

Department of Geography, M. D. University, Rohtak

Programme outline/Structure and scheme of examination of M.A. Geography – GEO2 Two Year (Four Semesters) with Choice Based Credit System (CBCS) from the Session 2016-17 onwards.

M.A. Geography shall be of two years duration spread over four semesters. The duration of examination for theory and practical papers shall be three and four hours respectively. Practical examination shall be conducted by two external examiners out of the panel recommended by the P.G. Board of Studies in Geography. Marks of the internal assessment shall be awarded as per the laid down norms of the university. Soft Core and Open Elective Papers will be floated according to the administrative and academic convenience of the department.

PROGRAM SPECIFIC OUTCOMES

Students are able to:

- PSO1:** Understand not only the place where they live in but also about the lives of people living in other areas of the interconnected world. It also enhances understanding of the relationship between the global and the local level and the outcomes of these relationships (relationship between global processes and their local manifestations).
- PSO2:** Have deep knowledge about places, regions and spatial relationship as result of series of inter-related factors of nature, culture and individual human actions.
- PSO3:** Make the social and cultural differences (race, ethnicity, gender, age, class) their geographical embeddedness.
- PSO4:** Sensitise the need to conserve environment, resources in order to have a more sustainable earth.
- PSO5:** Have the theoretical knowledge with local realities by making field visits to different areas.
- PSO6:** Use and map the digital spatial data in more rational way.
- PSO7:** Understand the paradigm shifts all along with the process of historical development of geography as a subject of learning.

Sem	Paper Code	Nomenclature	Hours Per Week (L +T +P)	Marks			Examination Hours	Credit (L +T +P)
				Internal	End Semester	Total		
1 st	16GEO21C1	Geomorphology	04 (3+1 +0)	20	80	100	03	3+1 +0
	16GEO21C2	Climatology	04 (3+1 +0)	20	80	100	03	3+1 +0
	16GEO21C3	Resource Geography	04 (3+1 +0)	20	80	100	03	3+1 +0
	16GEO21C4	Statistical Methods in Geography	04 (3+1 +0)	20	80	100	03	3+1 +0
	16GEO21CL1	Practical Topographical Sheets and Its Interpretation	06 per student	-	50	50	04	0+0+3
	16GEO21CL2	Practical- Computer Aided Statistical Diagrams and Graphs	06 per student	-	50	50	04	0+0+3
	Credits	C=22 F=2	Total Credits=22-24					

Sem	Paper Code	Nomenclature	Hours Per Week (L +T +P)		Marks			Exam Hours	Credit (L +T +P)
					Internal	End Semester	Total		
2nd	16GEO22C1	Geography of World Economy	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22C2	Regional Development and Planning	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22C3	Environmental Geography	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22D1	Urban Geography	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22D2	Cultural Geography	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22D3	Geography of India	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22D4	Geography of Rural Settlements	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22D5	Soil Geography	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22CL1	Practical -Digital Cartography	06 per student		-	50	50	04	0+0+3
	16GEO22CL2	Practical -Morphometric Analysis	06 per student		-	50	50	04	0+0+3
Foundation Course									
	16GEOF1	Geography in Everyday Life	02(2+0+0)		10	40	50	03	2+0+0
Open Elective Course									
	16GEOO1	Basics of Geo-Informatics	03 (2+1 +0)	20	80	100	03	2+1+0	
	16GEOO2	Geography of India: Systematic and Regional	03 (2+1 +0)	20	80	100	03	2+1+0	
		C=18 D=04 SO=03	Total Credits=18-25+2						
<ol style="list-style-type: none"> 1. Foundation Course (02 credits), either in semester I/II to be chosen from the basket provided by the University. 2. Open Elective Course (03 credits) to be chosen from the basket of Open Elective Courses provided by the University. 									

Sem	Paper Code	Nomenclature	Hours Per Week (L +T +P)		Marks			Exam Hours	Credit (L +T +P)	
					Internal	End Semester	Total			
3rd	17GEO23C1	Remote Sensing and GIS	04 (3+1 +0)		20	80	100	03	3+1 +0	
	17GEO23C2	Geography of Transport	04 (3+1 +0)		20	80	100	03	3+1 +0	
	17GEO23D1	Bio Geography	04 (3+1 +0)		20	80	100	03	3+1 +0	
	17GEO23D2	Political Geography	04 (3+1 +0)		20	80	100	03	3+1 +0	
	17GEO23D3	Social Geography	04 (3+1 +0)		20	80	100	03	3+1 +0	
	17GEO23D4	Hydrology	04 (3+1 +0)		20	80	100	03	3+1 +0	
	17GEO23D5	Oceanography	04 (3+1 +0)		20	80	100	03	3+1 +0	
	17GEO23CL1	Practical -Field Work	06 per student		-	50	50	04	0+0+3	
	17GEO23CL2	Practical -GIS	06 per student		-	50	50	04	0+0+3	
	Open Elective Course									
		17GEOO1	Introduction to Geography	03 (2+1 +0)	20	80	100	03	2+1+0	
		17GEOO2	Sources of Geographical Data	03 (2+1 +0)	20	80	100	03	2+1+0	
		C=14 D=04 O=03	Total Credits=21-25							
1. Open Elective (03 credits) to be chosen from the basket of Open Electives (OEs) provided by the University.										
2. Students will have to opt one paper from 17GEO23D1, D2, D3, D4 and D5.										

Sem	Paper Code	Nomenclature	Hours Per Week (L +T +P)	Marks			Exam Hours	Credit (L +T +P)
				Internal	End Semester	Total		
4 th	17GEO24C1	Geographical Thought	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24C2	Research Methodology	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DA1	Water Resource and Management	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DA2	Geography of Tourism	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DA3	Rural Geography	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DB1	Population Geography	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DB2	Natural Hazards and Disaster Management	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DB3	Agricultural Geography	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24CL1	Practical :Aerial Photographs and Its Interpretation	06 per student	-	50	50	04	0+0+3
	17GEO24CL2	Practical: Satellite Images and Its Interpretation	06 per student	-	50	50	04	0+0+3
	C=14 D=08		Total Credits=22					
Students will have to opt two soft core papers, one each from 17GEO24DA1, DA2, DA3 and 17GEO24DB1, DB2, DB3.								

M.A. Geography - GEO2 Semester-I
Session 2016-17 onwards
16GEO21C1 - GEOMORPHOLOGY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Understand various aspects of landform growth and evolution on the Earth.
- CO2:** Explain the basic conceptual and dynamic concepts of landform development.
- CO3:** Understand the relevance of applied aspects of Geomorphology in various fields.

Unit-1

Geomorphology - Definition, Nature and scope, History and development of geomorphic ideas : Fundamental concepts - Uniformitarian's, geological structure, process and stage. The Earth's interior - structure and constitution, Recent Views. Plate tectonics- meaning and concept; plates, plate margins and boundaries; plate motion; Tectonic activities along the boundaries and Distribution of plates.

Unit-II

Endogenetic processes - Faulting, folding and their geomorphic expressions. earthquake concept, causes, classification, intensity and magnitude, Geographical distribution. Vulcanism - concept, mechanism and causes; Volcanoes- classification, volcanic materials; Topography associated with vulcanicity and geographical distribution.

Unit-III

Exogenetic processes: Weathering and mass wasting - meaning and concept, controlling factors, classification and significance. Dynamics of fluvial, aeolian, glacial and karst processes and resulting landforms.

Unit-IV

Applied Geomorphology - meaning; Applications of Geomorphology in Regional planning, engineering projects, mineral exploration and hydrology. Regional Geomorphology of Punjab plain, Aravalli Region and Thar desert of India.

Note :

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire. All questions carry equal marks.

Recommended Readings:

1. Bloom, A.L. (1992) **Geomorphology**, Second Edition, Prentice Hall of India, New Delhi.
2. Dayal, P. (1990) **A Text Book of Geomorphology**, Shukla Book Depot, Patna.

3. Husain Majid (2002), **Fundamentals of Physical Geography**, Second Edition, Rawat Publications, Jaipur and New Delhi.
4. Singh Savindra (1993), **Physical Geography**, Prayag Pustak Bhawan, Allahabad.
5. Singh Savindra (1998), **Geomorphology**, Prayag Pustak Bhawan, Allahabad.
6. Strahler, A.N. and Strahler, A.H.(1996), **Introducing Physical Geography**, John Willey and Sons, New York.
7. Strahler, A .N. (1988), **Earth Sciences**, Harper and Row Publishers, N.D.
Thornbury, W.D. (1991), **Principles of Geomorphology**, John Wiley, New Delhi.
8. Wooldridge, S. W and Morgan, R.S. (1991), **An Outline of Geomorphology**, Orient Longmans, Calcutta.

M.A. Geography – GEO2 Semester-I
Session 2016-17 onwards
16GEO21C2 - CLIMATOLOGY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1: Understand the global atmospheric circulations and disturbances.
- CO2: Understand the world climate systems, climatic variability and change.
- CO3: Sensitise the students with the future global environmental changes.

Unit-I

Nature and Scope of Climatology; Climatic elements – atmospheric temperature, pressure, moisture, general atmospheric circulations jet stream.

Unit-II

Weather system and disturbances – air-mass, fronts, cyclones, tornades; Ocean atmospheric interaction- El Nino, Monsoon winds.

Unit-III

Global climate system - Approaches to climatic classification; Classification of Koppen, and Thornthwaite; Major Climates of the world-tropical and polar.

Unit -IV

Climatic changes - evidences, possible causes, global warming acid rain and problems of acid rain.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Aggarwal, S.K. (1972), **Fundamentals of Ecology**, Ashish Publishers, New Delhi.
2. Barry, R.G. and Chorely, R.J., **Atmosphere, Weather and Climate**, ELBS, Methuen & Co. Ltd. London.
3. Bhutani, Smita, (2000) **Our Atmosphere**, Kalyanai Publishers, New Delhi.
4. Critchfield, H.J. (1987) **Climatology**, Prentice Hall of India, New Delhi.
5. Griffith, J.F. and Driscell, D.M. (1982) **Survey of Climatology**, Charles Merrill.
6. Lal, D.S. (1993) **Climatology**, Chaitanya Publishing House, Allahabad.
7. Riehl, H. (1968), **Introduction to Atmosphere**, McGraw Hill, New York.

