



UNIVERSITY OF RAJASTHAN
JAIPUR

SYLLABUS

Faculty of Science

M.A. / M.Sc. Geography

Semester Scheme

Ist Semester Exam. December 2016

उप-कुलसचिव
(शैक्षणिक)
राजस्थान विश्वविद्यालय
जयपुर
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M.A./M.Sc. GEOGRAPHY

(Semester Scheme)

Scheme of Examination for I Semester December 2016:

Part-I (Course and Internal Assessment)

- The student will require to earn minimum 120 credits out of total 144 credits, in four semesters, for PG degree.
- Each student has to earn minimum 30 credit per semester (i.e. 120 credits in four semester for PG degree).
- Each semester of PG courses shall have credits. There will be three core papers and three elective papers (4 credits each) and one core laboratory and one elective laboratory (6 credits each).
- Core papers (Theory and Practical) are compulsory papers for the students of M.A./M.Sc. (Geography).
- In theory papers, 15 hrs of contact classes is equal to one credit.
- In practical, 45 hrs of laboratory work is equal to 2 credits.
- Each semester will have continuous assessment (CA). The continuous assessment (CA) consists of two parts, namely (i) Internal Assessment and (ii) Sessional Test(s) in the ratio 30:70. The Internal Assessment component comprises of assessment of student's performance on the basis of factors like Attendance, Class Room Participation, Quiz, Home Assignment etc.

Part-II (Examination Pattern)

- Each theory paper CCC and ECC shall carry 100 marks.
- The CCC and ECC will be of 3 (Three) hrs duration for each theory paper and 4 hrs duration for each practical paper.
- Part A of theory paper shall contain 10 (ten) Short Answer Questions, covering entire syllabus and each question will carry 2 (two) marks i.e. part A will be of total 20 marks.
- Part B of the Question Paper will consist of four (04) questions with internal choice and weightage of 20 marks each i.e. total of 80 marks one from each section.
- Each Practical CCC and ECC will be of four hours duration and involve written test on Lab work (04 questions) 60 Marks and Record work and Viva-voce 40 Marks (30+10)

The details of the courses with code, title and the credits assigned are as given below:

Course Category

CCC: Compulsory Core Course

ECC: Elective Core Course

I(A)

M.A. / M.SC. GEOGRAPHY

First Semester

S.No.	Subject Code	Course Title	Course Category	Credit	Contact Hours Per Week			EOSE Duration (Hrs.)	
					L	T	P	THY	P
1.	Geo 101	Evolution of Geographical Thoughts (upto 1800 AD)	CCC	4	3	1	0	3	
2.	Geo 102	Structural and Dynamic basis of Geomorphology	CCC	4	3	1	0	3	
3.	Geo 103	Principles and Theory of Economic Geography	CCC	4	3	1	0	3	
4.	Geo 111	Practical	CCC	6	0	0	9	4	
5.		Elective – I	ECC	4	3	1	0	3	
	GEO A01	Man and Natural Environment							
	GEO A02	Cultural Geography							
6.		Elective – II	ECC	4	3	1	0	3	
	GEO B01	Population Geography							
	GEO B02	Quantitative Techniques in Geography							
7.		Elective – III	ECC	4	3	1	0	3	
	GEO C01	Geography of Rural Development							
	GEO C02	Disaster Perception and Management in India							
8.		Elective – Practical	ECC						
	GEO D01	Practical		6	0	0	9	4	
	GEO D02	Practical		6	0	0	9	4	
		Total Credit		36					

कुलसचिव
 (शैक्षणिक)
 भूगोल विभाग
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I SEMESTER

Paper code: Geo 101: Evolution of Geographical Thoughts (upto 1800 AD)

Section-A

Beginnings and geosophical nature of geography: ancient Indian geographical thought (the puranic geography), Ancient classical period: contribution of Greeks scholars (Herodotus and Eratosthenes), Greeko-Roman scholar (Posidonius), Romans scholars (Strabo and Ptolemy), and Chinese scholars.

Section-B

Implications of dark age in Europe, development and nature of Geography during medieval period: Contributions of Al-Biruni, Al Muquaddassi, Al-Masudi and Al Idris, Ibn Battuta and Ibn Khaldun.

Section-C

Impact of renaissance on geography: main inventions, discoveries and explorations, cosmographic tradition and position of geography among sciences: Sebastian Munster, Philip Cluverius, Nathanael Carpenter, Varenus, Anton Friedrich Bushing, Immanuel Kant and Conrad Malte Brun.

