CH. RANBIR SINGH UNIVERSITY, JIND

Department of Geography

Scheme of Examinations for M. Sc. in Geography w.e.f. 2016-17

Semester-I

Paper No.	Title	Max. Marks	Internal Assessment	Time
GEOG-101	Climatology	80	20	3 Hours
GEOG-102	Geography of India	80	20	3 Hours
GEOG-103	Economic Geography	80	20	3 Hours
GEOG-104	Statistical Methods in Geography	80	20	3 Hours
GEOG-105	Cartographic Method in Geography (Practical)	80	20	3 Hours

Semester-II

GEOG-201	Geomorphology	80	20	3 Hours
GEOG-202	Population Geography	80	20	3 Hours
GEOG-203	Regional Development and Planning (with special reference to India)	80	20	3 Hours
GEOG-204	Agricultural Geography	80	20	3 Hours
GEOG-205	Interpretation of Topo-Sheets and Morphometric Analysis (Practical)	80	20	3 Hours

Semester III

Paper No.	Title	Max Marks	Internal Assessment	Time
GEOG-301	Geography and Ecosystem	80	20	3 Hrs.
GEOG-302 (A)	Field Methods in Geography (Socio-economic) (Theory)	40	10	3 Hrs.
GEOG-302 (B)	Project Report Based on Field Survey	40	10	3 Hrs.
GEOG-303(i)	Urban Geography	80	20	3 Hrs.
GEOG-303(ii)	Geography of Wellbeing (with special reference to India)	80	20	3 Hrs.
GEOG-303(iii)	Fluvial Geomorphology	80	20	3 Hrs.
GEOG-303(iv)	Historical Geography (with special reference to India)	80	20	3 Hrs.
GEOG-303 (v)	Geography of Transport	80	20	3 Hrs.
GEOG-304 (i)	Political Geography	80	20	3 Hrs.
GEOG-304 (ii)	Geography of Rural Settlement	80	20	3 Hrs.
GEOG-304 (iii)	Soil Geography	80	20	3 Hrs.
GEOG-304 (iv)	Geography and Disaster Management	80	20	3 Hrs.
GEOG-304 (v)	Biogeography	80	20	3 Hrs.
GEOG-305 (A)	Introduction to Remote Sensing (Theory)	40	10	3 Hrs.
GEOG-306 (B)	Introduction to Remote Sensing (Practical)	40	10	3 Hrs.

Note: Paper 303 and 304 are optional from which students have to choose one paper each.

Semester IV

Paper No.	Title	Max Marks	Internal Assessment	Time
GEOG-401	Geographical Thought	80	20	3 Hrs.
GEOG-402	Hydrology and Oceanography	80	20	3 Hrs.
GEOG-403(i)	Regional Geography of India (with special reference to Haryana)	80	20	3 Hrs.
GEOG-403 (ii)	Natural Resource Management	80	20	3 Hrs.
GEOG-403 (iii)	Social Geography (with special reference to India)	80	20	3 Hrs.
GEOG-403(iv)	Coastal Geomorphology	80	20	3 Hrs.
GEOG-403 (v)	Tropical Climatology	80	20	3 Hrs.
GEOG-404 (i)	Gender Geography	80	20	3 Hrs.
GEOG-404 (ii)	Geography of Tourism (with special reference to India)	80	20	3 Hrs.
GEOG-404 (iii)	Cultural Geography	80	20	3 Hrs.
GEOG-404 (iv)	Geography of Water Resources	80	20	3 Hrs.
GEOG-404 (v)	Urbanization in India	80	20	3 Hrs.
GEOG-405 (A)	Fundamental of Geographical Information Systems (Theory)	40	10	3 Hrs.
GEOG-405 (B)	Fundamental of Geographical Information Systems (Practical)	40	10	3 Hrs.

Note: Paper 403 and 404 are optional from which students have to choose one paper each.

GEOG-101

Climatology

Max. Marks :80
Time: 3Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Definition of weather and climate; Climatology and Meteorology.
2. Origin, composition and structure of atmosphere.
3. Solar radiation, heat budget and temperature distribution.

UNIT-II

4. Atmospheric pressure and its distribution pattern..
5. General circulation and planetary winds, Walker circulation- ENSO and La Nina, origin of monsoons and jet streams.
6. Atmospheric Moisture : humidity, evaporation, condensation.

UNIT-III

7. Precipitation : Dynamics and types of precipitation.
8. Stability and instability of atmosphere, air masses and fronts.
9. Weather systems : Extra tropical and tropical cyclones.