8. Robinson, P.J. and Henderson Sellers (1986) **Contemporary Climatology**, Longman, London.
9. Trewartha, G.T. (Latest edition) **Introduction to Climate**, McGraw Hill, New York.

M.A. Geography – GEO2 Semester-I
Session 2016-17 onwards
16GEO21C3 - RESOURCE GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Sensitized to concept and classification of resources.
- CO2:** Get knowledge about the models of natural resource process.
- CO3:** Understand a deep sense about use and misuse, conservation and management of resources for sustainable development.

Unit-I

Nature, Scope and Significance of Geography of Resource; Definition and Concept of Resources, Classification of Resources.

Unit-II

Models of Natural Resource Processes: Zimmermann's Primitive and Advance Models of Natural Resource Process, Kirk's Decision Model, Brookfield System Model.

Unit-III

Use and Misuse of Resources: Soil Resource; Water Resource; Forest Resource and Mineral Resources; Future Prospects of Natural Resources.

Unit-IV

Conservation and Management of Natural Resources : Meaning and Concept of Conservation of Natural Resources; Resource Conservation and Management Methods of Natural Resources- Soil Resource, Water Resource, and Forest Resource; Problems of Natural Resource Management in India.

Note:

The question paper will have five units. Each of the first four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Eliot Hurst, M.E. (1972) **A Geography of Economic Behaviour: An Introduction**, Duxbury Press, California.
2. Guha, J.L. and P.R.Chattroj (1994) **Economic geography- A Study of Resources**, The World Press Pvt. Ltd. Calcutta
3. Haroon Mohamad. (2007) **Geography of Resources**, Vasundhara Parkashan, Gorakhpur. (Hindi Edition)

4. Martin, R.H. and F.L. Warren. (1959) **Natural Resources**. McGraw Hill Book Co. London.
5. Maurya, S.D. (2015) **Economic Geography**. Parwalika Publications, Allahabad (Hindi Edition).
6. Negi, B.S.(2000) **Geography of Resources**, Kedar Nath and Ram Nath, Meerut
7. Owen, Oliver, S.(1971) **Natural Resource Conservation** : A Ecological Approach. Mc Million New Delhi.
8. Ramesh, A. (1984) **Resource Geography (Ed.) R.P. Misra**, Contribution to Indian Geography, Vol 5, Heritage Publishers, New Delhi.
9. Singh, A and Raja, M. (1982) **Geography of Resources and Conservation** (Hindi Edition) Pargati Parkashan, Meerut.
10. Zimmermann, E. W. (1951) **World Resources and Industries**, Harper and Brothers, New Delhi.

M.A. Geography – GEO2 Semester-I
Session 2016-17 onwards
16GEO21C4 - STATISTICAL METHODS IN GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Explain the nature and types of data and related statistical techniques.

CO2: Make a rational choice amongst listed various statistical techniques.

CO3: Describe and explain geographical data relationships.

Unit-1

Statistics, Geography and Statistics; Significance of Statistics in geographical studies; Primary and Secondary Data; Levels of data measurement: Nominal, Ordinal, Interval, and Ratio.

Unit-II

Measures of Central Tendency: Arithmetic Mean, Median, Mode and their geographical significance; Centographic techniques: Mean Centre, Median Centre and Standard Distance.

Unit-III

Measures of dispersion and concentration: Mean deviation, Standard Deviation; Coefficient of Variation, Lorenz Curve and Gini's Coefficient; Location Quotient.

Unit-IV

Correlation and regression: Scatter diagram, correlation by Spearman's Rank Difference and Karl Pearson's Product Moment, Significance testing of Correlation; Regression analysis regression equations construction of regression line, computation of residuals and mapping.

Note :

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. David M. Smith (1975), **Patterns in Human Geography**, Penguin, Harmondsworth.
2. Ebdon, D (1983), **Statistics in Geography: A Practical Approach**, Blackwell, London.
3. Gregory, S. (1978) **Statistical Methods and the Geographer** (4th Edition), Longman, London.
4. Gupta, S.P., **Statistical Methods**, Sultan Chand and Sons, Latest Edition.

5. Mathews, J.A. (1987), **Quantitative and Statistical Approaches to Geography**, Practical Manual, Pergmon, Oxford.
6. Pal, S.K. (1998), **Statistics for Geoscientists; Techniques and Applications**, Concept Publishing Company, New Delhi.
7. Peter, J. Taylor (1977), **Quantitative Methods in Geography**, Houghton Mifflin Company, Boston.
8. Robert Hammond and Patrik Mc. Cullagh (1974), **Quantitative Methods in Geography**, Clarendon Press, Oxford.
9. Yeates, Mauris (1974), **An Introduction to Quantitative Analysis in Human Geography**, McGraw Hill, New York.

M.A. Geography – GEO2 Semester-I

Session 2016-17 onwards

16GEO21CL1 - PRACTICAL: TOPOGRAPHICAL MAPS AND INTERPRETATION

Credit: 03 (0+0+3)

Time: 4 Hours

Max. Marks: 50

Distribution of marks:

Lab work test: 30

Record on lab work: 10

Viva Voce: 10

Course Outcomes:

Students would be able to:

CO1: Understand the importance and uses of maps.

CO2: Have knowledge about the relationship and juxtaposition of features therein.

CO3: Represent various cultural & physical features using topographical maps.

Unit - I

Introduction to Maps: Definition and Types of Maps, Map scale, Conventional map symbols, Importance and uses of maps

Unit - II

Interpretation of Topographical maps: Topographical maps and their types, Basic information on Topographical sheets, Conventional Signs, Identification of Physical and Cultural details on Survey of India Toposheets.

Note:

The question paper shall contain six questions in all, including three questions from each unit. Candidate(s) are required to attempt three questions in all selecting at least one question from each unit. All questions carry equal marks.

Recommended Readings:

1. Robinson A. H. 2009. **Elements of Cartography**. New York: John Wiley and Sons.
2. Sharma J. P. 2010. **Prayogic Bhugol**. Meerut: Rastogi Publishers.
3. Singh R. L. and Singh R. P. B. 1999. **Elements of Practical Geography**. Noida: Kalyani Publishers.
4. Sarkar, A. 2015. **Practical Geography: A Systematic Approach**. New Delhi: Orient Black Swan Private Ltd.
5. Singh, R. L. and Rana P. B. Singh. 1991. **Prayogtmak Bhugol ke Mool Tatva**. New Delhi: Kalyani Publishers.
6. Sharma, J. P. 2010. **Prayogtmak Bhugol ki Rooprekha**. Meerut: Rastogi Publications,
7. Singh, R. L. and P. K. Dutta, 2012. **Prayogatmak Bhugol**, Allahabad: Central Book Depot.

M.A. Geography – GEO2 Semester-I
Session 2016-17 onwards
16GEO21CL2 - PRACTICAL: COMPUTER AIDED STATISTICAL
DIAGRAMS AND GRAPHS

Credit: 03 (0+0+3)
Time: 4 Hours
Max. Marks: 50
Distribution of marks:
Lab work test: 30
Record on lab work: 10
Viva Voce: 10

Course Outcomes:

Students would be able to:

- CO1:** Understand computer and use of computer in Geography.
- CO2:** Know the process of data input, data collection & data manipulation.
- CO3:** Draw various diagrams through computer.

Unit - I

Introduction to Computer: Components of Computer—Hardware and Software; Use of Computers in Geography.

Unit – II

Introduction to Microsoft Excel: Input of data, Bar Diagram, Pie Diagram, Scatter Diagram, Line Graph. Placement of heading and sub-heading, legend, Font size, Style, Bold, Italics, Changes from colour to different shade pattern. Different weight, colour and pattern to X and Y coordinates. Page layout. Ascending and Descending order.

Note :

The question paper shall contain six questions in all, including three questions from each unit. Candidate(s) are required to attempt three questions in all selecting at least one question from each unit. All questions carry equal marks.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22C1 - GEOGRAPHY OF WORLD ECONOMY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Understand how in an increasingly globalized world, economic activities occur unevenly over geographical space.
- CO2:** Know how local places and global economy are intertwined.
- CO3:** Describe the regime of neoliberal policies are generating uneven geography of capitalist development.

Unit-I

Economic Geography: The Stuff of Economic Geography, A brief history, Why Economic Geography? Modes of Theorizing in Economic Geography: Political Economy, Poststructuralist Economic Geography

Unit-II

Capitalism, Fundamental Concepts: Use-value, Exchange Value, Capital, Capital and Labour, Capital Accumulation, Capital Accumulation by Dispossession. Capitalism in Twentieth Century: Organized Capitalism Disorganized Capitalism. Neo-Liberalism.

Unit-III

World Economy and the Capitalist mode of production, The Basic Elements of World Economy: A Single Market, a Multiple State System, the Three-tier structure; A Space-Time Matrix of the World Economy, Dynamics of World Economy, Spatial Structure of the World Economy.

Unit-IV

Economic Development: Globalization or Internationalization, Patterns of International Trade, WTO and Developing Countries.

Note:

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Aoyama, Yuko et.al. (2011), **Key Concepts in Economic Geography**, London: Sage.
2. Benko, Georges and Ulf Strohmayr (2004), **Human Geography**, London: Arnold.
3. Daniels, Peter et.al. (2003). **Human Geography**, New Delhi: Pearson.
4. Dicken, P. (2003), **Global Shift: Reshaping the Global Economic Map in the 21st Century**, New Delhi: Sage Publications.
5. Gwynne, Robert et.al. (2003), **Alternative Capitalism**, London: Arnold.
6. Harvey, David (1982), **The Limits to Capital**, Oxford: Basil Blackwell.
7. Harvey, David (1990), **The Condition of Postmodernity**, Oxford: Blackwell.
8. Harvey, David (2008), **A Brief History of Neoliberalism**, Oxford: Oxford University Press.
9. Harvey, David (2015), **Seventeen Contradictions and the End of Capitalism**, London: Profile Books.
10. Hudson, Ray (2005), **Economic Geographies**, New Delhi: Sage Publications.
11. Johnston, R.J. et.al. (eds.) (2003), **Geographies of Global Change**, Oxford: Blackwell.
12. Knox, Paul et.al. (2003), **The Geography of the World Economy**, London: Arnold.
13. Leyshon, Andrew et.al. (2011), **The Sage Handbook of Economic Geography**, London: Sage.
14. Mackinnon, Danny and Andrew Cumbers (2011), **Introduction to Economic Geography**, London: Routledge.
15. Polanyi, Karl (1957), **The Great Transformation**, Boston: Beacon Press.
16. Singh, Sachinder (2013, “Unmasking Neoliberalism: From Welfare Commitments to Market Commitments”, **Transactions, Institute of Indian Geographers**, vol.35, no.2, pp.157-172.
17. Taylor, P.J. and Collin Flint (2000), **Political Geography: World Economy, Nation-State and Locality**, New York: Prentice Hall.
18. World Bank (2002), **Globalization, Growth and Poverty: Building an Inclusive World Economy**, New York: Oxford University Press.