Readings Recommended:

- Adhikari, S. 2009: Fundamentals of Geographical Thought. Chaitanya Publishing House, Allahabad.
- बंसल, सुरेश चन्द 2008: भौगोलिक चिन्तन के मूल तत्व। मीनाक्षी प्रकाशन, मेरठ।
- Dickinson, R.E. 1967. The Markers of Modern geography. Routledge & Kegan Paul Limited. London.
- Dear, M.J. and Flusty, S. (ed.) 2002: The spaces of Post modernity: Readings in Human Geography, Blackwell Publishers Ltd, Oxford.
- Dikshit, R.D. 2004. Geographical Thought. A Critical History of Ideas. Prentice-Hall of India, New Delhi (in English and Hindi).
- जैन, एस.एम. 2005: भौगोलिक चिन्तन एवं विधि तंत्र। साहित्य भवन पब्लिकेशन्स, आगरा।
- जाट, बी.सी. 2013: भौगोलिक चिन्तन का इतिहास। मलिक एण्ड कम्पनी, जयपुर।
- Hartshorne, R. 1987: Perspective on the Nature of Geography Scientific Publishers, Jodhpur (Copyright 1959 by the Association of American).
- Holt-Jensen, A. 1988. Geography: History and Concepts- A Student's Guide. Sage, Los Angeles (Fourth Edition)
- James, P.E.: All Possible Worlds 1972: A History of Geographical Ideas: Odessey Press, 622 pages.
- Johnston, R, Gregory D, Pratt G, Watts M. and Whatmore S. (2003): The Dictionary of Human Geography. Blackwell Publishers, Oxford. 5th Edition.
- कौशिक, एस.डी. 2005-06, भौगोलिक विचारधाराएँ एवं विधि तंत्र। रस्तोगी पब्लिकेशन्स, मेरठ, आठवां संस्करण (पुनर्मुद्रित)।
- मौर्य, एस.डी. 2007, भौगोलिक चिन्तन का इतिहास, प्रयाग पुस्तक भवन, इलाहाबाद।
- Majid. H. 2004. Evolution of Geographical Thought. Rawat Publications, Jaipur (Reprinted 2007- Revised & Enlarged).
- सक्सेना, एल.के. व तिवारी, ए.के. 2003, भौगोलिक चिन्तन। राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर।

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Paper code: Geo 102: Structural and Dynamic Basis of Geomorphology

Section-A

Interior structure of the earth, thermal state of the earth's interior, Isostasy: views of Airy, Pratt, Hayford and Bowie, Joly and Holmes, Origin of the continents and oceans, earth movements: eperiogenic and orogenic- Mountain building theories of Jeffreys, Kober, Joly, Daly, Holmes and Plate Tectonics.

Section-B

Definition, nature and scope of geomorphology, major concepts in geomorphology, Denudation: weathering, mass movements, erosion and sediment regimes, various models of landscape evolution: Davis, Penck, King, Hacks, Morisawa, Schumn.

Section-C

Topographies: fluvial, glacial-periglacial, Aeolian, karst and coastal, element of slope and various models of slope development: Wood, Davis, Penck, King, Strahler.

Readings Recommended:

- Chorley, R.J. 1972: Spatial Analysis in Geomorphology. Methuen, London.
Cooke, R.U. and Doornkamp, J.C. (1974): Geomorphology in Environmental Management-A introduction. Clarendon Press, Oxford.
Dury, G.H.; 1959: The Face of the Earth. Penguin Harmondsworth.
Fairbridge, R.W. 1986: Encyclopedia of Geomorphology. Reinholdts, New York.
Garner, H.F. 1974: The Origin of Landscape-A Synthesis of Geomorphology. Oxford University Press, London.
Goudie, A. 1993: The Nature of the Environment. Oxford & Blackwell, London.
जाट, बी.सी. 2004: भू-आकृति विज्ञान। रावत पब्लिकेशन, जयपुर।
Mitchell, C.W. 1973: Terrain Evaluation. Longman, London.
Ollier, C.D. 1979: Weathering. Longman, London.
Pitty, A.F. 1971: Introduction to Geomorphology. Methuen, London.
प्रदास, गायत्री 2004: भू-आकृति विज्ञान। शारदा पुस्तक भवन, इलाहाबाद।
Sparks, B.W. 1960: Geomorphology. Longman, London.
Sharma, H.S. (ed) 1980: Perspectives in Geomorphology. Concept Publishing Company, New Delhi (VOL I to IV).
Skinner, B.J. & Porter, S.C. 1995: The Dynamic Earth. John Wiley, New York.
Stoddart, D.R. (ed) 1996: Process and Form in Geomorphology. Routledge. New York.
Singh, S. 1998: Geomorphology. Prayag Publication, Allahabad.
Spark, B.W. 2004: Geomorphology, Longmans, London.
Thornbury, W.D. 1960: Principles of Geomorphology. John Wiley, New York.
Young, A. 1972: Slopes. Longmans, London.

