**Annexure-I**

 **DEPARTMENT OF GEOGRAPHY,**

**KURUKSHETRA UNIVERSITY KURUKSHETRA**

***(Established by State Legislature Act-XII of 1956)***

**('A+' Grade, NAAC Accredited)**

**Scheme of Examinations for M.Phil Geography (CBCS) w.e.f. 2017-18**

**ANNUAL SYSTEM**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Paper No.**  | **Title**  | **Credit**  | **Max. Marks** | **End Semester Marks**  | **Internal Assessment****Marks** | **Time** |
| GEO-501 | **Research Designs and Methods in Geography** | 2 | 50 | 40 | 10 | 3 Hours |
| GEO-502 | **Advanced Quantitative Methods in Geographic Research** | 2 | 50 | 40 | 10 | 3 Hours |
| GEO-503 | **Research Methods in Human Geography** | 2 | 50 | 40 | 10 | 3 Hours |
| GEO-504 | **Research Methods in Physical Geography** | 2 | 50 | 40 | 10 | 3 Hours |
| GEO-505 | **Seminar-I** | 2 | 50 | Every candidate shall deliver two seminar during the academic session |
| GEO-506 | **Seminar-II** | 2 | 50 |

Note: In addition, every candidate shall submit a dissertation or project work/problem or design work (hereinafter as Dissertation) and appear in viva-voce on the Dissertation.

**GEO-501**

**RESEARCH DESIGNS AND METHODS IN GEOGRAPHY**

Maximum Marks: 40

Time: 3 Hours

**Note: There will be Six questions in all, three from each unit. The candidate has to answer FOUR questions in all selecting two questions from each units. All questions carry equal marks**

**Objective:** The objective of this paper is to introduce the M.Phil students to the concept of research with special reference to nature of geographical research. It aims to impart knowledge about research designs and explanations in geographical research.

**Outcome:** M.Phil Students shall learn about the nature of research and different routes of explanation in geographical studies.

**Unit-I**

1. Defining Research problems and objectives of research, Types of research – Descriptive vs. Analytical, Applied vs. Fundamental, Quantitative vs. Qualitative, and Conceptual vs. Empirical; Selection of research problem, Research design and methods, Research proposal and features of good research design.
2. Research Ethics, plagiarism, copy rights intellectual property rights.
3. Literature review – Its objectives and importance, Sources and types of geographical literature, Procedure of critical literature review and ideal literature review, Identifying gap areas from literature review, Citation and acknowledgement.

**Unit II**

1. Observations, Conceptualization, Hypotheses, Models, Laws and Theories, Explanation – Induction and Deduction, generalization and interpretation
2. Paradigms in geographic research-Positivism, Structuralism, Marxism, Gender Perspective and Postmodernism.
3. Report and thesis writing – Structure and components of scientific report and theses, Analysis of data, illustrations and tables, Bibliography, referencing and footnotes - Oral presentation

**Suggested Readings:**

1. Allan Bryman (2016) Social Research Methods, OUP.
2. Black James and Champion D.J. (1976) Methods and Issues in social Research, New York, Jolm Wiley and Sons.
3. Derek Gregory and Rex Walford (1989) Horizons in Human Geography.
4. Goode and Hat: Research Methodology in Social Sciences, Oxford University Press, New Delhi.
5. Har Prasad (1992) Research Methods and Techniques in Geography, Rawat Publication, Jaipur.
6. Johnston R.J. (1991) A Question of Place: Exploring the Practices of Human Geography, Blackwell.
7. Keith Hoggard (2002) Researching Human Geography, OUP.
8. M.H. Qureshi, Paradigms in Geographical Research, Concept, New Delhi.
9. Mishra H.N. and Singh V.P. (ed.) (1998) Research Methodology: Social, Spatial and Policy Dimensions, Rawat Publishers, Jaipur.
10. Paul Fyrabend, Against Methods, Vera.
11. Young P.V. (1986) An Introduction to Research Methodology.

**GEO 502**

**ADVANCED QUANTITATIVE METHODS IN GEOGRAPHIC RESEARCH**

Maximum Marks: 40

Time: 3 Hours

**Note: There will be Six questions in all, three from each unit. The candidate has to answer FOUR questions in all selecting two questions from each units. All questions carry equal marks**

**Objective:** This course involves the study of statistical approaches to the analysis of spatial information and processes. Emphasis will be given to *geographic research* using descriptive, inferential, bi-variate and multi-variate analyses.

**Outcome:** Students are equipped with the skills of articulation and critical analysis of research material and in formulation of research proposals.

**Unit-I**

1. Theory of distribution, Inferential Statistics: Sampling, Significance, Uses and their measures.

1. Variability and Measure of Inequality: Significance, Uses and Measures such as Nearest Neighbour Analysis, Location Quotient, Lorenz Curve, Gini‘s Coefficient.
2. Bi -Variate Analysis: Significance and techniques such as- Correlation Karl Pearsons Product Moment Correlation Coefficient, Spearman’s Rank correlation ( rho), Non-parametric Tests : Chi-square test , test of significance and hypothesis testing.

