conflict and Civic Life : Hindus and Muslims in India, Yale University Press, New Haven.

Pedagogy :

The students should try to understand the functioning of Indian federal systems and recent changes in its nature taking place in the context of globalization process.

Option (vi) : Applied Climatology

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

The objective of the course is to introduce and discuss the basic topics of applied climatology and how these concepts can be useful in everyday planning and operations.

Course Content :**UNIT-I**

Applied Climatology : History, development, importance.

Basic Climatic Elements : Radiation, Temperature, Moisture and Precipitation, Winds and Pressure.

Climate Classification : World Climates : An Overview.

Controls of Climate : Latitude, Geographic Position, Land and Water, Prevailing Winds, Ocean Currents, Altitude etc.

UNIT-II

Weather Analysis : Data Acquisition and Dissemination.

Weather Forecasting : Methods, Types, Accuracy.

Medium Range Forecasts, Long Range Forecasts.

Satellites in Weather Forecasting.

UNIT-III

Air Pollution : Sources and Types of Air Pollution.

Meteorological Factors affecting Air Pollution.

Acid Precipitation.

Urban Heat Island.

UNIT-IV

Climatic Change : Definition and Detection : Seafloor Sediment, Glacial Ice, Tree Rings, Oxygen Isotope – Analysis.

Natural Causes of Climate Change : Plate Tectonics, Volcanic Activity, Orbital Variations, Solar Variability
Human Impact on Global Climate.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Barry, R.G. & Chorley, R.J., Atmosphere, Weather and Climate, Methuen Co. Ltd., London, 5th Edition, 1987.
2. Bhutani, Smita, Our Atmosphere, Kalyani Publishers, Ludhiana, 2000.
3. Critchfield, H.J., General Climatology, Prentice Hall, N.J., 1975.
4. Frederick K. Lutgens & Edward J. Tarbuck, The Atmosphere : An Introduction to Meteorology, Prentice Hall of India Pvt. Ltd., New Delhi, 1995.
5. Lydolph, P.E., The Climate of the Earth, Rowman Nad Allanheld, Totowa, New Jersey, 1985.
6. Oliver, John E.; Oliver, John and Hidore John J., Climatology : An Atmospheric Science, Prentice Hall of India Pvt. Ltd., New Delhi, 2001.

Further Readings :

1. Rumney, G.R., Climatology and the World Climates, Macmillan, London, 1968.
2. Strahler, A.N., Modern Physical Geography, John Wiley and Sons, New York, Singapore, 1987.

3. Trewartha, G.T., An Introduction to Climate, McGraw Hill, New York, 1980, Fifth Edition (International Student Edition).
4. Thompson Russell D., Applied Climatology – Principles & Practice, John Willey, New York, 1997.

Pedagogy :

If possible, audio–visual aids will be arranged to explain weather phenomena to the students. Visits for the students to the nearest Weather Observatory and Meteorological Department will be arranged to know the functioning of various weather instruments and to understand weather conditions with the help of Weather and Climate Charts.

SEMESTER-IV**Outlines of Tests**

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 :

<i>Paper</i>	<i>Title</i>	<i>Marks</i>	<i>Credits</i>
Paper-I	Regional Planning	100	4
Paper-II	Field Based Project Report (Practical Only)	100	4
Paper-III	Quantitative Methods in Geography (Theory and Practical)	100	4
Paper-IV	<i>Any one of the following optional courses :</i>		
Option (i) :	Administrative Geography	100	4
Option (ii) :	Geography of Water Resources	100	4
Option (iii) :	Geography of Food Security	100	4
Option (iv) :	Economic Geography (with special reference to India)	100	4
Option (v) :	Geography of Rural Settlements	100	4
Total :		400	16

Note :

1. There will be continuous assessment of 20% of the Maximum Marks of each paper. The final award in each paper will be determined by the marks obtained by the candidate in the terminal examination and the continuous assessment.
2. Options to be offered for teaching in a particular academic session in each class will be decided by the respective Board of Control.

Paper -I : Regional Planning

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

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.