MA Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22C2 - REGIONAL DEVELOPMENT AND PLANNING

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

CO1: Get familiarised with the theoretical foundations and conceptual grounding of this branch.

CO2: Understand and evaluate the concept of region in geography.

CO3: Know about the regional development and planning process in India.

Unit I

Conceptual and theoretical framework: Concept of development, regional development; concept of region and regional planning; geography and regional planning; selection of indicators and measures of regional disparities.

Unit II

Regional Growth Theories: Friedman's core-periphery theory; polarisation and trickle-down effect theory of Hirschman; circular and cumulative causation model of Myrdal; growth pole theory of Perroux.

Unit III

Planning process: types of planning; regional planning and its rationale, principles and objectives. Regions for Planning: characteristics, hierarchy, need, and demarcation; Planning regions of India.

Unit IV

Experiences of regional development and planning in India - multi level planning (state, district, block and panchayat level planning); Regional Policies in the Indian Five Year Plans; planning policies for regional development; regional backwardness: criteria, strategy and programmes for backward area development.

Note:

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Bhatt, L.S. 1972. Regional Planning in India. Statistical Publishing Society, Calcutta.
2. Chand, M and V.K. Puri. 1985. Regional Planning in India. Allied Pub. Pvt. Ltd. New Delhi.
3. Coates, B.R. and R.J. Johnston. 1977. Geography and Inequality. Oxford University Press, Oxford.

4. Government of India. 2013. Report of the Committee for Evolving a Composite Development Index of States Ministry of Finance. http://finmin.nic.in/reports/Report_CompDevState.pdf
5. Friedmann, J. and William Alonso. 1967. Regional Development and Planning: a Reader. MIT Press, Cambridge Massachusetts
6. Kuklinski, A.R. ed. 1972. Growth Poles and Growth Centres in Regional Planning. Monton, The Hague.
7. Misra R.P. et al. eds. 1974. Regional Development Planning in India, Vikas, New Delhi.
8. Mohan, Krishna. 2005. Addressing Regional Backwardness: An Analysis of Area Development Programmes in India, New Delhi: Manak Publications.
9. Raza, Moonis. 1988. Regional Development, Heritage, New Delhi.
10. Singh, Nina. 2015. "Regional Backwardness in India: An Exploration of Demographic Indicators". Population Geography, vol.37, No. 1&2, pp. 13-24.
11. Surya Kant and Nina Singh. 2015. Geography Development Public Policy: Select Essays of Gopal Krishan. RK Books, New Delhi.
12. Kant, Surya et al. 2004. Reinventing Regional Development. Rawat Publications, Jaipur.
13. Sundram, K. V. 1977. Urban and Regional Planning in India. Vikas Publishig House Pvt Ltd, New Delhi.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22C3 - ENVIRONMENTAL GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Know the importance of biodiversity to maintain ecological balance.
- CO2:** Understand various environmental issues at national and international concerns.
- CO3:** Understand the linkages between environment and biomes.

Unit-I

Environmental Geography: Nature and scope of environmental geography, fundamental concepts of environmental geography; Approaches and methods in Environmental Geography; Relationship with other branches of knowledge, Environment and Ecology: Meaning, structure and type of Environment, Ecology - meaning, scope and concepts. Sub-division of ecology.

Unit-II

Ecosystem: Meaning and concepts of ecosystem, Classification and components of eco-system, trophic structure, ecological pyramid, energy flow and biogeochemical cycle; Ecological regions of India.

Unit-III

Environmental pollution- meaning, types, sources, causes and impacts; Air, Water and Land pollutions; Environmental Degradation – Nature, process, types and causes of environmental degradation; Green house effect, Global warming, Ozone depletion and Desertification.

Unit-IV

Environmental management- concept, methods and approaches. Management of soil, forest and mineral resources; Disaster Management; Conservation of natural resources; Emerging environmental problems and issues in India, Environmental policies, programmes, awareness and movements in India.

Note :

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire. All questions carry equal marks.

Recommended Readings:

1. Anderson J.M. (1981): Ecology for Environmental Science: Biosphere, Ecosystems and Man, Arnold, London.
2. Awasthi, N.M. and Tiwari, R.P.L. (1995): Paryavaran Bhugool (Environmental Geography), Madhya Pradesh Hindi Granth Academy, Bhopal.

3. Goudie, Andrew (1984): The Nature of the Environment, Oxford Katerpring Co. Ltd.
4. Nobel and Wright (1996): Environmental Science, Prentice Hall, New York.
5. Odum, E.P. (1971): Fundamental of Ecology, W.B. Sanders, Philadelphia.
6. Saxena, H.M. (1994):PrayavaranevnParisthitikiBhugool (Geography of Environment and Ecology) Rajasthan Hindi Granth Academy, Jaipur.
7. Singh, Savinder (1991): Environmental Geography, PrayagPustakBhawan, Allahabad.
8. Singh, R.B. (ed.) (1989): Environmental Geography, Heritage, New Delhi.
9. Strahler, A.N. and Strahler, A.H. (1973) : Environmental Geosciences : Interaction between natural systems and Man,John Wiley and Sons, New York.
10. Strahler, A.H. and Strahler A.N. (1977): Geography and Mans Environment, John Wiley, New York.
11. William, M.M. and John, G. (1996) : Environmental Geography - Science, Landuse and Earth System, John Wiley and Sons, New York.

MA Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22D1 - URBAN GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Gain a better understanding of the process of urbanization.
- CO2:** Understand the key aspects of cities and get an indication of the breadth of material that can be covered when examining cities.
- CO3:** Get sensitized to the evolving urban planning visions.

Unit-I

Urban Geography: definition, nature, scope, and recent trends; Urban revolutions and growth of towns and cities in the world (with particular reference to India).

Unit-II

Urbanisation processes and patterns in an era of globalisation; urbanisation process in India: colonial legacy, the post-independence characteristics; phases of urban development with location of economic activities in cities; urban form and structure: pre-industrial, industrial and post industrial societies.

Unit-III

Aspects of urban places: Location, site and situation - definition, nature and significance; urban ecological processes; urban systems and the growth of cities: the rank-size distribution of cities, primate city distribution, central place theory of Christaller; the urban fringe.

Unit-IV

Urban planning visions: the garden city, the radiant city; conserving urban landscapes; sustainability and the city; city environments and living conditions; urban development strategy with particular reference to India.

Note:

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Badcock, Blair. 2002. *Making Sense of Cities: A Geographical Survey*. Arnold, London.
2. Bala, Raj. 1986. *Urbanisation in India*, Rawat Publishers, Jaipur.
3. Bansal, S.C. 2008. *Urban Geography* (Hindi Edition), Meenakshi Prakashan, Meerut.

4. Bansal, S.C. 2010. *Urban Geography*. Meenakshi Prakashan, Meerut.
5. Beall, Jo and Sean Fox. 2009. *Cities and Development*. Routledge, London.
6. Carter, Harold (1995), *The Study of Urban Geography*. 4th edn, Arnold, London.
7. Fyfe, Nicholas R. and Judith T. Kenny. 2005. *The Urban Geography Reader*. Routledge, New York.
8. Hall, Tim and Heather Barrett. 2012. *Urban Geography*. 4th edn. Routledge, London.
9. Pacione, Michael. 2001. *Urban Geography-A Global Perspective*. Routledge, London.
10. Ramachandran, R. 1989. *Urbanisation and Urban Systems in India*. Oxford, New Delhi.
11. Singh, K. and F. Steinberg. eds. 1987. *Urban India in Crisis*. New Age International, New Delhi.
12. Smailes, A.E. 1953. *The Geography of Towns*. Hutchinson, London.

MA Geography GEO2 Semester-II
Session 2016-17 onwards
16GEO22D2 - CULTURAL GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Keep up to date with the theoretical aspects and conceptual base of this branch.
- CO2:** Understand and evaluate the concept of culture in geography and its role and relevance in society.
- CO3:** Understand the cultural environment and various cultural regions of the world.

Unit-I

The Nature Meaning & Scope of Cultural Geography. The evolutionary approach in cultural geography. The Framework of cultural Geography. The evolution of cultural Geography-The contribution of Otto Schluter and Carl Sauer.

Unit-II

Cultural Geography: Elements & Components; Cultural Areas & Cultural Realm. Environment and Culture: Concept of cultural areas and cultural regions. Cultural adaptation and Environmental perception. Man as modifier of the earth

Unit-III

Spatial Structure. Focus on similarities and differences of various cultures with respect to racial, religious, linguistic and demographic, characteristics in Indian context. Studies of the socio-cultural characteristics of contemporary societies within their manifested

Unit-IV

Human races: Habitat economy and Society of tribal groups. Racial Elements in India's Population; Tribes of India (Bhil, Gond, Toda, Naga); Tribes of World (Eskimo, Pigmy, Bushman).