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Paper code: Geo 103: Principles and Theory of Economic Geography

Section-A

Changing nature of economic geography, approaches to economic geography, agricultural typology-with special reference to: subsistence plantation agriculture, mediterranean agriculture, mixed farming, commercial grain farming, livestock rearing.

Section-B

Energy resources: detailed study of conventional and non-conventional energy resources, spatial patterns and supply problems, industries: iron & steel, aluminium industry, paper and pulp, cotton textile, chemical fertilizer and auto mobile.

Section-C

Decision making process: location decision-behavioural view, international trade: major regional trade and economic integration block, major trends and patters, economic region: concept and methods of delineation, need of economic regionalization for area development and planning-economic regions of India.

Readings Recommended:

- Alexander, J.W. 2001: Economic Geography. Prentice Hall of India, New Delhi.
Bengston, N.A. and Royen, M.V.: Fundamentals of Economic Geography (Prentice Hall New York).
Boeshi, H.: A Geography of World Economy.
Chapman, K and Walker, D. 1991: Industrial Location: Principles and Policies... Blackwell Oxford.
Grigg, D. 1995: An Introduction to Agricultural Geography. Second edition, Routedge, London.
James, O. W. and Peter, O. M. 1986: Economic Geography. John Wiley and Sons, New York.
Jarret, H. R. 1977: A Geography of Manufacturing. Trans-Atlantic Publishers, London.
Leong, G.C. and Morgan, G.C. 1982: Human and Economic Geography, Oxford University Press, London.
Lloyd, P.E. and Dicken, P. 1977: Location in Space: A Theoretical Approach to Economic Geography. Harper & Row, Publishers, London.
Mandal, R. B. 1982: Land Utilization - Theory and Practice. Concept Publishing Company, New Delhi.
Prasad, Rama 2007: कृषि पारिस्थितिकी एवं नियोजन। राधा प्रकाशन, नई दिल्ली।
Scott, A. J. 1988: New Industrial Spaces. Pion, London.
Shafi, M. 2000: Agricultural Geography of South Asia. Macmillan, New Delhi.
Singh J. and Dhillon, S.S. 2004: Agricultural Geography. Tata Mc-Graw-Hill, New Delhi.
Singh, Kashi Nath and Siddiqui, A.R. 2012: Economic Geography, Prayag Pustak Bhawan, Allahabad.
Smith, D. M. 1981: Industrial Location - An Economic Geographical Analysis. John Wiley, New York.
Wheeler, J.O. and Muller, O.P. 1995: Economic Geography. John Wiley, New York.

17/12/20
श. सुलसचिव
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Paper code: Geo 111: Practical

Minimum Marks: 36	Bifurcation of Marks	Max. Marks: 100
Written Test on Lab.Work (4 Questions)	60	4 Hours
Record Work & Viva-Voce	25+15	
Total	100	

N.B.: In written test there shall be 2 questions from each section. Candidates have to answer 4 questions selecting at least one question from each section. All questions carry equal marks. Examination be conducted in batches of not more than 20 candidates in any case. 09 hours for teaching practicals be provided for a batch of 20 students per week.

Section-A

Elementary trigonometry, classification of map projections and their specific uses. Mathematical construction of projections: cylindrical equal area, Mercator's and Gall's stereographic

Section-B

conical (with one standard parallel, two standard parallels, Bonne's, polyconic and modified polyconic (international).

Section-C

Mathematical construction of projections: zenithal (equidistant-polar and equatorial case, equal area-polar and equatorial case, Gnomonic-polar and equatorial case, stereographic-polar and equatorial case and orthographic- polar and equatorial case).