**Unit II**

1. Causal Relationship and Estimation: Simple Linear Regression and Residuals; Logistic regression.
2. Multivariate Analysis: Partial and Multiple Correlation, Multiple and step-wise regression, Composite, Cluster Analysis, Discriminant Analysis.
3. Use of Computer and Statistical Software: Excel and SPSS

**Suggested Readings**:

1. Aslam Mahmood: Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi, 1993.

2. A. Reza Hoshmand (second edition): Statistical Methods for Environmental and Agricultural Sciences, CRC Press, New York, 1998.

3. A. Stewart Fotheringham, Chris Brunsdon, M. Charlton: Quantitative Geography: Perspective on Spatial Data Analysis, Sage Publishers, 2000.

4. G.S. Monga, Statistical Mehtods

5. Jack Levin and J.A. Fox: Elementary Statistics in Social Research, 10th edition, Peason Education, New Delhi, 2006.

6. Robert Hanmund and Patric McCullagh: Quantitative Techniques in Geography: An Introduction Clarenden Press, 1974.

7. R. J. Johnston: Multivariate Statistical Analysis in Geography, Longman Scientific and Technical, John Wiley & Sons, 1989 (4th edition).

8. P.A. Rogerson: Statistical Methods for Geography, (A Student’s Guide), 3rd Edition, Sage Publication, New Delhi, 2010.

9. Saroj K. Paul : Statistics for Geoscientists: Techniques and Applications, Concept Publishing Company, New Delhi, 1998

10. Suzanne, Davies W: Quantitative Methods in Human Geography, Oxford University Press, 2013.

11. S. Gregory : Statistical Methods and the Geographers, Longman, London, 1964.

**GEO-503**

**RESEARCH METHODS IN HUMAN GEOGRAPHY**

Maximum Marks: 40

Time: 3 Hours

**Note: There will be Six questions in all, three from each unit. The candidate has to answer FOUR questions in all selecting two questions from each units. All questions carry equal marks**

**Objective:** It is an applied course of methods in human geography which is aimed at providing knowledge about the data sources, methods and techniques to study different aspects of human geography. It aims to inculcate basic research skill about the applications of various tools to study research problems related to various dimensions of human geography such as demographic, social, urban development, rural settlement and transport.

**Outcome:** This course shall sharpen the understanding of students about applications of different methods and techniques to study research problems related to human geography.

**Unit-I**

1. Methodological issues in population geography; population data sources their scope applications and mapping.
2. Techniques in measurement of fertility and mortality; life tables; Parameters of human Development, Human Development Index, Gender Development Index and their applications.
3. Techniques in demarcation of CBD, rural urban fringe and umland; Urban development: urban infrastructure and household amenities; Smart city: concept and methods of evaluation of smart cities in India.

  **Unit II**

1. Methods of concentration, dispersal and spacing of rural settlements.
2. Measurement of shape of rural settlements; type of settlements based on dispersion index.
3. Structural analysis of transportation network: Connectivity: (i)Road network connectivity; cyclomatic number, alpha index, beta index, gama index (ii)Centrality within network based on Koning number;(iii) The spread of network; the Kansky formula of Eta(n) index and (iv) the Detour index and aggregate transport score.

Accessibility: Associated number and Shimbel index.