Note:

The question paper will have five units. Each of the first four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Ahmad, Aijazuddin, **Social Geography**, Rawat Publication, New Delhi, 1999.
2. De Blij. B.d. **Human Geography**. John Wiley and Son, New York.
3. Dreze Jean, Amartya Sen, **Economic Development and Social Opportunity**, Oxford University press, New Delhi, 1996
4. Dubey, S.C.: **Indian Society**, National Book Trust, New Delhi, 1991.
5. Gregory, D. and UJ. Larry. (eds.) **Social relations and Spatial Structures**, McMillan, 1985
6. Haq, Mahbulul: **Reflection on Human Development**. Oxford University Press. New Delhi
7. Maloney, Clarence: **People of South Asia**, Winston, New York, 1974.
8. Planning Commission, **Government of India**: Report on Development of Tribal areas. 1981
9. Rao, M.S.A.: **Urban Sociology in India**. Orient Longman, 1970.
10. Schwartzberg Joseph: **An Historical Atlas of South Asia**. University of Chicago Press. Chicago, 1978.
11. Sen, Amartya and Dreze Jean, **Indian Development Selected Regional Perspectives**. Oxford University Press, 1996 .
12. Smith, David: **Geography: A Welfare Approach**. Edward Arnold, London, 1977.
13. Sopher, David: **An Exploration of India**. Cornell University Press. 1980.
14. Subba Rao. **Personality of India: Pre and Proto Historic Foundation of India and Pakistan**, M.S. University, Baroda, Vadodara, 1958.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22D3 - GEOGRAPHY OF INDIA

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Understand the geographical aspects of India.
- CO2:** Have knowledge about Indian sub continent contemporary issues.
- CO3:** Understand demographic aspects of India.

Unit-1

Physiographic division of India; Drainage systems" Mechanism of Indian monsoons and climatic regions of India: types of soils and natural vegetation.

Unit-II

Growth of population, Distribution and density of population; Demographic attributes; sex-ratio, literacy rate and work force; population problems and policies.

Unit-III

Characteristics of Indian agriculture and its development since independence; Agricultural region of India; Major industrial regions of India; domestic and international trade patterns; Transportation network.

Unit-IV

Evolution of administrative map of India since independence; Disputes of river water sharing amongst states with reference to SYL; Inter -linking of rivers; Terrorism problems of internal security; Population explosion and food security.

Note:

The question paper shall consist of five units. First four units of question paper shall contain two questions from each unit. Candidate is required to attempt on e question from each unit. Unit five shall be compulsory and shall contain eight short type questions covering the entire syllabus. All questions carry equal marks.

Recommender Readings:

1. Spare, O.H.K. and A.T.A. learmonth: Geography of India and Pakistan, Methuen London (first Indian Edition, 1984, Munshiram Manoharlal, New Delhi) 1967.
2. Gautam A: Advanced Geography of India, Sharda Pustak bhawan, allahabad, 2009.

3. Sharma, T.C. and Coutinho, O: *Economical and commercial Geography of India*, Vikas publishing house Pvt. Ltd. New Delhi, 1988.
4. Chandna, R.C.: *Geography of Population*, Kalyani Publishers, 1998.
5. Tirtha, Ranji: *Emerging India*, Conpub. Ann Arbor, U.S.A. Michigan, 2006.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22D4 - GEOGRAPHY OF RURAL SETTLEMENTS

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 Marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Have knowledge about the historical development, patterns, types and functional systems of rural settlements.
- CO2:** Know about the morphology of rural settlements.
- CO3:** Understand the factors and rural settlement planning in India.

Unit-I

Definition, Nature and Scope of Rural Settlement Geography; Trends in Rural Settlement Geography with special reference to India; Approaches to Rural Settlement Geography

Unit-II

Culture-Historical Perspective; Archaeological finds and settlements - Mesopotamia, the Nile valley, the Indus valley; Historical Development of Rural Settlements (based on major cultural periods) in India. Analysis of Place Names and environments.

Unit-III

Morphology of Rural Settlements in India: Religio-Ritual Model, Secular-Dominance Model; Types and Patterns of Rural Settlements in India and Causes of Diverse Types of Rural Settlements.

Unit-IV

Functions of Rural Settlements; Rural service centers; their nature and hierarchy; Basics of Rural Settlement Planning; Rural Settlement Planning of India.

Note:

The question paper will have five units. Each of the first four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Alam, S. M. et. al. (1982), **Settlement System of India**, Oxford and IBH Publication Co. New Delhi.
2. Chisholm, M. (1967), **Rural Settlements and Land Use**, John Wiley, New York.

3. Clout, H.D. (1977) **Rural Geography of Settlements**, Mac Donald & Evans, New York.
4. Hudson, F.S. (1976), **A Geography of Settlements**, Mac Donald & Evans, New York.
5. Mandal, R.B. (1988), **System to Rural Settlements in Developed Countries**, Concept Publication, New Delhi.
6. Mandal, R.B. (2001), **Introduction to Rural Settlements**, Concept Publication, New Delhi.
7. Misra, H.N. (1987) **Rural Geography**, Vol. IX, Contributions to Indian Geography, Heritage Publishers, New Delhi.
8. Singh, R.L. and K.N. eds. (1975), **Readings in Rural Settlements Geography**, NGSI, Varanasi
9. Singh, R.L. (1976), **Geographic Dimensions of Rural Settlements**, NGSI, Varanasi
10. Singh, R.Y. (1994), **Settlements**, NGSI, Varanasi. 11. Singh, R.Y. (2005), **Adhiwas Bhugol**, (in Hindi) Rawat Publication, New Delhi.
11. Wanmali, S. (1983), **Service Centres in Rural India**, B.R. Publication, New Delhi.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22D5 - SOIL GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Enhance their knowledge about the soils, its properties, development and degradation.
- CO2:** Understand the management and conservation of soil resource with reference to India.
- CO3:** Understand the linkages between soil, environment and biomes along with its importance.

Students will be familiarized and enhance their knowledge about the soils, its properties, development and degradation. They will understand the management and conservation of soil resource with reference to India along with its importance.

Unit - I

Soil Geography: meaning, nature, and scope; its relationship with Pedology. Soil forming factors: parent material, organic, climatic, topographic, and time; Soil components: inorganic materials, organic matter, soil air, and soil water.

Unit - II

Processes of soil formation and soil development: physical, biotic and chemical. Soil Profile and its development; Pedogenic Regimes: podsolization, laterization, calcification and salinization.

Unit - III

Physical properties of soils: morphology, texture, structure, water, air, temperature and other properties of soil; Chemical properties of soil and soil reaction; Genetic classification of soils; Taxonomic classification of soils: zonal, azonal and intra-zonal soils, their characteristics. Spatial distribution of Indian soils.

Unit - IV

Evaluation of land and soil: Parametric and non parametric systems, Land capability classification, Soil survey and Mapping, field study of soil profile and their characteristics; Soil erosion, degradation, and conservation with special reference to India.

Note:

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Backman, H.O and Brady, N.C. (1960): The Nature and Properties of Soils, McMillan, New York.
2. Basile, R.M. (1971): A Geography of Soils, William C. Brown, Dubuque, Ia.
3. Bennet, Hugh H.: Soil Conservation, McGraw Hill, New York.
4. Bunting, B.T. (1973): The Geography of Soils, Hutchinson, London.
5. Clarke G.R. (1957): Study of the Soil in the Field, Oxford University Press, Oxford.
6. De N.K. and Ghosh, P.(1993): India:A Study in Soil Geography, Sribhumi Publishing Co., Calcutta.
7. Foth H.D. and Turk, L.M. (1972): Fundamentals of Soil Science, John Wiley, New York.
8. Govinda Rajan, S.V. and Gopala Rao, H.G. (1978): Studies on Soils of India Vikas, New Delhi.
9. James S. Gardiner (1977), Physical Geography, Harper's College Press, New York.
10. McBride, M.B. (1999): Environmental Chemistry of Soils, Oxford University Press, New York.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22CL1 - PRACTICAL: DIGITAL CARTOGRAPHY

Credit: 03 (0+0+3)
End Semester Exam: 50
Lab Record: 30
Lab Test: 10
Viva-Voce: 10
Time: 4hrs

Course Outcomes:

Students would be able to:

CO1: Have knowledge about computer aided cartography.

CO2: Prepare good quality maps.

CO3: Take up career in the field of digital cartography.

Unit I

Introduction to Softwares

Basic introduction to GIS softwares; (QGIS, ArcGIS, etc.), Raster (grid format) and vector (point, line and polygon) data models.

Unit II

Mapping and Map Essentials

Dot, Choropleth and Isopleths mapping; Proportional circles, and bar diagrams in a map. Map elements- title, legend, lat. long, scale, direction, source, name of projection and layout creation.

Note:

The question paper shall contain six questions in all containing three questions from each unit. Candidates are required to attempt three questions in all selecting at least one question from each unit. All questions carry equal marks.

Recommended Readings:

1. Robinsin, A., Morrison, J.L., Muehrcke, P.C. and Guptil, S.C. (2002) Elements of Cartography, John Willey.
2. Taylor, D.R.F. (1985) Education and Training in Contemporary Cartography, John Willey.
3. Jil D., Charles W., Mohsen, M. (2016) Cartographic Grounds: Projecting the Landscape Imaginary, Princeton Press, New York
4. Cynthia, A.B. (2005) Designing Better Maps-A Guide for GIS Users, ESRI Press, New York.
5. Walford, N. (1995): Geographical Data Analysis, John Wiley & Sons, New York.
6. Nag, P. et al (1992): Thematic Cartography and Remote Sensing, Concept Publishing Co., New Delhi.

M.A. Geography GEO2 Semester-II
Session 2016-17 onwards
16GEO22CL2 - PRACTICAL: MORPHOMETRIC ANALYSIS

Credit: 03 (0+0+3)
End Semester Exam: 50
Lab Record: 30
Lab Test: 10
Viva-Voce: 10
Time: 4hrs

Course Outcomes:

Students would be able to:

CO1: Learn the morphometric techniques.

CO2: Know the types & significance of morphometry.

CO3: Understand the usefulness of morphometric techniques in the case of a drainage basin.

Unit - I

Morphometric Analysis of Drainage Basin- Types and its Geographical Significance, **Linear Aspects:** Stream Ordering Based on Horton and Strahler, **Areal Aspects:** Stream Frequency and Drainage Density. (04 Exercises)

Unit- II

Relief Aspects: Hypsometric Curve and Integral Hypsometric Curve, Clinographic Curve, **Slope Analysis-** Average Slope (Wentworth's method), Relative Relief (Smith's method), **Profile Analysis** -Longitudinal profile. (06 Exercises)

Note:

The question paper shall contain six questions in all, including three questions from each unit. Candidate(s) are required to attempt three questions in all selecting at least one question from each unit. All questions carry equal marks.

Recommended Readings:

1. Monkhouse, F.J. and H.R. Wilkinson (1980), **Maps and Diagrams**, B.I. Publications, Bombay.
2. Singh, R.L. (1979), **Elements of Practical Geography**, Kalyani Publishers, New Delhi.
3. Singh, S. (1997), **Geomorphology**, Prayag Pustak Bhawan, Allahabad.

