

Department of Geography, M. D. University, Rohtak

Course outline/Structure and scheme of examination of M.A. Geography four semesters course 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.

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					
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 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 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.

Learning Objectives:

The objectives of this course are to introduce the concepts in Geomorphology in adequate manner, many facets of surface relief features and to understand various aspects of their growth and evolution on the Earth.

Learning Outcomes:

The course will provide an understanding of the conceptual and dynamic aspects of landform development. Students will also learn the relevance of applied aspects of Geomorphology in various fields.

Unit-I

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.
_____ (1998), **Geomorphology**, Prayag Pustak Bhawan, Allahabad.
5. Strahler, A.N. and Strahler, A.H.(1996), **Introducing Physical Geography**, John Willey and Sons, New York.
6. Strahler, A .N. (1988), **Earth Sciences**, Harper and Row Publishers, N.D.
7. 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 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.

Learning Objectives

The atmosphere and climate are a critical part of the earth system, and climatic variability and change are central to the issue of current and future global environmental change. The broad objective of the course is to introduce to the students the fundamentals of atmospheric phenomena, global climate systems and climate change.

Learning Outcomes

On successful completion of this course, students should be able to understand the mean global atmospheric circulations and disturbances, world climate systems, climatic variability and change.

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- EI 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 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.

Learning Objectives:

It is an introductory course of resource geography which is aimed at providing knowledge about the concepts of resources, classification, models of natural resource processes, their use and misuse, conservation and management of resources for sustainable development.

Learning Outcomes:

Students will become sensitized to concept and classification of resources, use or misuse and will learn conservation methods and techniques.

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. McMillan 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 Semester-I Session 2016-17 onward
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.

Learning Objectives:

Statistical methods are applied in geography in order to make precise and unambiguous statements. These are used to describe and explain various geographical patterns and relationships.

Learning Outcomes:

Keeping in view the nature of data and purpose of study, students would be able to make a rational choice amongst listed various statistical methods. .

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, Pergamon, 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 Patrick 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 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

Learning Objectives

To develop the skill of map interpretation through identification of physical and cultural features using conventional signs.

Learning Outcomes

Students should be able to understand the importance and uses of maps and the relationship and juxtaposition of features therein.

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. **Prayogtmak Bhugol**, Allahabad: Central Book Depot.

M.A. Geography 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

Learning Objectives:

It is a major technical course for the students to improve their abilities of using different kind of data and related statistical diagrams and graphs. The course aims to guide students to grasp the use of computer in Geography.

Learning Outcomes:

Successful completion of this course will provide the students learning outcomes like an ability to analyse, classify and prepare data for drawing statistical 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 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.

Learning Objectives:

This course offers an introduction to the ways in which economic activities are organized over the earth's surface. We all are witnessed to rapidly increasing integration of state economies. The economic processes operating at different geographical scales are depending on the complex economic-political-social interactions that are framed at the global level. The course explores the processes of globalization and seeks to provide understanding of today's increasingly interdependent world.

Learning Outcomes:

Students would be able to understand how in an increasingly globalized world, economic activities occur unevenly over geographical space; how local places and global economy are intertwined, and how 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 Strohmayer (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 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

Learning Objectives

Regional Development and planning are the core areas of geographical inquiry. Decentralised planning has a profound role in managing the evolved situation.

Learning Outcomes

The student will get familiarised with the theoretical foundations and conceptual grounding of this branch; understand and evaluate the concept of region in geography and its role and relevance in regional planning; and to comprehend 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 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.

Learning Objectives:

The basic objectives of the course are to apprise the students about our environment, to understand its interrelationship with man and his linkages with other organisms, which varies in different biomes. Also, to sensitise the students with the Environmental problems and degradations.

Learning Outcomes:

The Students will learn the importance of conserving biodiversity to maintain ecological balance as well as national and international concerns on various environmental issues.

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-vision 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) :ParyavaranBhugool (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 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.

Learning Objectives

What is urban geography these days? Cities have become the centre of social, political, and economic activities that now govern the lives of the majority of human kind. There are new geographical patterns forming within and between cities. They serve both as the cores of, and means for connecting, events taking place on the local, regional, national, and international levels, with all these tiers spatially interacting.