UNIT-IV

10. Climatic classification: Bases of climatic classification by Koeppen, Trewartha and Thornthwaite.
11. Climatic change- Evidences and explanations.
12. Global warming and its impacts.

Suggested Readings:

1. Trewartha G. T., An Introduction to Climate, McGraw Hill Company, New York, 1980.
2. Chritehfield, H J, General Climatology, Printice Hall of India, New Delhi, 1987.
3. Barry R. G. and Chorley, R. J, Atmosphere, Weather and Climate, Marthren , 1968.
4. Lal, DS, Climatology, Chetanya Publishing House, Allahabad, 1966
5. Das, PK, The Monsoons, National Book Trust, New Delhi, 1984
6. Ramasastry, AA, Weather and Weather Forecasting, Publication Division, New Delhi.

GEOG-102
Geography of India

Max. Marks :80
Time: 3Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Major terrain elements of India and their role in shaping physical landscapes of India
2. Drainage systems of India and their functional significance.
3. Regional and seasonal variations in climate and climate regions of India.
4. Soil and vegetation types of India- their distribution, characteristics and conservation.

UNIT-II

5. Agriculture: Characteristics of Indian agriculture, agricultural development in India since independence, problems of Indian agriculture.
6. Irrigation development in India, environmental impacts of irrigation development projects with special reference to Bhakra Nangal and Indira Gandhi Canal.

UNIT-III

7. Production and distribution of following minerals and power resources.
   (a) Minerals: Iron ore, mica, manganese, bauxite.
   (b) Power Resources: coal, petroleum, hydropower.
8. Minerals and power resources- The status of their use and need for conservation.

UNIT-IV

9. Production and distribution of
   (a) iron and steel.
   (b) cotton textile
   (c) automobile industry
10. Major industrial regions of India and their characteristics.
11. Patterns of domestic and international trade.
12. Major exports and imports of India's trade and balance of payment.

Suggested Readings:

1. Bharucha, J.P., 1982 : Vegetation of India, Oxford India, Bombay.
2. Dubey, R. N. , 1974 : Economic Geography of India, Kitab Mahal, Allahabad
3. Joshi, H. L. , 1990 : Industrial Geography of India, Rawat Publications, Jaipur
4. Nag, P. and Sengupta, S., 1992 : Geography of India, Concept publications. Co., New Delhi.
5. Rautray, J.K. : Geography of regional disparity, Asian Institute of Technology, Bankok, 1993
6. Singh, R. L. : India : A Regional Geography, N.G.S.I., Varanasi, 1971
7. Sharma, T. C. and Coutinho, O. 1988 : Economic and Commercial Geography of India, Vikas publishing house Pvt. Ltd, New Delhi.
8. Tirtna, R. and Krishan G., 1996 : Geography of India, Rawat Publications, Jaipur & New Delhi.
9. Tiwari, R. C. : Geography of India, Prayag Pustak Bhawan, Allahabad.

GEOG-103
Economic Geography

Max. Marks :80
Time: 3Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Definition, nature, scope and approaches of economic geography.
2. Relationship of economic geography with economics and other branches of social sciences.
3. World Economies: bases of classification, patterns and characteristics of developed and developing economies of the world.

UNIT-II

4. World production and distribution of energy resources: coal and petroleum
5. World production and distribution of mineral resources: iron-ore and bauxite.

UNIT-III

6. Network structure and economic activities, impact of transport on economic activities, Edward Ullman's spatial interaction model
7. Basic concepts in location problems, location models of Weber, Christaller and Losch

UNIT-IV

8. Concept of economic growth and development, globalization and pattern of economic development.
9. Recent trends in pattern of international trade.
10. Emergence of a new global economy – transnational integration and its spatial outcomes.
11. Major regional trade blocks of the world, free trade initiatives (GATT, UNCTAD, WTO).

Suggested Readings :-

1. Hartshorne, T. A. and Alexander, J. W., Economic Geography (fourth Edition) 2001, New Delhi, Prentice Hall of India.
2. Jones, C. F., and Darkenwarld , G. G., Economic Geography New York, The Macmillan and Co.
3. James. D., Wheeler and Peter O., Muller, Economic Geography, New York, John Wiley and Sons.
4. Knox, P. 2003. The Geography of World Economy. Arnold, London.
5. Hudson, R. 2005. Economic Geography. Sage Publication, New Delhi.
6. Gautam, A.2010. Advanced Economic Geography. Sharda Pustak Bhawan, Allhabad.