M.A. Geography – GEO2 Semester-III
Session 2017-18 onwards
17GEO23C1 - REMOTE SENSING AND GIS

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Know about various aspects of aerial photogrammetry.
- CO2:** Familiarize and enhance their knowledge about the Remote Sensing and GIS technology.
- CO3:** Understand the technology along with application value in the Earth observation.

Unit - I

Photogrammetry: History and development, Definition and meaning; Aerial photographs-types, characteristics and Geometry, methods of determining scale; Ground coverage and overlapping; stereoscopes and stereoscopic vision; Photomosaics-types and uses; Elements of image interpretation.

Unit - II

Remote Sensing technique- Meaning, basic principles/concepts, Remote sensing system and relevance in Geography; Electromagnetic radiations (EMR); Electromagnetic spectrum; interaction of EMR with atmosphere and Earth's surface features; Spectral reflectance; Remote sensing data; Basic principles of thermal and microwave remote sensing.

Unit - III

Remote sensing platforms- types and characteristics; Satellite orbits- Near polar and Geostationary orbits; Sensors- types, specifications and resolutions; Various artificial satellites series; Remote sensing applications in land use/land cover, urban, water resources and environment studies; Remote sensing set up and programmes in India.

Unit - IV

Geographic Information System (GIS) – Meaning and Basic concepts; Components of GIS; Functions in GIS - data input, storage, maintenance, manipulation, analysis and output; GIS data - spatial and non spatial data; Data formats - raster and vector; Data sources; Integration of Remote Sensing and GIS; Applications of GIS in Geographical studies.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Chanrda, A.M. and S.K. Ghosh (2006) **Remote Sensing and Geographical Information System**, Narosa Publishing House, New Delhi.
2. Chang, Kang-tsung (2002) **Introduction to Geographic Information Systems**, Tata McGraw Hills Publishing Company Ltd, New Delhi.
3. Chaunial, D.D. (2016) **Principles of Remote Sensing and Geographical Information System** (In Hindi), Sharda Pustak Bhawan, Allahabad.
4. Joseph, George (2003) **Fundamental of Remote Sensing**, University's Press (India) Pvt. Ltd., Hyderabad.
5. Lillesand, T.M. and Ralph W. Keifer (2002) **Remote Sensing and Image Interpretation**, John Wiley & Sons, Inc., New York.
6. Panda, B.C., (2005) **Remote Sensing: Principles and Applications**, Viva Books Pvt. Ltd., New Delhi.
7. Reddy, Anji, M. (2001) **Textbook of Remote Sensing and Geographical Information Systems**, BSP B.S. Publications, Hyderabad.
8. Siddique, M.A. (2006) **Introduction to Geographical Information Systems**, Sharda Pustak Bhawan, Allahabad.
9. Singh Surendra and A.N. Patel (1999) **Principles of Remote Sensing**, Scientific Publishers (India)

M.A. Geography - GEO2 Semester-III
Session 2017-18 onwards
17GEO23C2 - GEOGRAPHY OF TRANSPORT

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

CO1: Understand geographic relevance of transportation.

CO2: Familiarize about various models and theories related to transport network.

CO3: Know about structural analysis of transport network.

Unit - I

Nature and Scope of Transport Geography, Geographic Relevance of Transportation, Transport and Development: Conceptual Frameworks; Theoretical Framework, Models of Global Relevance; (i) The Vance Model, (ii) The Rimmer Model, and (iii) The Taaffe, Morrill and Gould Model.

Unit - II

The Modes of Transport: Introduction to Modes of Transport, Modal Characteristics of Roads, Railways, Ropeways and Cableways and Airways.

Unit – III

Structural Analysis of Transport Networks: Networks, Networks Graphs and Types; Measures of Individual Elements of Transportation Networks: Mileage Matrix, Nodality Matrix, Weighted Mileage Matrix, Weighted Nodality Matrix, Gross accessibility; Connectivity of Networks: Cyclomatic Number, Diameter, Alpha, Beta, Gamma, Eta, Pie, Theta and Iota indices.

Unit- IV

Development of Road Transport in Haryana: Growth and Development of Roads in Haryana, Types of Roads, Levels of Road Transport in Haryana, Levels of Road Connectivity in Haryana, Problems of Road Transport in Haryana.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Bamford, C.G. and Robinson, H. (1978), **Geography of Transport**, Macdonald and Evans, London.
2. Bhaduri S. (1992), **Transport and Regional Development**, Concept Publishing Company, New Delhi.
3. Eliot Hurst, M.E. (1972), **A Geography of Economic Behaviour: An Introduction**, Duxbury Press, California.
4. Hammond, R. and Mc Cullagh, P.S. (1989), **Quantitative Techniques in Geography; An Introduction**, Clarendon Press, Oxford.
5. Hoyle, Band and Knowles, R. (2000), **Modern Transport Geography**, John Wiley and Sons, New York.
6. Mangat, H.S. and Gill, Lakhvir Singh. (2015), Haryana: Levels of Road Transportation, **Punjab Geographer**, Vol. 11, October, Punchkula, pp.87-102.
7. Raza, M. and Aggarwal, Y.P. (1985), **Transport Geography of India**, **Concept Publishing** Company, New Delhi.
8. Saxena, H.M. (2010), **Transport Geography**, Rawat Publications, New Delhi.
9. Subodh Rani and Chamar, K.V. (2016), Levels of Road Connectivity in Haryana, **Punjab Geographer**, Vol. 12, October, Punchkula.
10. Taaffe, E.J. and Gauthier, H.L. (1973) **Geography of Transportation**, Prentice Hall Englewood Cliff, New Jersey.
11. Vaidya, B.C. (1998), **Reading's in Transport Geography**, Devika Publications, Delhi.

M.A. Geography – GEO Semester-III
Session 2017-18 onwards
17GEO23D1- BIOGEOGRAPHY

Credit: 04 (3+1 +0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total : 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

CO1: Know about various aspects of living organisms, their relationship with climate and physical environment.

CO2: Familiarize with interface between biology, ecology and geography.

CO3: Familiarize with converging and forming our biosphere.

Unit-I

Biogeography - The Development, field, functions of Biogeography; Biosphere - definition, nature, scope and composition.

Unit-II

Biogeochemical cycles- the hydrological cycle, the carbon cycle, and the oxygen cycle, the nitrogen cycle, the phosphorous cycle and the sediment cycle.

Unit-III

Ecosystem - Meaning, types, components and functioning of ecosystem; Evolution of living organism and factors influencing their distribution on the earth.

Unit-IV

Biomes- Meaning and types; Bio-geographical realms: Zoogeography and Zoogeographical realms.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Aggarwal, S.K. 1992. **Fundamental of Ecology**. New Delhi: Ashish Pub. House.
2. Brown, J.H. and Lomolino, M.V. 1998. **Biogeography**. 2nd edn. Massachusetts: Sinauer Associates, Inc.

3. Cox, C.B., Moore, P.D., Biogeography. 2010. **An Ecological and Evolutionary Approach**. 5th ed., Cambridge: Blackwell.
4. Johnathan B. Losos, Robert E. Ricklefs eds. 2010. **The Theory of Island Biogeography Revisited**. New Jersey: Princeton University Press.
5. Illic, J. 1974. **Introduction to Zoogeography**, McMillan, London.
6. MacDonald, Glen. 2002. **Biogeography: Introduction to Space, Time and Life**. New York: John Wiley.
7. Mathur, H.S. 1998. **Essentials of Biogeography**. Jaipur: Anuj Printers.
8. Richard John Huggett. 2004. **Fundamentals of Biogeography**. New York: Taylor and Francis.
9. Robert H., MacArthur and Edward O. Wilson. 1967. **The Theory of Island Biogeography** New Jersey: , Princeton University Press.
10. Robinson, H. 1982. **Biogeography**. London: The English Language Book Society and Macdonald and Evans.
11. Spellerberg, Ian F. and John, W.D. Sawyer. 1999. **An Introduction to Applied Biogeography**. Cambridge: Cambridge University Press.
12. Singh, Savindra. 2014. **Biogeography**. Allahabad: Pravalika Publications.

M.A. Geography GEO2 Semester-III

Session 2017-18 onwards

17GEO23D2 - POLITICAL GEOGRAPHY

Credit: 04 (3+1+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Learn key concepts like state, nation and nationalism.

CO2: Understand the changing nature of modern state, challenges it is facing.

CO3: Know the linkages of space and politics at the local level.

UNIT-I

Nature and scope of Political Geography; Perspectives: Political-Economy, World Systems, Place, and Globalisation.

UNIT-II

Concepts of Nation, State, Nation-State; Emergence and growth of territorial state; Globalization and the Crisis of the Territorial State; Forms of Governance: Unitary and Federal.

UNIT-III

Rise and Demise of German Geopolitics; Geopolitics in the post Cold War World— S.B. Cohen's model of Geo-strategic and Geo-political regions.

UNIT-IV

India as a regional power in South Asia; National and Regional political parties in India; Women as a marginalized section in Indian politics; Inter-state water disputes in India (special reference to SYL canal).

Note : The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Agnew, J.A. (1987), *Place and Politics*, Boston: Allen and Unwin.
2. Agnew, J.A. (1998), *Geopolitics*, London: Routledge.
3. Blacksell, Mark (2003), *Political Geography*, London: Routledge.
4. Flint, Collin and Taylor, P.J. (2011), *Political Geography*, New Delhi: Pearson.

5. Cox, Kevin R. (2008), *The Sage Handbook of Political Geograph*, New Delhi: Sage.
6. Dicken, Peter (2003), *Global Shift*, New Delhi: Sage.
7. Dikshit, R.D. (2000), *Political Geography: The Spatiality of Politics*, New Delhi: Tata McGraw Hill.
8. Dodds, Klaus (2007), *Geopolitics*, New York: Oxford University Press.
9. Gallaher, Carolyn et.al. (2009), *Key Concepts in Political Geography*, New Delhi: Sage.
10. Jones, Martin, Rhys Jones and Michael Woods (2003), *An Introduction to Political Geography*, London: Routledge.
11. Khor, Martin (2001), *Rethinking Globalization*, London: Zed Books.
12. Nash, Kate (2000), *Readings in Contemporary Political Sociology*, Oxford: Blackwell.
13. Painter, J. (1995), *Politics, Geography and Political Geography*, London: Arnold.