Learning Outcomes

It will help students gain a better understanding of the the process of urbanization and origin, growth of urban settlements with various theoretical viewpoints in the literature explaining them. They would be able to understand the key aspects of cities and get an indication of the breadth of material that can be covered when examining cities. Students will also 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 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

Learning Objectives

Cultural Geography is an important area of geography. It helps to understand the culture and its development as well as differences in various cultures of the world.

Learning Outcomes

The student will keep up to date with the theoretical aspects and conceptual base of this branch; understand and evaluate the concept of culture in geography and its role and relevance in society; The student will be able to 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:

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

M.A. Geography 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.

Learning Objectives

To describe various geographical aspects of land, people and economy of Indian sub continent.

Learning Outcomes

The students will appreciate the relevance of geographical know ledge of India to understand the contemporary issues.

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 question 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 Arbour, U.S.A. Michigan, 2006.

M.A. Geography 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.

Learning Objectives

The objective of the paper is to give to the students the basic ideas about the rural settlements, historical development during ancient, medieval and modern times, morphology of rural settlements, functions and rural settlement planning in India.

Learning Outcomes

The present paper shall enhance the knowledge of students about the historical development, patterns, types and functional systems of rural settlements.

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.
12. Wanmali, S. (1983), **Service Centres in Rural India**, B.R. Publication, New Delhi.

M.A. Geography 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

Learning Objectives

The aim of this course is to apprise the students to various aspects of soil which being one of the important element of the Earth, supports the life system.

Learning Outcomes

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 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

Learning Objectives

Modern science and technology have made tremendous progress in all possible fields. Geospatial technology has been emerged a new spatial information technology. Digital Cartography is a newly emerged field in Geospatial Technology. The main objective of the course is to impart adequate professional knowledge and computer skills so as to enable the students to take up career in the field of Geospatial Technology.

Learning Outcome

After the completion of the semester students will be able to understand and prepare maps.

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 Semester-II Session 2016-17 onwards

16GEO22CL2 PRACTICAL: MORPHOMETRIC ANALYSIS

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

Learning Objectives:

The course will provide opportunity to the students learn morphometric techniques in general and in the case of a drainage basin in particular.

Learning Outcomes:

Students would be able to 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.

MA Geography Semester-II Session 2016-17 onwards
FOUNDATION COURSE: 16GEOF1
GEOGRAPHY IN EVERYDAY LIFE

Credit: 02 (2+0+0)
End Semester Exam: 40 marks
Internal Assessment: 10 marks
Total: 50 marks Time: 3 hrs.

Learning Objectives

With spatial turn in the other social sciences and humanities and cultural turn in geography the spatial structure has begun to be seen not merely as an arena in which social life unfolds but rather as a medium through which social relations are produced and reproduced. All this has strengthened geography as a multidisciplinary and interdisciplinary discipline. Geography deepens understanding of many contemporary issues and challenges - climate change, food security, energy choices – that cannot be understood without a geographical perspective. It serves vital educational goals: thinking and decision making with geography helps us to live our lives as knowledgeable citizens, aware of our own local communities in a global setting. What we need is a global sense of the local, a global sense of place.

Learning Outcome

On completion of the course a student should be able to understand how geography permeates each and every aspect that concerns our living on this earth. They would know how Geography can use its versatility and multi-factor approach, co-existence between physical and human aspects, construction of ideas around space which are politically and administratively relevant, to its best advantage.

Unit I

Geography and Environment; Geography and Social Sciences; Geography and Development; Geography and Planning

Unit II

Geography and Governance; Geography and Globalization; Geography and Disasters; Geography and Cartography

Note: (i) The question paper will have three units. First two units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt two questions in all selecting one from each unit. Unit III shall be compulsory and shall contain five short answer type questions covering entire syllabus in which candidates will be required to attempt any five out of eight questions. All questions carry equal marks.

(ii) Internal Assessment of 10 marks will be 'Map Filling' about the location of important places, landforms, and geographical features in India and the world. The unit three shall be compulsory and shall contain five short answer type questions covering entire syllabus.