Readings Recommended:

- चौहान, पी.आर. 2005: प्रयोगात्मक भूगोल। वसुन्धरा प्रकाशन, गोरखपुर।
Dickinson, G.C. 1973: Statistical Mapping and Mapping Statistics. London.
Khullar, D.R 2000: Essentials of Practical Geography. New Academic publishing Co., Jalandhar.
Robinson, A.H. et al. 2004: Elements of Cartography. John Wiley & Sons, Inc., New York.
Rampal, K.K. 1993: Mapping and Compilation: Methods and Techniques. Concept Publishing Company, New Delhi.
शर्मा, जे.पी. 2010-11: प्रयोगात्मक भूगोल की रूपरेखा। रस्तोगी पब्लिकेशन्स, मेरठ।
Singh, R.L. and Singh, R.P.B. 1991: Elements of Practical Geography. Kalyani Publishers, New Delhi.
तिवारी, आर.सी. एवं सुधाकर, त्रिपाठी 2009: प्रयोगात्मक भूगोल। प्रयाग पुस्तक भवन, इलाहाबाद।

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Paper code: Geo A01: Man and Natural Environment

Section-A

Definition and scope of environmental geography, its relation with other subjects, elements of the environment, man and environmental relationships: environmental determinism, possibilism and neo determinism, biosphere and its components, concept of ecology and ecological succession, types of ecosystems, energy flow in the ecosystem, soil system, geobiochemical cycles, major biomes of the world.

Section-B

Environmental degradation and natural disasters, environmental crises: ozone depletion, green house gas effects, El-Nino, global warming and climate change, water scarcity, acid rain, sea level change, desertification, environmental pollutions: water, air soil, noise and radioactive.

Section-C

Environmental quality, sustainable development, environmental management, soil and forest resources management, water management, wildlife conservation, biodiversity and its conservation, environmental awareness and education, international efforts of environmental conservation.

Readings Recommended:

- Agarwal, A. and Narain, S. 1977: Dying Wisdom: Rise, Fall and Potential of India's Traditional Water Harvesting System. Centre for Science and Environment, New Delhi.
- Economic and social commission for Asia and the Pacific United Nations 1989: Guidelines for the preparation of National Master Water Plans.
- Govt. of India, 1980: Ministry of Energy and Irrigation. Rashtriya Barh Ayog (Report-National Commission of Floods. Vol. I & II, New Delhi).
- Govt. of India, 1972: Ministry of Agriculture Report of the Irrigation Commission. Vol I & IV, New Delhi).
- गुर्जर, आर.के. एवं जाट, बी.सी. 2001: पर्यावरण भूगोल। पंचशील प्रकाशन, जयपुर।
- Gulhati, N.D. 1972: Development of Inter-State Rivers: Law and Practice in India. Allied Pub., Bombay.
- International Water Resource Association and Central Board of Irrigation & Power, Water of Human Needs, 1975: Vols. I to V Proceedings of the Second World Congress on Wather Resources, 12-16 December, New Delhi.
- Jones, J.A. 1997: Global Hydrology: Processes, Resources and Environmental Management. Longman.
- Kates, R.W. and Burton, I. (ed.) 1980: Geography, Resource and Environment Management, Ottawa.
- Krutilla, John V. and Eckstein, O. 1958: Multiple Purpose River Development: Studies in Applied Economic Analysis. John Hopkin's Press, Boston.
- Law, B.C. (ed.) 1968: Mountains and Rivers of India IGU. National Committee for Geography, Calcutta.
- Matter, J.R., 1984: Water Resources Distribution, Use and Management. John Wiley, Marylane.
- Michael, A.M. 1978: Irrigation: Theory and Practices. Vikas Publishing House pvt., New Delhi.
- Newson, M. 1992: Land, Water and Development River Basin systems and their Sustainable Management. Routledge, London.
- Pareira, H.D. 1973: Landuse and Water Resources. Cambridge University Press, Cambridge.

- Rao, K.L. 1979: India's Water Wealth. Orient Longman, New Delhi.
- सिंह, जगदीश 2003: पर्यावरण एवं संविकास। ज्ञानोदय प्रकाशन, गोरखपुर।
- शर्मा, पी.डी. 2009: पारिस्थितिकी एवं पर्यावरण। रस्तोगी पब्लिकेशन, मेरठ।
- Singh, R.A. and Singh, S.R. 1979: Water Management: Principles and Practices. Tara Publication, Varanasi.
- Singh, Savindra 2006: Environmental Geography. Prayag Pustak Bhawan, Allahabad.
- Smith, K. 1972: Water in Britain. A Study in Applied Hydrology and Resource Geography. McMillan, London.
- श्रीवास्तव, वी.के. एवं राव, वी.पी. 2002: पर्यावरण और पारिस्थितिकी। वयुन्धरा प्रकाशन, गोरखपुर।
- Tideman, E.M. 1996: Watershed Management. Guidelines for Indian Conditions, Omega, New Delhi.
- Tebbutt, T.H.Y. (ed.) 1985: Advances in Water Engineering. Elsevier Applied Science Pub., London.
- Todd, D.K. 1959: Ground Water Hydrology. John Wiley, New York.
- U.S.D.A. 1955: The Year Book of Agriculture: Water. Oxford and L.B.H. Publishing Co., New Delhi.
- Verghese, B.G. 1990: Water of Hope: Integrated Water Resource Development and Regional Co-operation within the Himalayan-Ganga. Brahmaputra-Barak Basin, Oxford IBH, New Delhi.
- White, G.F.L. 1977: Environmental Effects of Complex River Development. Westriver Press, Boulder, Colorado.