MA Geography GEO2 Semester-III
Session 2017-18 onwards
17GEO23D3 - SOCIAL GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Understand the development of society and different social groups in India.
- CO2:** Know the theoretical, philosophical and conceptual base of social geography.
- CO3:** Understand the basic concepts of society in geographical perspectives.

Unit - I

Social Geography: Nature, meaning & Development of Social Geography; Philosophical bases of Social Geography: Positivism, Humanism and Feminism.

Unit - II

Towards a social geography of India; Concept of Social differentiation, socio cultural regions of India, Socio-Cultural Regions of India; Linguistic Elements in India. Caste System in India.

Unit - III

Social Well-being : Concepts of social well being, Human Development Index. Human Development in India. Factors of social change.

Unit - IV

Gender Issues of social Well Being: Female Literacy, family Planning, Women Health. Sex Ratio, Women Empowerment. Women Employment.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Ahmad, Aijazuddin (1999) **Social Geography**, Rawat: New Delhi.
2. Dreze, Jean and Amartya Sen (1996) **Economic Development and Social Opportunity**, New Delhi: Oxford University, Press.
3. Gregory, D and Larry (eds) **Social Relations and Spatial Structures**, Oxford: Macmillan

MA Geography – GEO2 Semester-III
Session 2017-18 onwards
17GEO23D4 – HYDROLOGY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

CO1: Make better understanding about different physical aspects of water as a natural resource.

CO2: Understand different state of water occurrence.

CO3: Have better understanding of water distribution and circulation.

Unit – I

Introduction to hydrologic science: History of hydrology; Hydrology as a science; Basic hydrologic concepts: Physical quantities and laws; hydrologic systems;

Unit-II

Drainage Basin-Characteristics of drainage basin: size of the Basin, Shape of the basin, compactness ratio, form factor, type and arrangement of stream channels.

Unit – III

Precipitation-Process; Types, Forms. Mean Areal Depth of precipitation: Arithmetic average method, Thiessen polygon method and Isohyetal method; Intensity of rainfall.

Unit –IV

Evaporation-Actual evaporation, Potential evaporation; Estimation of actual and potential evaporation; Thornthwaite's book-keeping method of climatic water balance. Runoff-Factor affecting runoff.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Davie, T. (2008) Fundamentals of Hydrology, Routledge, London.
2. Manning, J.C. (1997) Applied Principles of Hydrology, Prentice Hall, New Jersey.
3. Digman, L.S. (2002) Physical Hydrology, Prentice Hall, New Jersey.
4. Raghunath, H.M. (1990) Hydrology, Wiley Eastern Limited, New Delhi.
5. Garg, S.K. (1988) Hydrology and Water Resources Engineering, Khanna Publishers.

MA Geography – GEO2 Semester-III
Session 2017-18 onwards
17GEO23D5 - OCEANOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Understand the dynamics of ocean physiography.
CO2: Know about ocean-human interface including weather, climate, navigation, security and resource utilisation.
CO3: Have knowledge of oceans as a resource in times to come.

Unit-I

Definition and scope of oceanography, major sea voyages, oceanography and other sciences; distribution pattern of land and sea, origin of ocean basins: Wegner's drift hypothesis, and sea floor spreading and Plate Tectonics.

Unit-II

Depth of ocean, ocean floor profile-continental shelf, slope, ridge and deeps, abyssal plains; submarine canyons; coral reefs-origin and distribution; ocean deposits; configuration of ocean floors of Indian Ocean and Atlantic Ocean.

Unit-III

Temperature of oceans; salinity in oceans; density of oceans; dynamics of ocean currents; currents of Atlantic, Pacific and Indian Ocean; tides and origin; Tsunami.

Unit-IV

Ocean currents and their impact on climate and economy; oceans as source of food, mineral and energy resources;; sea-level changes; evidences, mechanism and impact; maritime laws.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Denny, M., 2008, *How the Ocean works: An introduction to Oceanography*, Princeton University Press, New Jersey.
2. Garrison, T., 1995, *Essentials of Oceanography* Wardsworth Pub. Co., London.
3. S. Kerhsaw., 2004, *Oceanography: An Earth Science Perspective*, Routledge, UK.

4. Sharma, R.C. and V. Vatal., 1986, *Oceanography for Geographers*, Chatanaya Publishing, Allahabad.
5. Shepart, F., 1969, *The Earth Beneath the Sea*, Athneum, Rev. ed., New York.
6. Singh, Savindra., *Oceanography*, 2014, Pravalika Publications, Allahabad.
7. Thurman, V. Harold., 1987, *Essentials of Oceanography*, A Bell & Howell Company, Columbus/ Toronto/ Sydney.
8. Von Arx, W.S., 1962, *An Introduction to Physical Oceanography*, Addison, Wesley, New York.

M.A. Geography - GEO2 Semester-III
Session 2017-18 onwards
17GEO23CL1 - PRACTICAL: FIELD WORK

Credit: 03 (0+0+3)
Distribution of Marks
Lab Work Test: 20
Record on Lab/Field Work: 15
Viva Voce: 15
Total Marks: 50
Time: 4 hrs.

Course Outcomes:

Students would be able to:

CO1: Understand the basic socio-economic characteristics of the chosen area

CO2: Understand the field methods/techniques to do research work.

CO3: Build the capability of writing a report.

Unit-I

Field Work in Geographical studies- Role, Value and Ethics; Field techniques- Merits and Demerits; Source of Data- Primary and Secondary; Collection of data: methods of primary data collection- Observation method, interview method, through questionnaire, through schedule and other methods; Questionnaire and Schedule; Processing and analysis of data.

Unit-II

Field Work and Report writing: Identification of research problem; data collection through field visit; Preparing research design- aims and objectives, methodology, analysis, interpretation and writing of report.

Note-1:

1. The students shall conduct physical/socio-economic survey in the area as decided by the department under the supervision of a faculty member (s) of the department.
2. A group of 15 students will prepare a report based on primary and secondary data collected during field work.
3. The duration of the field work should not exceed ten days.
4. One copy of the report on A-4 size paper should be submitted in soft binding.

Note-2:

1. The question paper of Lab work test shall contain three questions in all. Candidate(s) are required to attempt two questions in all. All questions carry equal marks.

Recommended Readings:

1. Ahuja, Ram (2003), Social Survey and Research (Hindi version), Rawat Publications, Jaipur.
2. Basotia, G. R. and Sharma, K. K. (2002), Research Methodology, Mangal Deep Publications, Jaipur.
3. Creswell J. (1994), Research Design: Qualitative and Quantitative Approaches, Sage Publications.
4. Dikshit, R. D. (2003), The Art and Science of Geography: Integrated Readings, Prentice- Hall of India, New Delhi.
5. Evans M. (1988), "Participant Observation: The Researcher as Research Tool" in Qualitative Methods in Human Geography, eds. J. Eyles and D. Smith, Polity.
6. Gideon Sjoberg and Roger Nett (1992), A Methodology for Social Research, RawatPublications,Jaipur.
7. Mukherjee, Neela (1993), Participatory Rural Appraisal: Methodology and Application. Concept Publs. Co., New Delhi.
8. Mukherjee, Neela (2002), Participatory Learning and Action: with 100 Field Methods. Concept Publs. Co., New Delhi.
9. Robinson A. (1998), "Thinking Straight and Writing That Way", in Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
10. Special Issue on "Doing Fieldwork" The Geographical Review 91:1-2 (2001).
11. Stoddard R. H. (1982), Field Techniques and Research Methods in Geography, Kendall/Hunt.
12. Wolcott, H. (1995), The Art of Fieldwork, Alta Mira Press, Walnut Creek, CA.

M.A. Geography – GEO2 Semester-III
Session 2017-18 onwards
17GEO23CL2 - PRACTICAL-GIS

Credit: 03 (0+0+3)
Time: 4 Hours
Max. Marks: 50
Distribution of marks:
Lab work test: 30
Record on lab work: 10
Viva Voce: 10

Course Outcomes:

Students would be able to:

- CO1:** Know the basics of Geographic Information System.
- CO2:** Use geographic information in a systematic manner by the creation and updation of maps.
- CO3:** Understand the representation of earth surface features with the help of maps by GIS techniques.

Exercises will be taken on following topics:

1. Introduction to digital environment i.e. file creation and management
2. Introduction to GIS software
3. Shape file creation of point, line and polygon
4. Digitization
5. Map layout : title, legend, direction, scale, coordinate information
6. Map preparation of point, linear and areal features(atleast two exercises on each)
7. Map editing
8. Area calculation
9. Buffer analysis
10. Overlay analysis

Note:

The question paper shall contain six questions in all. Candidate(s) are required to attempt three questions in all. All questions carry equal marks.

Recommended Readings:

1. Chang, Kang-tsung., 2010, *Introduction to Geographic Information Systems*, Tata McGraw- Hill Education Private Limited, New Delhi.
2. Fazal, Shahab, 2008, *GIS Basics*, New Age International Publishers, New Delhi.
3. Heywood, Ian et. Al., 2002, *Geographical Information Systems* (Second edition), Pearson Education, Delhi.

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24C1 - GEOGRAPHICAL THOUGHT

Credit: 04 (3+1 +0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total : 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Acquaint with the philosophy, methodology and historical development of geography as a professional field.
- CO2:** Address the spirit and purpose of the changing geographies and to what we as geographers contribute towards knowledge production.
- CO3:** 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.

Unit-I

Development of Geographical Knowledge: classification of knowledge; place of geography in the classification of knowledge. Relationship of geography with other natural and social sciences; subject matter of geography. Pre-scientific geographical ideas and emergence of scientific geography; influence of Kant.

Unit-II

Classical Period of Modern Geography: Humboldt and Ritter; legacy of Humboldt and Ritter. Dualisms and dichotomies: physical and human, systematic and regional, and general and particular. Unification of Geography- Richthofen and Hettner. Social Origins of Environmental Determinism. Possibilism, Regional concept, Vidal de la Blache.

Unit-III

Modern Geography since 1950s: Quantitative revolution and positivism; locational analysis. Reactions to scientific positivism and development of 'human centred theories; Behavioural, humanistic and radical approaches.