GEOG-104

Statistical Methods in Geography

Max. Marks :80

Time: 3Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each. (The examiner will set both theoretical and numerical questions)

UNIT-I

1. Descriptive Statistics : Histograms and Graphs, Measures of Central Tendency : mean, median, mode. Partitioned values : Quartiles and deciles. Comparing the mean, median and mode.
2. Measures of Dispersion : Absolute measures : Range, Quartile Deviation, Mean Deviation, Standard Deviation. Relative measure of dispersion : coefficient of variation.

UNIT-II

3. Normal curve as a probability distribution: Its characteristics and area under curve
4. Measure of inequality: (i) Location quotient (ii) Lorenz curve.
5. Sampling: Theory of sampling, Methods of sampling, Sampling distribution and Chance errors in sampling.

UNIT-III

6. Bivariate Analysis: Scatter diagram, correlation analysis, Spearman's rank correlation and Karl Pearson's correlation coefficient. Test of significance.
7. Simple Linear Regression Model: properties of least square estimate. Coefficient of determination.

UNIT-IV

8. Residuals and their mapping.
9. Basics of multivariate analysis: Correlation matrix, partial and multiple correlation.

Suggested Readings:

1. Aslam Mahmood : Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi, 1993.
2. Saroj K. Paul : Statistics for Geoscientists : Techniques and Applications, Concept Publishing Company, New Delhi, 1998.
3. C. B. Gupta : An Introduction to Statistical Methods, Vikas Publishing House, Delhi, 1974.
4. S. Gregory, : Statistical Methods and the Geographers, Longman, London, 1964.
5. A. Reza Hoshmand (second edition), : Statistical Methods for Environmental and Agricultural Sciences, CRC Press, New York, 1998.
6. R. J. Johnston : Multivariate Statistical Analysis in Geography, Longman Scientific and Technical, John Wiley & Sons, 1989 (4th edition).
7. Rogerson. P.A. (2010), Statistical Methods for Geography, (A Student's Guide), 3rd Edition, Sage Publication, New Delhi
8. Jack Levin and J.A. Fox (2006), Elementary Statistics in Social Research, 10th edition, Peason Education, New Delhi.

GEOG-105
Cartographic Methods in Geography (Practical)

Max. Marks :80
Time: 3Hrs.

Distribution of Marks	
Exercises	45 marks
Viva-Voce	20 marks
Record book	15 marks

Note:- The examiner shall set four questions, one from each unit. The candidate shall attempt three questions including theory questions which is compulsory.

UNIT-I

1. Climate data representation by diagrams and maps :
   - Line and bar graph
   - Poly graph
   - Rainfall deviation diagram
   - Climograph (Taylor and Foster's)
   - Hythergraph
   - Isopleth
   - Wind rose diagram

UNIT-II

2. Diagrams : Types and properties of diagrams representing socio-economic data:
   - One dimensional diagram - Bar diagram : Simple bar, multiple bar, comparative bar
   - Two dimensional diagram- pie diagram proportional circle, rectangle, square.
   - Three dimensional diagram- Sphere, cube, curbsi

UNIT-III

3. Distribution maps
   - Dot method
   - Choropleth – monovariate and bivariate

UNIT-IV

4. Miscellaneous diagrams and graphs
   - Trend graph
   - Age and Sex pyramid
   - Flow diagram, cartogram and accessibility maps.

Suggested Readings:

1. Monkhouse, F.J., and Wikinson, H.R. : Maps and diagrams, B. I Publications put. Ltd.
2. Singh, R. L. : Elements of Practical Geography, Kalyani Publishers, New Delhi.

GEOG-201
Geomorphology

Max. Marks :80
Time: 3Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Introduction to geomorphology as a science: definition, nature, scope and recent developments.
2. Fundamental concepts:
   (i) Geological structure and landforms
   (ii) Uniformitarianism
   (iii) Multicycle and polygenetic evolution of landscape
   (iv) Frequency concept of geomorphic processes
   (v) Climatogenetic geomorphology

UNIT-II

3. Continental drift theory and its basic considerations; Plate tectonics-meaning and concept, margins and boundaries, plate motion and cycle; Tectonic activities along boundaries and distribution of plates.
4. Hill slope-definition and forms of slope, geomorphic processes and slope forms, slope evolution: down wearing, parallel retreat and slope replacement models.

UNIT-III

5. Weathering : Causes; types of weathering: physical, chemical and biological.
6. Mass movement, causes, classifications and types of mass movements- slow and rapid mass movements.