Recommended Readings

1. Daniels, Peter, Michael Bradshaw, Denis Shaw, and James Sidaway. 2012. An Introduction to Human Geography. 4th edition. Pearson Education Ltd. Harlow, England.
2. Herod, Andrew. 2009. Human Geography: the basics, Routledge, New York.
3. Hopper, Paul. 2012. Understanding Development: Issues and Debates, Polity Press. Cambridge, UK,.
4. Kant, Surya and Nina Singh ed. 2015. Geography Development Public Policy: Select Essays of Gopal Krishan. RK Books, New Delhi.
5. Kapur, Anu. 2010. Vulnerable India, Sage Publications, New Delhi.
6. Knox, Paul. 2014. Atlas of Cities. Princeton University Press.
7. Oxford Atlas of the World. 2015. 22nd edition. Oxford University Press.

M.A. Geography Semester-II Session 2016-17 onwards

Open Elective: 16GEOO1 BASICS OF GEOINFORMATICS

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

Learning Objectives

This course is designed to give students an exposure to basics of geospatial technologies. It offers to learn the techniques of generation and management of earth surface information. An inter and multi disciplinary approach has been used to make subject interesting and useful for students. Latest technology of GPS is included to understand use of modern day navigation and surveying.

Learning Outcomes

Students will be able to learn the use of latest geospatial technology. It will help them to understand the spatial phenomena in a better manner with availability of real time and accurate information. These technologies being modern and interdisciplinary in nature will enable the students to apply this knowledge in various fields of life.

Unit – I

Aerial Photography

Aerial photography: history and development, advantages and limitations; Classifications of aerial photographs; Geometry of an aerial photograph; Scale of an aerial photograph; Availability and procurement of aerial photographs in India; Aerial photograph vs map.

Unit – II

Remote Sensing.

Introduction to Remote Sensing; electromagnetic radiation; stages of remote sensing; energy interactions in atmosphere; energy interactions with earth surface features and spectral signatures. Remote Sensing applications in land use/land cover, urban, environment, forest and disaster studies.

Unit – III

Remote Sensing

Remote Sensing platforms: airborne and space borne; satellite orbits: geostationary and near polar; Image data characteristics: resolutions- spatial, spectral, radiometric and temporal; Sensors and their types; Satellite missions of ISRO .

Unit – IV

GIS and GPS

Geographic Information System (GIS): definition and applications; GIS and remote sensing integration; components and elements of GIS; representation of earth surface features in GIS; introduction to Global Positioning System; GPS satellites constellations; GPS segments; Applications of GPS.

Note (i): Open Elective to be chosen from the basket of Open Electives (OEs) provided by the University.

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

Recommended Readings:

1. [Paul Wolf](#), [Bon DeWitt](#), and [Benjamin Wilkinson](#). Elements of Photogrammetry with Application in GIS. USA: Mc-Graw Hill Education.2014.
2. Avery, T.E., and G.L. Berlin. Fundamentals of Remote Sensing and Airphoto Interpretation, Macmillan, New York.1992.
3. Campbell, J.B. Introduction to Remote Sensing, Guilford, New York.1996.
4. Curran, Paul J. Principles of Remote Sensing, Longman, London & New York. 1985.
5. Joseph, G. Fundamentals of Remote Sensing, Universities Press Hyderabad. 2005.
6. Lillisand, T.M. and P. W. Kiefer. Remote Sensing and Image Interpretation, New York. John Wiley & Sons.1986.
7. Burrough, P.A. and McDonnell, R.A. Principles of Geographic Information System. Oxford: Oxford University Press. 1998.
8. Chang, Kang-tsung. Introduction to Geographic Information Systems. New Delhi: Tata McGraw-Hill.2006.
9. Doberstein, Dan. Fundamentals of GPS Receivers: A Hardware Approach. New York: Springer

MA GEOGRAPHY SEMESTER-II SESSION 2016-17 ONWARDS

Open Elective 16GEOO2 GEOGRAPHY OF INDIA: SYSTEMATIC AND REGIONAL

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

Learning Objectives

History, geography and culture have comprised to make India into a major force in South Asia. The course provides an insight into different aspects of India's regional vitality towards unity, stability and progress.

Learning Outcomes

The student will get familiarised with the geographic dimensions of India in terms of its political and administrative characteristics; aspects of its regional vitality; and formation of regions.

Unit-I

India: a historical-geographical expression; Size, location, and boundaries; Physical environment; Historical setting.

Unit-II

Unity in diversity of India: Unifying mechanism and divisive streaks; Evolution of the administrative map of India since Independence.

Unit-III

Regional vitality of India; multiculturalism in India; the Indian diaspora; India's cultural landscape.