Course Content :**UNIT-I**

- (i) The planning process : Concept and types; regional planning; concept, difficulties, rationale, principles and objectives.
- (ii) Role of geography in regional planning.

UNIT-II

- (iii) Preparation of a regional plan.
- (iv) Regions for planning : Regional awareness, region and its evolution; planning regions; characteristics, hierarchy, need, demarcation; planning regions of India.

UNIT-III

- (v) Surveys for planning : Concept and functions; types of surveys; regional surveys, diagnostic surveys, techno-economic surveys.
- (vi) Role of remote sensing, global positioning system (GPS) and geographic information system (GIS).

UNIT-IV

- (vii) The process of regional development : Indicators of development; levels of regional development and disparities; strategies for development.
- (viii) Case studies from selected countries : Regional planning in USA (TVA); regional planning in

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

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, 2000.
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.

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Further Readings :

1. Bludon, John & Others (eds.) : 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. Isard, Walter : Introduction to Regional Science, Prentice Hall, New York, 1975.
8. Lavrov, S. and Sdasyuk, G. : Concepts of Regional Development, Progress Publishers, Moscow, 1988.
9. Misra, R.P. & Others (eds.) : Regional Planning and National Development, Vikas, New Delhi, 1978.
10. Misra, R.P. & Others (eds.) : 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.

Paper -II : Field Based Project Report (Practical only)

Max. Marks	:	100
Report & Viva	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

<i>Distribution of marks :</i>		Marks
Field Report	:	50
Viva on Field Report	:	30
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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.

Course Contents :

(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.
 4. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.

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.

Paper-III : Quantitative Methods in Geography (Theory and Practical)

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

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 :*Marks*

Written paper of three hours duration (along with the theory examination)	:	50
Practical Record and Viva Voce Examination (20+10)	:	30

Course Content :**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 neighbour 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.

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- 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 two 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 carrying nine marks. These will be in addition to the compulsory question at serial number 1; and each question will carry nine marks.
 3. 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.
 4. 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.
 5. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 7. Calculators are not allowed.

BOOKS RECOMMENDED :

Essential Readings :

1. David M. Smith, Patterns in Human Geography, Pengiun, 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.

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Paper-IV : Any one of the Following Optional Courses :

Option (i) : Administrative Geography

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objective :

To enable the student to understand the role of Geography in area administration. It also helps them to appreciate the role of public policy and public finance in development of administrative areas.

Course Content :

UNIT-I

Administrative Geography; Definition, subject matter and significance : Interface between Geography and Public Administration and Political Geography.

UNIT-II

Study of administrative areas in terms of (a) Evolution, (b) Nature, (c) Structural Attributes (hierarchy, size, shape and headquarters) and (d) Administrative area reform.

UNIT-III

Area Administration : (a) Public Policy : Formulation, Implementation and Impact, (b) Public Finance : Public goods and public economy.

UNIT-IV

Administrative System : (a) The world pattern, (b) Case studies : India and U.S.A.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion

in the class, term papers, attendance etc.

4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Alderfer, H.F., Local Government in Developing Countries, McGraw Hill, New York, 1964.
2. Bennett, R.J., Geography of Public Finance, Methuen, New York, 1980.
3. Coppock, J.T. and JRD Sewell (ed.), Spatial Dimension in Public Policy, Pergamon Press, Oxford, 1976.
4. Fesler, J.W., Area and Administration, University of Alabama Press, Alabama, 1949.
5. Humes, S. and Martin, E. M., The Structure of Local Government throughout the World, Martines Nijhoff, The Hague, 1961.
6. Kant, Surya, Administrative Geography of India, Rawat Publication, Jaipur, 1988.
7. Krishan, Gopal, 'Administrative Geography', Transaction of the Institute of Indian Geographers, Vol. 5, No. 2, pp 1001-108, 1983.
8. Krishan, Gopal, 'The World Pattern of Administrative Area Reform', The Geographical Journal, Vol. 154, No. 1, pp 93-99, 1988.