Unit-IV

Beginnings of Contemporary Geography: Structuralism and structuration; post-structural and post-colonial critique; Feminist and gender geography; the post-modern perspectives in geography; geography, neoliberalism and globalisation.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

(Note: Only essential books are mentioned below. Articles and other additional references would be provided in the class. Students are required to consult the following periodicals also: a) Professional Geographer; b) Annals of the Association of American Geography; c) Progress in Human Geography, d) Progress in Physical Geography; e) Antipode)

1. Dickinson, R.E. 1969. **Makers of Modern Geography**. London: Routledge and Kegan Paul.
2. Dickinson, R.E. 1976. **The Regional Concept**. London: Routledge and Kegan Paul.
3. Gosal, Gurdev Singh. 2015. **History of Geographic Thought**. Chandigarh: Panjab University.
4. Gregory, D. 1978. **Ideology, Science and Human Geography**. London: Hutchinson.
5. Gregory Ken J. 2000. **The Changing Nature of Physical Geography**. New York: Oxford University Press.
6. Hartshorne, R. 1939. **The Nature of Geography**. Lancaster, P.A.: Association of American Geography (Indian reprint: Rawat Publications).
7. Hartshorne, R. 1959. **Perspective on the Nature of Geography**. Chicago: Rand McNally.
8. Holt-Jensen, A. 2009. **Geography: History and Concepts- A Student's Guide**. London: Sage. (3rd edition)
9. Inkpen [Robert](#) & [Graham Wilson](#) 2013. **Science, Philosophy and Physical Geography**. 2nd edn. London:Routledge.
10. James, P.E. 1972. **All Possible Worlds: A History of Geographical Ideas**. Indianapolis: Odyssey Press. (Latest Edition 2005 is authored by Geoffrey J Martin).
11. James, P.E & Jones, C.F. 1954. **American Geography: Inventory and Prospects**. Syracuse: Syracuse Univ. Press & New York: John Wiley.
12. Johnston, R.J. 2005. **Geography & Geographers: Anglo-American Human Geography since 1945**. London: Arnold
13. Johnston, Ron J. et al. 2000. **Dictionary of Human Geography**. Oxford: Blackwell.
14. Nayak, A & Alex Jeffrey. 2011. **Geographical Thought**. Essex: Pearson.
15. Peet, R. 1978. **Radical Geography**. London: Methuen.
16. Peet, R. 1998. **Modern Geographical Thought**. London: Blackwell.
17. Stoddart, D.R. 1981. **Geography, Science and Social Concern**. Oxford: Blackwell.

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24C2 - RESEARCH METHODOLOGY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Formulate research questions

CO2: Understand advantages and disadvantages of quantitative and qualitative approaches.

CO3: Write a research proposal.

Unit-I

Meaning and Purpose of Research? Types of Research; Social Science Research; Identification of Research Question and Literature Surveying; Methods and Methodology in Human Geography

Unit-II

Scientific Method in Human Geography; Analytical Steps of the Scientific Method; The Routes of Scientific Explanation: Deductive and Inductive forms of reference; Explanation in Geography: Some Problems

Unit-III

From Quantitative to Qualitative Geography; Qualitative Data Production: Interviews (Process of Interviewing, Structure interviews and informal surveys; Depth Interviewing and Working with Groups); Observation (Participant Observation and Ethnography).

Unit-IV

Process of Research Report Writing; Reference styles (Harvard, Chicago), Ethics in Research.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Dey, Ian (1993), *Qualitative Data Analysis*, London: Routledge.
2. Eyles, John and David M. Smith (1988), *Qualitative Methods in Human Geography*, Oxford: Polity Press.
3. Harvey, David (1969), *Explanation in Geography*, London: Edward Arnold.
4. Hubbard, Phil et.al. (2002), *Thinking Geographically*, London: Continuum.

5. Hoggart, Keith et.al. (2002), *Researching Human Geography*, London: Arnold.
6. Johnston, R.J. and J.D. Sidaway (2004), *Geography and Geographers*, London: Arnold.
7. Kitchin, Rob and Nicholas J. Tate (2000), *Conducting Research in Human Geography*, London: Prentice Hall.
8. Krishan, Gopal and Nina Singh (2016), *Researching Geography: The Indian Context*, New Delhi: Routledge India.
9. Limb, Melanie and Claire Dwyer (2001), *Qualitative Methodologies for Geographers*, London: Arnold.
10. Robinson, Guy M. (1998), *Methods and Techniques in Human Geography*, New York: John Wiley.
11. Seale, Clive (ed.) (2008), *Social Research Methods*, London: Routledge (Indian Edition).
12. Somekh, Bridget and Cathy Lewin (eds.) (2005), *Research Methods in the Social Sciences*, New Delhi: Vistaar Publications.

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24DA1 - WATER RESOURCE AND MANAGEMENT

Credit: 04 (3+1+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Learn some strategies of water resource management.

CO2: Have awareness about various important factors relating to water.

CO3: Know water management strategies.

Unit – I

Water as a focus of geographical interest; Hydrological cycle; factors affecting water resources- physical factors, climatic factors, geological factors.

Unit – II

Groundwater and its occurrence - consolidated formation, semi-consolidated formation and unconsolidated formation.

Unit – III

Utilization of water resources; problems of groundwater utilization- groundwater quality, groundwater salinity, waterlogging and groundwater depletion.

Unit – IV

Surface and groundwater pollution; water scarcity; water resource management- definition, functions and strategies.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering the entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Andrew A. Dzurik, (2002) **Water Resources Planning**, Rowman & Littlefield Publishers, Inc., Savage, Maryland.
2. Chorley, R.J. (1979) **Water, Earth and Man**, Methuen, London.
3. Daniel P. Loucks and E.V. Beek, (2005) **Water Resources Systems Planning and Management: An introduction to Methods, Models and Applications**, UNESCO Publishing.
4. Jeet, Inder, (2005) **Groundwater Resources of India- Occurrence, Utilization and Management**, Mittal Publication, New Delhi.

5. Neil S. Grigg, (1996) **Water Resources Management**, McGraw-Hill Book Co., New York.
6. S.L. Dingman, (2002) **Physical Hydrology**, Prentice-Hall Inc., New Jersey.
7. T.V. Cech, (2005) **Principles of Water Resources: History, Development, Management and Policy**, John Wiley & Sons, Hoboken.

M.A. Geography Semester-IV
Session 2017-18 onwards
17GEO24DA2 - GEOGRAPHY OF TOURISM

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Understand the basic concepts of tourism.
- CO2:** Know regional dimensions of tourism in India.
- CO3:** Have close insight to tourism in our own country.

Unit -I

Geography of Tourism: Definition, nature and scope; Motivating factors of tourism; Robinson's classification of motivating factors of tourism.

Unit-II

Tourism: Product and typology; Infrastructure and support system of tourism: Accommodation and supplementary accommodation; Agencies and intermediaries.

Unit-III

Impact of tourism: Physical, economic and social, perceptual positive and negative impacts; Tourism paradigms: Ethnic and cultural tourism, heritage tourism, sustainable tourism and eco-tourism.

Unit- IV

Regional dimensions of tourism in India: Himalayan region, Northern Plains and The Thar Desert, Deccan plateau, Coastal Plains and the islands.

Note: The question paper shall have five units. Each of the four units of question paper shall contain two questions from each unit of the syllabus. Candidates are required to attempt one question from each unit. Unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Robinson H.A., *Geography of Tourism*, Macdonald and Evans, London, 1996.
2. Williams Stephen, *Tourism Geography; Contemporary Human Geography*, Routledge, London, 1998.
3. Kamra K.K. and Mohinder Chand , *Basics of Tourism: Theory, Operation and Practice*, Kanishka, New Delhi, 2007

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24DA3 - RURAL GEOGRAPHY

Credit: 04(03+01+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 mark
Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Know about rural geography.

CO2: Enhance the knowledge about infrastructure, various types of houses and their building materials.

CO3: Be aware about developmental issues in rural India.

UNIT-I

Nature and scope of rural geography; **Infrastructure in rural India:** Irrigation, Electrification, and Roads.

Unit-II

Rural House Types : House Types based on Building Materials, Size and Shape as basis for classification, House Types based on Socio-Economic Status, Regional Patterns of Houses in India.

Unit-III

Issues of Rural Development in India: Land Reforms, Agricultural land-use, Distribution of Landholdings, Rural Poverty, Rural Unemployment.

Unit-IV

Untouchability and Dalits in Rural India: Some Theoretical Explanations, Anti Untouchability Movements: A Historical Overview; Scheduled Castes in Rural India, Patterns of Female Work Participation of Scheduled Castes, Women Empowerment in Rural India.

Note: The question will have five units. Each of the first four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Alam, S.M. et. al. (1982) Settlement System of India, Oxford and IBH Publication Co., New Delhi.
2. Chisholm, M. (1967) Rural Settlements and Land Use, John Wiley, New York.
3. Clout, H.D. (1977) Rural Settlements and Land Use, John Willy, New York.

4. Hudson, F.S. (1976) A Geography of Settlements, Mac Donald & Evans, New York.
5. Mandal. R.B. (1988) Systems of Rural Settlements in Developing Countries, Concept Publication, New Delhi.
6. Mandal, R.B. (2001) Introduction to Rural Settlements, Concept Publication, New Delhi.
7. Misra, H.N. (1987) Rural Geography, Vol. IX, Contributions to Indian Geography, Heritage Publishers, New Delhi.
8. Misra, S.K. and Puri, V.K. (2009) Indian Economy, Himalaya Publishing House, New delhi.
9. Rai, S. (2005) Kurukshetra, Ank. 12, October, Gramin Vikas Mantralaya, New Delhi.
10. Shah, G. Thorat S. et.al. (2006) Untouchability in Rural India, Sage Publication, New Delhi.
11. Singh, R.L. and K.N. Singh eds. (1975) Readings in Rural Settlements Geograpghy, NGSI, Varanasi.
12. Singh, R.L. (1976) Geographic Dimensions of Rural Settlements,NGSI, Varanasi.
13. Singh, R.Y. (1994) Geography of Settlements, Rawat Publication, New Delhi.
14. Singh, R.Y. (2005) Adhiwas Bhugol, (in Hindi) Rawat Publication, New Delhi.