Paper code: Geo A02: Cultural Geography

Section-A

Definition, nature and scope of cultural geography, the evolutionary approaches and conceptual framework, evolution of man and human society from Palaeolithic to Pleistocene period, rise and dominance of *homo-sapiens* and their spatial distribution over the continents, distribution and characteristics of primary races of the world, zone and stata theory.

Section-B

Beginning of plant domestication, animal domestication and their regions, evolution of civilization: Mesopotamian, Nile, Indus and Hwang Ho Valley with respect to racial, Ethnic, religious, linguistic, demographic and organizational characteristics. School of cultural determinism, cultural adaptatlon, assimilation, integration diffusion and Environmental perception. Major cultural hearths, realms and regions of the world, basic similarities and differences.

Section-C

Major linguistic families and their distribution in the world, bases of cultural diversity: race, religion, language and nationalism, culture and environment, human settlements-origin, types, pattern and distribution, westernization, sanskritization and cultural urbanization.

Readings Recommended:

- Anderson, J. 2009: Understanding Cultural Geography-Places and traces. Routledge, USA.
- Anderson, K., Domosh, M., Pile, S. and Thrift, N. (eds.) 2003: Handbook of Cultural Geography. Sage Publications, London.
- Ahmad, Aijazuddin 1999: Social Geography. Rawat Publication, New Delhi.
- Crang, Mike 1999: Cultural Geography. Routledge, London.

- Chapman, K. 1979: People, Pattern and Process-An Introduction to Human Geography. Edward Arnold Ltd., London.
- Dreze Jean, Sen, Amartya 1996: Economic Development and Social Opportunity. Oxford University press, New Delhi.
- Dubey, S.C. 199: Indian Society. National Book Trust, New Delhi.
- Haq, Mahbul: Reflection on Human Development. Oxford University Press. New Delhi.
- Mitchell, D. 2000: Cultural Geography: A Critical Introduction. Blackwell Publishers, Inc. USA.
- Norton, W. 2006: Cultural Geography. Environments. Landscapes. Identities. Inequalities. Oxford University Press, Toronto. 2nd Edition.
- प्रसाद, गायत्री 1991: सांस्कृतिक भूगोल। शारदा पुस्तक भण्डार, इलाहाबाद।
- Robertson, Iain, and Penny Richards 2003: Introduction in Studying cultural landscapes, ed. Iain Robertson and Richards, 1-18.
- Rubenstein, J.M. and Becon, J.M. 1990: Cultural Geography, John Wiley and Sons Inc., New York.
- रजवी, मुनीरुदीन 2001: सांस्कृतिक भूगोल। राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर।
- Scott, A. J. 1997: The Cultural Economy of Cities. International Journal of Urban and Regional Research, 21(2), 323-339.
- Saberwal, Vasant K. 1996: Pastoral Politics: Gaddi grazing, degradation, and biodiversity conservation in Himachal Pradesh, India. Conservation Biology 10, no. 3: 741-749.
- Sen, Amartya and Dreze Jean 1996: Indian Development Selected Regional Perspectives. Oxford University Press.
- Sopher, D. 1980: An Exploration of India: Geographical Perspectives on Society and Culture. Cornell University Press, Ithaca, New York.
- Smith, D.M. 1977: Human Geography: A Welfare Approach. Edward Arnold Publication, London.
- Spencer, J.E. and Thomas, W.L. 1969: Cultural Geography. John Wiley and Sons inc., New York.
- Subb Rao. Personality of India 1958: Pre and Proto Historic Foundation of India and Pakistan. M.S. University, Baroda, Vadodara.
- Wagner, P.L. & Mikesell, H.W. (eds.) Readings in Cultural Geography.
- Miljerkee. A.B. and Aijazuddin, A. 1985: India-Culture, Society and Economy. Inter India publications, New Delhi.
- Broke, J.C. and Webb, J.W. 1978: A Geography of Mankind, McGraw Hill, New York.