Further Readings :

1. Massam, B. H., The Spatial Structure of Administrative Systems, Association of American Geographers, Research Paper No. 12, 1972.
2. Muir, R., Modern Political Geography, Macmillian, London, 1981.
3. Pounds, N.J.G., Political Geography, 2nd Edition, McGraw Hill, New York, 1972.
4. Prescott, J.R.V., The Geography of the State Policies, Hutchinson, London, 1968.

Pedagogy :

The students should be made to understand administrative areas and area administration and underlying philosophy involved in formation of spatial units and formulation of public policies.

Option (ii) : Geography of Water Resources

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

- To bring awareness among the students about the finite nature of water resources; declining per capita availability of quality water; escalating demands and the looming water crisis.
- To understand the need for better management of water resources through appropriate methods and conservation of water resources.

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Course Content :

UNIT-I

- (i) Water as a focus of geographical interest, inventory and distribution of world's water resources (surface and sub-surface).
- (ii) The basic hydrologic cycle; Precipitation, potential evapotranspiration and interception losses; run off.

UNIT-II

- (iii) Water demand and use in (a) Agriculture (b) Industry (c) Navigation (d) Power generation (e) Recreation and (f) Household.
- (iv) Conservation Practices and planning for the development of water resources.

UNIT-III

- (v) Problems of water resource management in India (i) water logging (ii) ground water (iii) water pollution (iv) flood (v) drought.
- (vi) International and Interstate River water disputes and treaties with reference to India.

UNIT-IV

- (vii) Integrated basin planning.
- (viii) Watershed management.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.

3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Agarwal, Anil and Sunita Narain, Dying Wisdom : Rise, Fall and Potential of India's Traditional Water Harvesting System, Centre for Science and Environment, New Delhi, 1997.
2. Barlow, M. and Clarke, T. Blue Gold : The Fight to Stop the Corporate Theft of the World's Water, Leftword Books India, 2003.
3. Economic and Social Commission for Asia Pacific, United Nations : Guidelines for the preparation of National Master Water Plans, 1989.
4. Gulhati, N.D., Development of Inter State Rivers : Law and Practice in India, Allied Publishers, Bombay, 1972.
5. Jones, J.A., Global Hydrology : Processes, Resources and Environmental Management, Longman, 1997.
6. Pandey, M. and Anand, C. : Geography and You, New Delhi, 2003.
7. Ram Kumar Gurjar and B.C. Jat : Geography of Water Resources, Rawat Publications, Jaipur, 2008.
8. Matter, J.R. : Water Resource Distribution, Use, Management, John Willey, Marylane, 1984.

Further Readings :

1. International Water Resource Association and Central Board of Irrigation and Power : Water for Human Needs, Vols. I to V Proceedings of the Second World Congress on Water Resources, 12-16 December, New Delhi, 1975.
2. Law, B.C. (ed.), Mountains and Rivers of India IGU National Committee for Geography, Calcutta, 1968.
3. Michael, A.M., Irrigation : Theory and Practices, Vikas Publishing House Pvt. Ltd., New Delhi, 1978.
4. Newson, A.M., Land, Water and Development River Basin Systems and their Sustainable Management, Routledge, London, 1992.

5. Rao, K.L., India's Water Wealth, Orient Longman, New Delhi, 1979.
6. Kates, R.W. and Burton, I. (ed.), Geography, Resources and Environment, Ottawa, 1980.
7. Sidharth, K., Oceanography : A Brief Introduction, Kisalaya Publications, New Delhi, 2000.
8. Smith, K., Water in Britain : A Study in Applied Hydrology and Resource Geography, McMillan, London, 1972.

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9. Tebbutt, T.H.Y. (ed.), Advance in Water Engineering, Elsevier Applied Science Pub., London, 1985.
10. Tideman, E.M., Watershed Management : Guidelines for Indian Conditions, Omega, New Delhi, 1996.
11. Verghese, B.G., Water of Hope : Integrated Water Resource Development and Regional Co-operation within the Himalayan-Ganga-Brahamaputra-Barak Basin, Oxford.