M.A. Geography Semester-IV
Session 2017-18 onwards
17GEO24DB1 - POPULATION GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Know about spatial distribution of population with causative factors.
- CO2:** Learn with various theories and concepts related with population.
- CO3:** Understand the distribution, dynamics of population distribution, its problems and management.

Unit-I

Population Geography: Definition, nature and scope; relationship with other disciplines –demography and population studies; sources of data with particular reference to India – census, vital or civil registration system, Sample Registration System, Sample surveys with particular reference to NSSO and NFHS; Problems of their reliability and comparability.

Unit-II

Population Distribution and Growth: Factors affecting population distribution; Population growth - trends and determinants; spatial dimension of population growth in India; Theories of population growth – pre-Malthusian views, Malthus' Theory, views of socialist writers, optimum population theory, demographic transition model.

Unit-III

Components of population change: trends and patterns in fertility and mortality levels; Theories of fertility; Migration: major international migrations; features of internal migration in India; theories of migration; population composition and characteristics - age and sex composition, literacy, marital status and economic characteristics of population.

Unit-IV

Population and development: population growth and economic development; population growth and environmental quality; population control movement: population policies and its types; India's Population Policy: Post independence development – Reproductive and Child Health Programme.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Beaujen- Garnier J (1966) **Geography of Population**; Longman, London.
2. Bhende Asha A and Kanitkar (2002) **Principles of Population Studies**, 14th Edition, Himalaya Publishing House, Mumbai.
3. Chandana, R.C. (2002) **Geography of Population: Concepts, determination and patterns**, Kalyani Publishers, New Delhi.
4. Clarke, J.I. (1992) **Population Geography**, Second Edition, Pergamon Press, Oxford England.
5. Hassan, M.I. (2005) **Population Geography**, Rawat Publication, Jaipur.
6. Premi, M.K. (1991) **India's Population Heading Towards a Billion**, B.R. Publishing Corporation, New Delhi.

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24DB2 - NATURAL HAZARDS AND DISASTER MANAGEMENT

Credit: 04 (3+1+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Understand basic concepts of natural hazards and disaster management.

CO2: Know the techniques of management of disasters.

CO3: Know the disaster management setup of India.

Unit- I

Concept of Hazards, Risk, Vulnerability and Disaster. Types of Hazards: Natural (Tectonic Hazards – Earthquakes and Volcanoes; Hydrological Hazards – Floods and Droughts).

Unit- II

Regional Dimension of Natural Hazards: Occurrence and Trends. (Tectonic Hazards – Earthquakes and Volcanoes; Hydrological Hazards – Floods and Droughts).

Unit- III

Disaster Losses and Impact – Displacements, Livelihood. Economy and Infrastructure, and Health.

Unit -IV

Mitigation and Management: Plans and Policies. Role of Remote Sensing, GIS and GPS in Disaster Management.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended 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., Cannon, T., Davis, I., (et al.), (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 Hazards*, 2nd edition, Guilford Press, New York.
5. Hewitt, K., (1997): *Regions of Risk" A Geographical Introduction to Disasters*, Longman, London.
6. Hood, C. and Jones, D.K.C. (eds.), (1996): *Accident and Design: Contemporary debates in Risk Management*, UCL Press, London.
7. Kasperson, J.X., Kasperson, R.E. and turner, B.L., (1995): *Regions at Risk: Comparisons of Threatened Environments*, United Nation University Press, Tokyo.
8. Mitchell, J.K., (ed.) (1999): *Crucibles of Hazard: Mega-Cities and Disasters in Transition*, United Nations University Press, New York.
9. Schneider, S.K., (1995): *Flirting with Disaster: Public Management in Crisis Situations*, M.E.Sharpe, New York.
10. Quarantelli, E.L. (ed.) (1998): *What is a Disaster? Perspective on the Question*, Routledge, London.
11. Schneid, T. and Collins, L. (1998): *Disaster Management and Preparedness*, Lewis Publishers, Washington, D.C.
12. Godschalk, D.R. (et.al.) (1999): *Natural Hazard Mitigation Recasting Disaster Policy and Planning*, Island Press, Washington, D.C.
13. Smith, Keith (1996): *Environmental Hazards; Assessing Risk and Reducing Disaster*, Routledge, London and New York.
14. Paraswamam, S. and Umikrishnan, P.V. (2000): *India Disaster Report*, Oxford University Press, New Delhi

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24DB3 - AGRICULTURAL GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Have an understanding of agricultural geography as a developed branch of geography.
- CO2:** Learn major concepts, factors affecting agricultural land use, agricultural system of the world and the emerging scenario in agriculture.
- CO3:** Know the agricultural systems of the world and about agricultural models. They would gain an insight into the world trade in agriculture and address the question of sustainable agriculture.

Unit-I

Definition, nature, scope, and significance of agricultural geography; approaches to the study of agriculture in geography-commodity, deterministic, systematic, and regional.

Unit-II

Factors influencing agricultural patterns-Physical factors; terrain, climate, soils and water resources; institutional factors; demographic, land holding, farm family structure, caste, religion, peasant way of life, infrastructural services; technological factors, irrigation, mechanical inputs.

Unit-III

Agricultural system of the world: Whittlessey's classification- shifting cultivation, plantation farming, Mediterranean agriculture, commercial grain farming; agricultural region-concept and techniques; Normative technique, empirical technique, single element technique and statistical technique.

Unit-IV

Nature, significance and classification of agricultural models; economic and descriptive models; food security; sustainable agriculture; WTO and Agriculture.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Alexander, J.W. 1968. **Economic Geography**. New Jersey: Prentice Hall.
2. Grigg, D.B. 1978. **The Agricultural Systems of the World: An Evolutionary Approach**. Cambridge: Cambridge University Press.
3. Hussain M. 1997. **Systematic Agricultural Geography**. Jaipur: Rawat Publications.
4. Ilbery, B. W. 1985. **Agricultural Geography**. Oxford: Oxford University Press.
5. Morgan, B.W. and Munton, J.C. 1971. **Agricultural Geography**. London: Methuen.
6. Shafi, M. 2006. **Agricultural Geography**. New Delhi: Pearson Education.
7. Singh, Jasbir. 2003. **Agricultural Geography**. 3rd edn. New Delhi: Oxford.
8. Singh, Jasbir. and S.S. Dhillon. 1984. **Agricultural Geography**. New Delhi: Tata McGraw Hill.

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24CL1 - PRACTICAL: AERIAL PHOTOGRAPHS AND ITS
INTERPRETATION

Credit: 03(0+0+3)
Distribution of Marks
Lab Work Test: 30
Record on Lab/Field Work: 10
Total Marks: 50
Time: 4 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Learn air photo interpretation techniques.
- CO2:** Understand the usefulness of air photo interpretation techniques in geography.
- CO3:** Enhance the knowledge about the applications of aerial photographs in various fields of geography.

Exercises will be taken on following topics:

1. Aerial Photographs-Types and Characteristics;
2. Elements of Air Photo Interpretation;
3. Stereo Vision Test, Orientation of stereo model under Mirror Stereoscope; Determination of scale on an aerial photograph;
4. Measurement of height of an object on single vertical aerial photograph;
5. Parallax bar measurement and height determination;
6. Preparation of Index map;
7. Preparation of stereogram, stereotriplet and mosaic from aerial photographs;
8. Interpretation of Aerial photographs - Identification, mapping and interpretation of Natural and Cultural features (at least three exercises);
9. Land use/Land cover studies on aerial photographs;
10. Urban studies on aerial photographs-Change detection, Residential area study

Note: The question paper shall contain six questions in all. Candidate(s) are required to attempt any three questions. All questions carry equal marks.

Recommended Readings:

1. Chauniyal, D.D. (2016), *Principles of Remote Sensing and Geographical Information System* (Hindi version), Sharda Pustak Bhawan, Allahabad.
2. Lillesand, T.M. and Kiefer, R.W. (2002), *Remote Sensing and Image Interpretation*, John Wiley and Sons, New York.
3. Rampal, K.K. (1999), *Handbook of Aerial Photography and Interpretation*, Concept Publishing Co., New Delhi.
4. Sabins, F.F. (1986), *Remote Sensing-Principles and Interpretation*, Second Edition, WH Freeman and Co., New York.
5. Sharma, J.P. (1996), *Prayogic Bhoogol*, Rastogi Publications, Meerut.
6. Wolf, Paul.R.(1983), *Elements of Photogrammetry*, 2nd ed., McGraw-Hill, New York, 1983.

M.A. Geography GEO2 Semester-IV
Session 2017-18 Onwards
17GEO24CL2 - PRACTICAL- SATELLITE IMAGES AND ITS
INTERPRETATION

Credit: 03(0+0+3)
Distribution of Marks
Lab Work Test: 30
Record on Lab Work: 10
Viva-Voce: 10
Total Marks: 50
Time: 4 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Understand the different kinds of satellite image interpretation.
- CO2:** Create information about earth surface features from variety of satellite images.
- CO3:** Know the mapping of information from satellite images.

Exercises will be taken on following topics:

1. Kinds of satellite images
2. Study of a satellite image - annotation (IRS - IB, IRS- IC etc.)
3. Visual interpretation of a satellite image.
4. Separating physical and cultural features on an image.
5. Identification of objects on panchromatic, true colour and FCC images and their comparison.
6. Identification and mapping of landuse/land cover on satellite images.
7. Study of thermal image and interpretation of various features.
8. Study of Radar image and interpretation of various features
9. Acquisition of open source satellite data from USGS / GLOVIS.
10. Acquisition of open source satellite data from BHUVAN (ISRO).

Note:

The question paper shall contain six questions in all. Candidate(s) are required to attempt any three questions. All questions carry equal marks.

Recommended Readings:

1. Avery, T.E., and G.L. Berlin,1992, *Fundamentals of Remote Sensing and Airphoto*
2. *Interpretation*, 5th ed.,Macmillan, New York.
3. Lillesand, T.M. and Kiefer, R.W. ,2002, *Remote Sensing and Image Interpretation*, John
4. Wiley and Sons, New York.
5. Sabins, F. F.,Jr., 1997, *Remote Sensing: Principles and Interpretation*,3rd ed., W.H. Freeman, New York.
6. Star,J. L.,J.E.Estes,andK.C.McGwire,1997,*Integration of GIS and Remote Sensing*, Cambridge University Press.