Unit -IV

Regionalisation schemes of India: Physiographic (S.P. Chatterjee); Climatic (Koeppen and Trewartha); Agricultural (Jasbir Singh and C.B. Mamoria); and Industrial (B.N. Sinha).

Note (i): Open Elective to be chosen from the basket of Open Electives (OEs) provided by the University.

(ii) 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 Publication, New Delhi.
2. Chandna, R.C. 2002. *Geography of Population*. 5th edn. Kalyani Publishers, Delhi.
3. Deshpande, C.D. 1992. *India: A Regional Interpretation*, ICSSR and Northern Book Center, New Delhi.
4. Hussain, M. 2014. *Geography of India*. 5th edn. McGraw Hill Education, New Delhi.

5. Singh, Jagdish. 2003. *India: A Comprehensive Systematic Geography*. Gyanodya Prakashan, Gorakhpur.
6. Spate O.H.K. & A.T.A. Learmonth. 1967. *Geography of India and Pakistan*, Methuen, London.
7. Sukhwai, B. L. 1971. *India: A Political Geography*. Allied Publishers, New Delhi.
8. Tirtha, Ranjit. 2000. *Emerging India*. Rawat Publications, Jaipur.
9. Tiwari, R.C. 1999. *Geography of India*. Prayag Publishers, Allahabad.
10. Wadia, D. N. 1953. *Geology of India*. Macmillan & Co., London.

M.A. Geography 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

Learning Objectives:

The aim of this course is to apprise the students to various aspects of Aerial photographs, Remote Sensing and GIS which are the important elements of the Geospatial technology.

Learning Outcomes:

Students will be familiarized and enhance their knowledge about the Remote Sensing and GIS technology. They will understand the technology along with application value as well as its importance 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 Semester-III Session 2017-18 onwards

17GEO23C2: GEOGRAPHY OF TRANSPORT

Credit: 04(03+01+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs.

Learning Objectives

The objective of the course is to appraise the students about the geographic relevance of transportation, various models of global relevance, modal characteristics of modes, structural analysis of transport network (accessibility and connectivity), and development of Road Transport in Haryana

Learning Outcome: Students shall learn about the significance of transport in multifaceted development, various models and theories related to transport network, accessibility and connectivity and policy interventions.

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 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

Learning Objectives

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

Learning Outcomes: Students will get familiarized with interface between biology, ecology and geography 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, 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. Illics, 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 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.

Learning Objectives:

This course is designed to provide students (i) an understanding of the theoretical concepts of political geography; (ii) to have a familiarity with the most current topics in political geography

Learning Outcomes:

Students would be able to understand key concepts like state, nation, nationalism; understand the changing nature of modern state, challenges it is facing; the linkages of space and politics in terms of geopolitics and some of the issues of concern 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 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

Learning Objectives:

Social Geography is an important aspect to understand the development of society and different social groups in India.

Learning Outcomes:

The student will make better known with the theoretical, philosophical and conceptual base of this branch; understand and evaluate the concept of society in geography. It improves a student as a good human being in India.

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 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

Learning Objectives:

Hydrology is the science that deals with all aspects of the water available on the earth. It includes study of occurrence of water, its properties, its distribution and circulation and also its effects on the living beings and their surroundings

Learning Outcomes :

At the end of the semester students will different physical aspects of water as a natural resource.

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 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.

Learning Objectives:

The course on oceanography will discuss the physiography of ocean floors and dynamics of ocean water. It will also provide an understanding about ocean-human interface including weather, climate, navigation, security and resource utilisation.

Learning Outcomes:

Student will be able to understand the dynamics of ocean physiography and water movement. It will help them to have an understanding of relevance 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:

Denny, M., 2008, *How the Ocean works : An introduction to Oceanography*, Princeton University Press, New Jersey.

Garrison, T., 1995, *Essentials of Oceanography* Wardsworth Pub. Co., London.

S. Kerhsaw., 2004, *Oceanography : An Earth Science Perspective*, Routledge, UK.

Sharma, R.C. and V. Vatal., 1986, *Oceanography for Geographers*, Chatanaya Publishing, Allahabad.

Shepart, F., 1969, *The Earth Beneath the Sea*, Athneum, Rev. ed., New York.

Singh, Savindra., *Oceanography*, 2014, Pravalika Publications, Allahabad.