Pedagogy :

The students should be made to understand the importance of efficient use of water and the practices to conserve it. Also, they must be encouraged to visit countryside to understand traditional water harvesting practices and their relevance to current scenario.

Option (iii) : Geography of Food Security

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

- To make students understand various conceptual and methodological issues involved in food security system.
- To understand demand, supply and issues relating to availability and accessibility of food with special reference to developing countries and changes in the scenario in light of globalization process.

Course Contents :

UNIT-I

- (i) Food Security : Concept, Approaches and Methods of Measurement.
- (ii) World patterns of major food resources : Agriculture, animal husbandry and fisheries.

UNIT-II

- (iii) World pattern of Dietary Energy Supply and Minimum Dietary Energy requirement of food resources in calorific terms, Concepts of poverty, hunger and undernourishment.
- (iv) World pattern of food security.

UNIT-III

- (v) Food security through sustainable agricultural development.
 - (vi) Climate change and food security.
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UNIT-IV

- (vii) Spatial pattern of food security in India : Distribution of consumers - total population and agricultural population, food surplus and deficit regions.
- (viii) Government policies towards food security : Public distribution system (PDS) and its role in providing food security in different parts of India.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Barun, J. et. al. (1992), Improving Food Security of the Poor : Concept Policy and Programme, International Food Policy Research Institute, Washington.
2. Chakravarty, A. K. (1970), Food Sufficiency Patterns in India, Geographical Review, Vol. LX, New York.
3. Chopra, et. al. (ed.) (1998), Crop Productivity and Sustainability – Shaping the Future,

Oxford
and IBH Pub. Co., New Delhi.

4. Chung, K., et. al. (1997), Identifying the Food Insecure : The Application of Mixed Method. Approaches in India; International Food Policy Research Institute, Washington.
5. George, P.S. (1994), Food Security in South Asia : Performance and Prospects, Economic and Political Weekly, Vol. 29, No.15, April 30.
6. Minhas, B.S. (1976), Towards National Food Security, Indian Journal of Agricultural Economics, Vol. 31, No. 4.
7. Asian Development Bank (2010), Agricultural, Food Security and Rural Development, Oxford University Press, New Delhi.

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Further Readings :

1. Mohammad, N. (2002), Regional Patterns of Food Security in India, Annals, NAGI, Vol. 21, Delhi.
2. Radhakrishna, R. (1991), Food and Nutrition : Challenge for Policy, Journal of the Indian Society of Agricultural Statistics, Vol. 53, No.3, December.
3. Reutlinger, S. (1977), Food Insecurity : Magnitudes and Remedies, Washington, U.S.A.
4. Sen, A.K. (1981), Poverty and Famines : An Essay in Entitlement and Deprivation, Oxford University Press, Delhi.
5. Shafi, M. and Aziz, A. (ed.) (1989), Food Systems of the World, Rawat Pub., Jaipur.

Pedagogy :

The students are required to understand the deep rooted dimensions of the whole concept of food security/insecurity in the world. This can be done by encouraging wide use of literature available in journals, books, research reports, atlases, maps and through interaction with students/researchers from other disciplines such as Economics, Sociology and Public Administration.

Option (iv) : Economic Geography (with special reference to India)

Max. Marks	:	100
Terminal Exam.	:	80 Marks
Internal Assessment	:	20 Marks
Time	:	3 Hours

Objectives :

- The overall objective is to foster the comprehensive understanding of conceptual and methodological issues involved in organization of economic activities and understand the theories of industrial location and their application in context of developing economies like Indian.
- To understand the spatial structure of Indian economy and recent changes therein and its social, political and environmental implications from geographical angle.

Course Content :

UNIT-I

Economic Geography : Definition and Scope, its place in Human Development and relationships with Economics and other branches of knowledge.

Concept base of the economy : Concept of resources, classification of resources.

Resources and Environment : Scarcity and sustainability, conservation of resources.

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UNIT-II

Locational analysis of economic activities : Basic concepts in location problems, location in a simplified economic landscape and heterogeneous land surface.

Demand, scale and agglomeration; location models; time dimensions in economic location.