**Suggested Readings:**

1. Bradford, M.G. and Kent, W.A. (1984) Human Geography: Theories and their Applications, Oxford.
2. Cassen, Robert and Bates, Lisa M. (1994) Population Policy: A New Consensus, Overseas Development Council, Washington, D.C.
3. Cater, Herald (1972) The study of Urban Geography, Edward Arnold, London.
4. Chandna, R.C. (1998) A Geography of Population: Concepts, Determinants and Patterns, Publishers, New Delhi.
5. Chorley, R.J. and Hagget, P. (1970) Socio Economic Models in Geography, Methuen, London.
6. Clout, H.D. (1972) Rural Geography: An Introductory Survey, Pergmon, N.York.
7. Demko, G. J. and others (Eds.) (1971) Population Geography, Reader, McGraw-Hill Books Co., New York
8. Gibbs, J.P. (1966) Research Methods, Von Nostrand company, Inc. New York.
9. Grover, Neelam (1954) Rural settlement: a cultural Geographical Analysis, Inter India Publication, N. Delhi.
10. Hagget, P. (1971) Locational Analysis in Human Geography, Martin’s Press, N.York.
11. Hassan, I. (2010) Population Geography.
12. Johnson, James (Eds.) (1974) Suburban Growth, John Wiley and sons, London.
13. Kitchen, R. and Tae, N.J. (2000) Conducting Research into Human Geography: Theory, Methodology and Prctice, Prentice Hall, London.
14. Laboritz, S. and Hagedorn, R. (1971) Introduction to Social Research, McGraw Hills, USA.
15. Mahajan, N (2014) Population Geography, R.K. publishers, Delhi
16. Mandal, R.B. (1979) Introduction to Rural Settlements, Concept, New Delhi.
17. Mayer H.M. and Kohn, C.F. (1968) Readings in Urt. The University of Chicago Press, Chicago.
18. Michanel Pacione (2004) Urban Geography: A Global Perspective, Routledge, USA.
19. Newbold, K Bruce (2016) Population geography: Tools and Issues,
20. Northem, R.M. (1980) Urban Geography, Croom Helm, London.
21. Petrov, V. (1985) India: Spotlight of Population, Progress Publishers, Moscow.
22. Qazi, S.A. (2010) Population Geography, APH publishers.
23. Singh R.L. and Singh, K.N. (1975) Reading in Rural Settlement Geography, NGSI, Research publication no. 14, National Geographical Society of India, Varanshi.
24. Singh R.L. and Singh, R.P.B (1978) Transformation of Rural Habitat in Indian Perspective, A Geographical Dimension.
25. Singh R.L. and Singh, R.P.B. (1980) Rural Habitat Transformation in World Frontiers, 24 IGC publication, Tokyo.
26. Ramachandra, R. (1992) Urbanization and Urban System in India, Oxford, London.
27. Raymond and Murphy (1960) American cities: An Urban Geography, McGraw Hills, New York.
28. Saxena, H.M. (2005) Transport Geography, Rawat, Delhi.
29. Sinha, S.P. (1984) Processes and Pattern of Urban Development in India: A study of Haryana, The associated Publishers, Ambala Cantt.

**GEO-504**

**RESEARCH METHODS IN PHYSICAL GEOGRAPHY**

Maximum Marks: 40

Time: 3 Hours

**Note: There will be six questions in all with three questions from each unit. The candidate has to answer four questions in all selecting at least two questions from each unit. All questions carry equal marks.**

**Objective:** The goal of the course is to provide an overview to students about various techniques used in the investigation of physical geography.

**Outcome:** This course shall sharpen the understanding of students about different techniques which will develop the scientific understanding pertaining to earth and atmospheric system.

**UNIT-**I

1. Types and techniques of data collections, their verification, main branches of physical geography enquiry
2. Geomorphological and land system mapping, slope classifications maps, measurement of sediment and dissolved load, measurements of channel cross sections and mass movements.
3. Soil profile, textural analysis of soil, equipments used in soil sample collections, measurement of soil erosion, moisture, permeability and soil water content, soil and water conservation measures.

**UNIT-II**

1. Techniques of measurement of elements of hydrological cycle, hydrograph analysis and base flow separation; probability analysis for hydrological extremes, determination of missing hydrologic data and adjustment of records.
2. Meteorological instruments, measurement techniques of weather elements and processing of weather data, comfort indices, weather forecasting.

1. Coding, decoding and plotting of synoptic data, evidences of climate change, dendrochronlogy, carbon dating and thermoluminescence, climatic data management.

**Suggested Readings:**

Bridges EM. 1986. Principles and Applications of Soil Geomorphology. Halsted Press, New York.

Brikeland, PW. 1984. Soils and Geomorphology. Oxford University Press, London.

Bunting, BT. 1976. The Geography of Soils. Hutchinson, London.

Dackombe, RV and Gardiner V. 1983. Geomorphological Field Manual. George Allen and Urwin, London.

Ghosh, RK. 1999. Practical Hydrology. Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal.

Goudie, A (ed.). 1981. Geomorphological Techniques. George Allen and Urwin, London.

Gregory, KJ and Walling, DE. 1973. Drainage Basin form and Process-A Geomorphological Approach. Edward Arnold, London.

Kale, VS and Gupta, A. 2001. Introduction to Geomorphology. Orient Longman, Calcutta.

King, C.A.M. 1967.Techniques in Geomorphology. Edward Arnold, London.

Lowe, JJ and Walker, MJC. 1984. Reconstructing Quaternary Environments. John Wiley and Sons, New York.

Mutreja, KN. 1990. Applied Hydrology. Tata MC-Graw Hill Publishing Company, New Delhi.

Oliver, John E. 1981. Climatology-Selected Applications. Winston and Sons, London.

Pitty, AF. 1978. Geography of Soil Properties. University Press, London.

Thornthwaite, CW and Mather JR. 1987. Instructions and Tables for Computing Potential Evapotranspiration and Water Balance. Laboratory of Climatology, Drexel Institute of Technology, Centerton.

World Meteorological Organization. 1966. Climatic Change. Technical Note No.79, World Meteorological Organization, Geneva.

World Meteorological Organization. 1966. Some Methods of Climatological Analysis. Technical Note No.81, World Meteorological Organization, Geneva.

World Meteorological Organization. 1983. Guide to Meteorological Instruments and Methods of Observations. Technical Bulletin No. 8, World Meteorological Organization, Geneva.