Thurman, V. Harold., 1987, *Essentials of Oceanography*, A Bell & Howell Company, Columbus/ Toronto/ Sydney.

Von Arx, W.S., 1962, *An Introduction to Physical Oceanography*, Addison, Wesley, New York.

M.A. Geography 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.

Learning Objectives:

The Objective of the course is to provide an opportunity to the students with the understanding of ground reality of a specific chosen Geographical area by observation, and learn field survey techniques.

Learning Outcomes:

Students would be able to understand the basic socio-economic characteristics of the chosen area through the field methods/ techniques and build the capability of writing a report.

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.

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:

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, Rawat Publications, 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 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

Learning Objectives:

The course on GIS will discuss the basics of Geographic Information System. It will give students an exposure on how to use geographic information in a systematic manner by the creation and updation of maps which is an essential part of any geographic study.

Learning Outcomes:

Student will be able to 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.
Heywood, Ian et. Al., 2002, *Geographical Information Systems* (Second edition), Pearson Education, Delhi.

M.A. Geography Semester-III Session 2017-18 Onwards

17GEOO1: INTRODUCTION TO GEOGRAPHY

Credit: 03 (2+1+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs.

Learning Objectives:

The course on **Introduction to Geography** will discuss the basic concepts in geography. It is specifically designed to give an exposure of geographical concepts to students other than formal students of geography.

Learning Outcomes:

Student will be able to understand the geographical concepts which are relevant in day to day life.

Unit-I

Solar system , solar and lunar eclipse; Earth- shape, movements, formation of day/nights and seasons ; location-latitude-longitude, longitude and time zones.

Unit-II

Interior of earth; vulcanism and earthquakes; plate tectonics; weathering and erosion; brief introduction to major landforms.

Unit-III

Weather and climate: factors affecting and distribution; composition and structure of atmosphere; atmospheric pressure and global winds; introduction to Monsoon.

Unit-IV

Relief of oceans; oceanic salinity; circulation of oceanic water; currents of Atlantic, Pacific and Indian Oceans.

Note (i): Open Elective to be chosen from the basket of Open Electives (OEs) provided by the University.

(ii) 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:

Leong, Goh Cheng.,2015, *Certificate Physical and Human Geography*, Oxford University Press, New Delhi.

Getis [Arthur and Bjelland Mark and Getis Victoria.](#), 2014,*Introduction to Geography*, McGraw Hill Education.

Singh, Savinder., 2006, *Physical Geography*, Pravalika Publications, Allahabad.

Strahler Alan and Strahler Aurthur., 2005, *Introducing Physical Geography*, John Wiley & Sons, Inc.

M.A. Geography Semester-III Session 2017-18 onwards

17GEO02: SOURCES OF GEOGRAPHICAL DATA

Credit: 03(2+1+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs.

Learning Objectives:

The objective of the course is to apprise the students about the various sources of geographical data and its importance in the field of geography.

Learning Outcomes:

Students shall learn about the significance of geographical data, various sources related to physical and cultural environments, households, population, assets, facilities, building materials and policy interventions.

Unit - I

Nature and Main Sources of Geographical Data: Place Names, Census of India, Field Studies.

Unit - II

Place Names (Based on Physical and Cultural Environments).

Census of India: Primary Census Abstract: (Number of Households, Population, Sex, 0-6 Years Population, Scheduled Castes and Scheduled Tribes Population, Literate, Workers, Main Workers, Marginal Workers (Cultivators, Agricultural Labourers, HHI, Other Workers and Non -Workers and Non- Workers in respect of Total, Rural and Urban Population).

Unit-III

Census of India: Household Data: Condition of Household, Availing Banking Services, Availability of various Assets, Pre- dominant materials of Roof, Wall and Floor, Sources of Drinking Water and Location, Lighting, Availability of Latrine Facility, Types of fuel for Cooking.

Unit-IV

Census of India: Village Directory (Area. Population, Availability of Educational, Medical, Postal, Drinking Water, Communication Facilities, Land Use Pattern.

Note (i): Open Elective to be chosen from the basket of Open Electives (OEs) provided by the University.

(ii) 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:

Census of India (2011): Instruction Manual for House Listing and Housing Census, Ministry of Home Affairs, Government of India, New Delhi.

Census of India (2011): Primary Census Abstract, India, CD, New Delhi.

Census of India (2011): Village Directory, District Census, CD, New Delhi.