UNIT-III

The Economy : Structure of economy in spatial context, sectors of economy–agriculture, manufacturing and service activities.

Structure of Indian Economy and its evolution.

Economy and the State in India : Important policy changes in the macro-economic and sectoral levels of economy; social, economic, environmental and spatial implications of changes in economic policy.

UNIT-IV

Bases of Economic activity : Infrastructure–Transport linkages including networks, freight rates, problems and policy.

Fuel and Power–Power sector development in its spatial context, policy planning for power sector development; infrastructure financing–emerging issues and changes.

Trade and Exchange - Basic concepts, trade as an alternative to movement of capital and labour, core-periphery concept in trade.

Commodities in world trade–trade blocs.

India's performance in trade–Recent policy changes and their implications.

Economic regions of India.

Emergence of new global economy : Global integration and its spatial outcome.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Bryson, J., et. al. (1999), *The Economic Geography Reader*, John Wiley, Chichester.
2. Chakraborty, Sanjay and Somik V. Lall (2007), *Made in India : The Economic Geography and Political Economy of Industrialization*, Oxford, New Delhi.
3. Clark, Gordon and Others (2000), *The Oxford Handbook of Economic Geography*, Oxford, New York.
4. Dodson, R.A. (1998), *Society in Time and Space*, Cambridge University Press, Cambridge.
5. Grossman, G. (1984), *Economic Systems*, Prentice Hall, New Jersey.
6. Hanink, D. M. (1997), *Principles and Applications of Economic Geography*, John Wiley, New York.
7. Hartshorn, Truman, A. and John W. Alexander (1994), *Economic Geography*, 3rd Edition, Prentice Hall of India Pvt. Ltd., New Delhi.

Further Readings :

1. Knox, P. and Agnew, J. (1998), *The Geography of the World Economy*, 3rd Edition, Arnold, London.
2. Krugman, P. (1995), *Development, Geography and Economic Theory*, MIT Press, Massachusetts.
3. Lee, R. and Wills, J. (ed.) (1997), *Geography of Economics*, Arnold, New York.

Pedagogy :

- (vii) Rural settlement types and their distribution in selected regions of India : Kerala, Western Himalaya, Punjab Plains, Tribal Areas of Central India, Ganga Delta.
- (viii) Transformation of rural landscape in India.

- Note :*
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part shall carry 2 marks (total 20 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 15 marks.
 3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
 4. For reappear/improvement candidate(s), who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be increased proportionally to maximum marks of the paper in lieu of internal assessment. **The paper setter must put note (4) in the question paper.**

BOOKS RECOMMENDED :

Essential Readings :

1. Ambrose, P., Settlement Patterns, Longmans, London, 1970.
2. Ghosh, Sumita, Introduction to Settlement Geography, Orient Longman, Calcutta, 1998.
3. Hudson, R.S., A Geography of Settlements, Macdonald & Sons, London, 1970.
4. Money, D.C., Patterns of Settlements, Evans Brothers, London, 1972.
5. Mukerji, R.K., Man and His Habitation, Popular Prakashan, Bombay, 1968.
6. Sauer, C.O., Land and Life, University of California Press, Berkely, 1963.
7. Singh, R. L. et. al (ed.), Readings in Rural Settlement Geography, National Geographical Society of India, Varanasi, 1975.
8. Singh, R. Y., Geography of Settlements, Rawat Publications, 1998 (Reprint).
9. Singh, R. L. et. al. (ed.), Geographic Dimensions of Rural Settlements, National Geographical Society of India, Varanasi, 1976.

Further Readings :

1. Chisholm, M., Rural Settlement and Land Use, Hutchinson University Library, London, 1962.
2. Mitra, A., Report on House Types and Village Settlement Patterns in India, Manager of Publications, Delhi, 1960.
3. Rapoport, A., House Form and Culture, Prentice Hall, New Jersey, 1969.

Pedagogy :

The course should be conducted with the help of adequate illustrations using audio-visual aids and, depending upon feasibility, field visits.

Published by : Prof. A.K. Bhandari, Registrar, Panjab University, Chandigarh.