Paper code: Geo B01: Population Geography

Section-A

Population Geography: definition, nature and scope and interdisciplinary study, theories of population growth – pre-Malthusian views, Malthus' theory, Marxist theory, Optimum population theory, demographic transition model, world population distribution, growth trends and determinants.

Section-B

Migration: history, theories, trends and patterns of international and internal migration, population dynamics: fertility and mortality- measurement, determinants and distribution, world population composition and characteristics, world population urbanization, trend pattern and challenges.

Section-C

India- population characteristics and relationship with development; population control movement and policies; urbanization and population explosion; post independence

development-reproductive and child health programme, contemporary issues- ageing of population; declining sex ration; hiv/aids.

Readings Recommended:

- Bhende, Asha, A. and Kanitkar, 2002: Principles of Population Studies. 14th Edition, Himalaya Publishing House, Mumbai.
- Chandna, R.C. 2013: Population Geography. Kalyani Publishers, Delhi.
- Chandna, R.C. 2006: Jansankhya Bhugol. Kalyani Publishers, Delhi.
- Garnier, J.B. 1978: Geography of Population, Longman, U.K.
- Hassan, M.I. 2005: Population Geography. Rawat Publication, Jaipur.
- Kundu, A. Lopamudra, R.S. 2012: Migration and Exclusionary Urbanisation in India. Economic & Political Weekly, XLVII (26/27): 219-227.
- Kundu, A. 2006: Trends & patterns of urbanization and their economic implications. India Publications, London.
- Newbold, K.B. 2010: Population Geography: Tools and Issues. Rowman & Littlefield Coporation, New Delhi.
- Premi, M.K. 1991: India's Population Heading Towards a Billion. B.R. Publishing Coporation, New Delhi.
- Rural Urban Dynamics and the Millennium Development Goals 2013: Global Monitoring Report.
- Woods, R. 1997: Theoretical Population Geography. Longman, U.K.
- Weeks, J.R. 1988: Population: An Introduction to Concepts and Issues. Springer, Wadsworth.
- www.un.org/esa/population/publications/worldageing19502050/
- www.who.int/ageing/en/
- India.unfpa.org/drive/NationalPopulation-Policy2000.pdf
- UNAIDS Report on Global AIDS Epidemic, 2010

Paper code: Geo B02: Quantitative Techniques in Geography

Section-A

Probability; theory of probabillites- law of addition and multiplication probabillites of destribution: normal, bionomial, poisson-sampling: basic concepts, sample units and design, sampling frame and procedures, standard error and sample size, testing the adequancy of samples, hypothesis testing: needs and types of hypotheses-goodness of fit and significance and confidence levels-parametric and non-parametric procedures; contingency tables, chi-square test, bionmial test, t-test, mann-whitney U test.

Section-B

Bivariate analysis; forms of relation and measuring the strength of association and relation-construction and meanings of scatter diagram simple linear and regression analyses-spearman's tank and product moment correlation cefficients-the ordinary least square method of fitting a regression line-construction of regression line: interpolation, prediction, explanation and residual-statistical tests of significance of the estimates; residuals and their mapping.

Section-C

Multivariate analysis; basics of multiple regression-partial correlation coefficient regression analysis, analysis of variance and anova-testing the overall significance of a regression auto correlation-multicolliniarity-basis principles and elements of factor Analysis and principal

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component analysis, surface and models: gravity potential; model-spatial interpolation and trend surface analysis-simulation models: random walk and diffusion models-markov chain model similarity indices and region building-construction of thiesen polygons.

Readings Recommended:

- Gupta, S.P. 1979: Statistical Methods. Sultan Chand & Sons, New Delhi
Mahmood, A. 1998: Statistical Methods in Geographical Studies. Rajesh Publication, New Delhi.
Nagar, K.N. 1992: Sankhiki Ke Mool Tatva. Meenakshi Prakashan, Meerut.
Unwin, D. 1981: Introductory spatial Analysis. Methuen, London.
Gregory, S. 1978: Statistical Methods and Geographer. Longman, London.
Hammond R. and McCullagh, P.S. 1974: Quantitative Techniques in Geography: An Introduction. Clearendan Press, Oxford.
John, P. Cole and Cuchlanie, A.M King 1968: Quantitative Geography, John Wiley, London.
Johnston, R.J. 1973: Multivariate Statistical Analysis in Geography. Longman, London.
Kautsoniannis 1973: Theory of Econometrics. Mcmillan, London.
Maurice Yeats 1974: An Introduction to Quantitative Analysis in Human Geography. McGraw Hill, New York.
Peter Haggett, Andrew D. Cliff & Allan Frey 1977: Location Methods. Vol. I and II, Edward Arnold, London.