M.A. Geography 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

Learning Objectives:

Main objectives of this course are to acquaint the students with the philosophy, methodology and historical development of geography as a professional field. The idea is to address the spirit and purpose of the changing geographies and to what we as geographers contribute towards knowledge production. The course aims at developing critical thinking and analytical approaches.

Learning Outcomes:

This should enable the student to critically look at the contents of other courses at Postgraduate level as logically integrated with the broad currents of thought the subject has witnessed in the distant and recent past.

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

M.A. Geography 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.

Learning Objectives:

This course introduces the skills for conducting human geography research. In this course students will explore various steps for doing research. Skills to be learned include how to conceptualize, design and edit the research problem.

Learning Outcomes:

Students would be able to formulate research questions; understand advantages and disadvantages of quantitative and qualitative approaches, and 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 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.

Learning Objectives:

Water scarcity is a global problem in the present century. Therefore knowledge of this natural resource is essential to meet the future demands. The present paper will make the students aware about the various problems relating to water resources.

Learning Outcomes:

At the end of the semester they will learn some strategies of water resource management.

Unit –I

Water as a focus of geographical interest; Hydrological cycle; factor 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 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(03+01+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs.

Learning Objectives:

Introduction to elementary theoretical basics of tourism and presenting the most remarkable regions of tourism in India are the main objectives of learning.

Learning Outcomes:

Knowledge of the basic concepts of tourism and regional dimensions of tourism in India shall be main learning outcomes. Through the syllabus the students can have a closer 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*, Rout ledge, London, 1998.
3. Kamra K.K. and Mohinder Chand , *Basics of Tourism: Theory, Operation and Practice*, Kanishka, New Delhi, 2007

M.A. Geography 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.

Learning Objectives:

The objective of the paper is to give to the students the basic ideas about the rural geography, infrastructure, building materials, house types, issues related to rural development, anti untouchability movements and women empowerment in rural India.

Learning Outcomes:

The present paper shall enhance the knowledge of students about the infrastructure, various types of building materials used, development issues, and untouchability and Dalits 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.

Learning Objectives:

This course introduces the spatial distribution of population with causative factors. It also deals with various theories and concepts related with population. Study of population is an essential component in planning of various human related issues.

Learning Outcomes:

Students would be able to understand the distribution and dynamics of population distribution and 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 Coporation, New Delhi.

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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.

Learning Objectives:

This course introduces the basic concepts of natural hazards and disaster management. It emphasizes the management of disasters. Special focus has been laid on use of latest geospatial technologies in disaster management.

Learning Outcomes:

Students would be able to learn about hazards and their management.

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 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.

Learning Objectives :

The course should fully acquaint the students with the understanding of agricultural geography as a developed branch of geography.

Learning Outcomes:

The students should be made to learn major concepts, factors affecting agricultural land use, agricultural system of the world and the emerging scenario in 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 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
Viva-Voce: 10
Total Marks: 50
Time: 4 hrs.

Learning Objectives:

The course will provide opportunity to the students to learn air photo interpretation techniques and its application aspects for the study of various fields of geography.

Learning Outcomes:

Students would be able to understand the usefulness of air photo interpretation techniques in 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 Publicatoins, Meerut.
6. Wolf, Paul.R.(1983), *Elements of Photogrammetry*, 2nd ed., McGraw-Hill, New York, 1983.

M.A. Geography 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.

Learning Objectives:

This course will discuss the basics of satellite image interpretation. With the development in space technology there is a variety of satellite images. But there is lack of skilled people who can understand and interpret these images. This course will give students an exposure on how to interpret a satellite image with hands on experience.

Learning Outcomes:

Student will be able to understand and interpret variety of satellite images and they can create information about earth surface features.

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:

Avery, T.E., and G.L. Berlin,1992, *Fundamentals of Remote Sensing and Airphoto Interpretation*, 5th ed.,Macmillan, New York.

Lillesand, T.M. and Kiefer, R.W. ,2002, *Remote Sensing and Image Interpretation*, John Wiley and Sons, New York.

Sabins, F. F,Jr., 1997, *Remote Sensing: Principles and Interpretation*,3rd ed., W.H. Freeman, New York.

Star,J.L.,J.E.Estes,andK.C.McGwire,1997,*Integration of GIS and Remote Sensing*, Cambridge University Press.