Paper code: Geo C01: Geography of Rural Development

Section-A

Geography and rural development; agriculture and rural development, rural land use; agriculture pastoral, forestry and land use competition. Landuse and landscape. Approaches to rural development, growth centre approach infrastructure reformist. Rural settlement, housing, population and employment rural transport, service provision, derivation, recreation; health and nutrition.

Section-B

Rural planning and land management; resource development and integrated rural development: crop and soil management live stock range and management; water management, ecological management.

Section-C

Rural development in Rajasthan; rural development schemes-irrigation and land development schemes, drought prone areas schemes; desert development programme; integrated rural development in Rajasthan, MNREGA and tribal areas development; wasteland development.

Readings Recommended:

- Glig, A.W. 1985: An introduction to Rural Geography. Anrold London.
Association of Country Councils 1979: Rural Deprivation, London ACC.
Allan, J.A. 1980: Remote Sensing in Land in Landuse Studies, Geography 65.
Tweari, A.K. (ed.) 1988: Desertification: Monitoring and Control, Scientific Pubs, Jodhpur.
Anderson, J.R.L.J. 1977: Hardardar-Agricultural Decision Analysis, Ames, Lows State University Press.
Andrease, B. 1981: Farming Development and Space-World Agricultural Geography, New York, Water Cryter.

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- Morgan, W.B. and RJA 1971: Munon-Agricultural Geography. London Methuen.
- Pacione, M. 1981: Rural Geography London, Parpur Clark, (ed) and Row 1984-Register of Research in Rural Geography Licester: Rural Geography Study Group.
- Bowler, I.R. 1948: Agricultural Geography-Progress in Human Geography-8.
- Newbury, Pa. 1980: Geography of Agriculture-Plymouth Macodonald and Evans.
- Grigg, D.B. 1974: The Agricultural Systems of the World, Cambridge University Press.
- Grigg, D.B. 1984: An Introduction to Agricultural Geography, London Hutchinsonson.
- Jones, A. 1975: Rural Housing. The Agricultural Tied College, London Bell.
- Lassey, W.R. 1977: Planning in Rural Environment, New York, Mcgraw Hill.
- Lavery, P. (ed.) 1974: Recreational Geography, Newton Abbot; David and Charles.
- Leasdale, R. 1981: Settlement systems in sparsely populated regions & Homes (ed.) and Oxford, Pergamon.
- Menab, A. 1984: Integrated Rural Development, Gloucester Glancesser College of Arts.

Paper code: Geo C02: Disaster Perception and Management in India

Section-A

Concept of disaster management, institutional framework of disaster management in India, stakeholders in disaster management, hazards, risks, vulnerability and disasters, types of hazards and disasters: manmade and natural, livelihoods and climate change.

Section-B

Floods, drought, earthquakes, landslides, cyclones, forest fire and Tsunamis, forest degradation, construction of dams, diversion of river channels, mining and quarrying, haphazard urban growth and unplanned industrial development, coping with manmade disaster.

Section-C

Management authorities and community participation: pre disaster phase, emergency phase and post disaster management, disaster preparedness, mitigation and response, disaster management and risk reduction mechanism in India: public awareness, agencies, resources, early warning system, policies, action plans and training in disaster management.

Readings Recommended:

- Alexander, D. 1993: Natural Disasters. UCL Press, London.
- Dasgupta, R. 2007: Disaster Management and Rehabilitation. Mittal Publications, New Delhi.
- Government of India 2004: Disaster Management in India - A Status Report. Ministry of Home affairs, National Disaster Management Division, New Delhi.
- Govt. of India 2009: National Policy on Disaster Management. National Disaster Management Authority (NDMA).
- Gupta, K.C.: Disaster Management In India. Allied Publishers, New Delhi.
- Hewitt, K. 1997: Regions of Risk: A Geographical Introduction to Disasters. Longman, London.
- Kapur, A. 2010: Vulnerable India – A Geographical Study of Disasters. Sage Publications India Pvt. Ltd., New Delhi.
- Kapur, A. 2005: Disasters in India. Studies of Grim Reality, Rawat Publications, Jaipur.
- Kasperson, J.X., Kasperson, R.E. and Turner, B.L. 1995: Regions at Risk: Comparisons of Threatened Environments. United Nation, University Press, Tokyo.

Murthy, D.B.N. 2008: Disaster Management: Text and Case studies. Deep & Deep Publications, New Delhi.

Paraswamam, S. and Umikrishnan, P.V. 2000: India Disaster Report: Oxford University Press, New Delhi.

पवार, जे. 2006: सुनामी का विज्ञान। नमन प्रकाशन, नई दिल्ली।

Singh, Savindra 2006: Environmental Geography. Prayag Pustak Bhawan, Allahabad.

Paper code: Geo D01: Practical

Minimum Marks: 36	Bifurcation of Marks	Max. Marks: 100
Written Test on Lab.Work (4 Questions)	60	4 Hours
Record Work & Viva-Voce	25+15	
Total	100	

N.B.: In written test there shall be 2 questions from each section. Candidates have to answer 4 questions selecting at least one question from each section. All questions carry equal marks. Examination be conducted in batches of not more than 20 candidates in any case. 09 hours for teaching practicals be provided for a batch of 20 students per week.

Section-A

History of cartography, types of maps, enlargement and reduction and finding of area on map using planimeter.

Section-B

Study of geological maps and preparation of their cross sections and interpretation, interpretation of weather maps and weather forecast.

Section-C

Conventional: Projection Sinusoidal and Mollweide, map policy of India and projections used for map output in India.

Readings Recommended:

चौहान, पी.आर. 2005: प्रयोगात्मक भूगोल। वसुधरा प्रकाशन, गोरखपुर।

Dickinson, G.C. 1973: Statistical Mapping and Mapping Statistics. London.

Khullar, D.R 2000: Essentials of Practical Geography. New Academic publishing Co., Jalandhar.

Robinson, A.H. et al. 2004: Elements of Cartography. John Wiley & Sons, Inc., New York.

Rampal, K.K. 1993: Mapping and Compilation: Methods and Techniques. Concept Publishing Company, New Delhi.

शर्मा, जे.पी. 2010-11: प्रयोगात्मक भूगोल की रूपरेखा। रस्तोगी पब्लिकेशन्स, मेरठ।

Singh, R.L. and Singh, R.P.B. 1991: Elements of Practical Geography. Kalyani Publishers, New Delhi.

तिवारी, आर.सी. एवं सुधाकर, त्रिपाठी 2009: प्रयोगात्मक भूगोल। प्रयाग पुस्तक भवन, इलाहाबाद।

Paper code: Geo D02: Practical

Minimum Marks: 36	Bifurcation of Marks	Max. Marks: 100
Written Test on Lab.Work (4 Questions)	60	4 Hours
Record Work & Viva-Voce	25+15	
Total	100	

N.B.: In written test there shall be 2 questions from each section. Candidates have to answer 4 questions selecting at least one question from each section. All questions carry equal marks. Examination be conducted in batches of not more than 20 candidates in any case. 09 hours for teaching practicals be provided for a batch of 20 students per week.

Section-A

Elementary knowledge of computer, software & hardware, file format, graphic in computer.

Section-B

Elements of digital cartography, data input, data capture, scanning, digitization and map compilation.

Section-C

Map though autoCade, ArcGIS, GIS, QGIS, Erdas and Arcmap.

Readings Recommended:

- चुनियाल, डी.डी. 2004: दूरसम्बेदन तथा भौगोलिक सूचना प्रणाली। शारदा पुस्तक प्रकाशन, इलाहाबाद।
Cromley, R.G. 1992: Digital Cartography, Prentice Hall, Englewood Cliffs, N.J.
Demers, M.N. 1997: Fundamental of Geographical Information Systems. John Wiley & Sons, Inc., New York.
Dickinson, G.C. 1973: Statistical Mapping and Mapping Statistics. London.
Joseph, G. 2005: Fundamentals of Remote Sensing. Universities Press (India) Private Limited, Hyderabad.
Khullar, D.R 2000: Essentials of Practical Geography. New Academic publishing Co., Jalandhar.
Nag, P. 1992: Thematic Cartography and Remote Sensing, Concept publishing company, New Delhi.
Robinson, A.H. et al. 2004: Elements of Cartography. John Wiley & Sons, Inc., New York.
Rampal, K.K. 1993: Mapping and Compilation: Methods and Techniques. Concept Publishing Company, New Delhi.