UNIT-IV

7. Geomorphic processes and resulting land forms:
   (i) Fluvial
   (ii) Glacial
   (iii) Aeolian
   (iv) Karst
8. Applied geomorphology: Meaning and concept, role of geomorphology in environmental management of the following:
   (i) Accelerated erosion and sedimentation
   (ii) Construction of large dams
   (iii) Urban geomorphology

Suggested Readings:

1. Embleton, C. Thormne. J. (eds) 1979. Process in Geomorphology. London, Edward Arnold.
2. Fourbridge, R. W. (Ed) 1968 Encyclopedia of Geomorphology, New York, John Wiley & Sons.
3. Rittern D. F. Kochel, R. C. and Miller J. R., 1995, Process Geomorphology. Dubuque, Win C. Brown Publishers (3rd Edn)
4. Sharma, V.K. 2010. Introduction to process Geomorphology. Tayler and Francs'S, London
5. Kale VS and Gupta A.2001. Introduction to Geomorphology orient –Longman, Hyderabad.
6. Bloom AL. 2002. Geomorphology : A systematic Analysis of late Canozic landforms. Prentice – Hall Private Limited, New Delhi

7. Thornbury, W. D. 1969, Principle of Geomorphology, New York, John Wiley & Sons.
8. Sparks B. W. Geomorphology, Longman, London, 1960.
9. Singh, Savinder. Geomorphology, Prayag Publication, Allahabad, 1998.
10. Sharma, H.S. and Kale VS. 2009. Geomorphology in India, Prayag Pustak Bhawan, Allahabad.

GEOG-202
Population Geography

Max. Marks :80
Time: 3Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Nature and scope of population geography.
2. Methodological problems in population geography.
3. Sources of population data, quality and reliability of data, problems of mapping population data.

UNIT-II

4. Concepts, determinants and world patterns of the following attributes of population:
   (i) Distribution and density
   (ii) Vital rates: birth and death rates
   (iii) Migration (including laws of migration)
   (iv) Growth
   (v) Age and Sex Composition
   (vi) Occupation
   (vii) Literacy

UNIT-III

5. Demographic Transition Model
6. Population Resource Regions
7. Theories of population: Malthus, Ricardo and Marx

UNIT-IV

8. Population policy of India
9. Comparative study of population problems and policies of developed and less developed countries.
10. Population and Environment: Implications for the future

Suggested Readings:

1. Beaujeu, Garnier, J. (1966) Geography of Population, Longman, London.
2. Brooks, S. (1977) : The World Population Today (Ethnodemographic Process), USSR Academy of Sciences, Moscow.
3. Cassen, Robert & Bates, Lisa M. (1994) : Population Policy : A New Consensus Overseas Development Council, Washington, D.C.
4. Chandna, R. C. (1997) : Jansankhya Bhugol, Kalyani Publishers, New Delhi.
5. Chandna, R. C. (1998) : Population, Publishers, New Delhi.
6. Chandna, R. C. (1998) : Environmental awareness, Publishers, New Delhi.
7. Chandna, R. C. (1998) : a Geography of Population : Concepts, Determinants and Patterns, Publishers, New Delhi.
8. Clarks, John, I. (1971) : Population Geography and the Developing Countries, Pergamon Press, New York.
9. Demko, G. J. and others (Eds.) (1971) : Population Geography, Reader, McGraw-Hill Books Co., New York
10. Jones, Huw, R. (1981) : A Population Geography, Harper and Row Publishers, London.
11. Petrov, V. (1985) : India: Spotlight of Population, Progress Publishers, Moscow.

12. Trewartha, G. T. (1972) : The Less Developed Realm-A Geography of its Population, John Wiley & Sons, Inc., New York.
13. Trewartha, G. T. (1978) : The More Developed Realm-A Geography of its Population Pergamon Press, New York.
14. Woods, R. (1979) : Population Analysis in Geography, Longman, London.

GEOG-203
Regional Development and Planning (with Special Reference to India)

Max. Marks :80
Time: 3Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Regional Development: Concept of Space and Region, Typology of Regions, Planning Regions; planning regions of India and their characteristics.

UNIT-II

2. Theories of Regional Development: Theory of Polarized Development, F. Perroux Model, Hirschman Theory, Myrdal Theory; Theory of Development from below by J. Friedman, Ecological Theory of Sustainable Development

UNIT-III

3. Development and Regional Disparities in India since Independence
   (i) Disparities in Agricultural Development
   (ii) Disparities in Industrial Development.
   (iii) Disparities in Human Resource Development in terms of education and health

UNIT-IV

4. Approaches to regional planning in India.
5. Planning in India through Five Year Plans; Special Area Development Plans.
6. Metropolitan Planning; Regional Problems and Prospects in India.

Suggested Readings:

1. Chandna, R.C. (2000): Regional Planning : A Comprehensive Text. Kalyani Publishers., New Delhi.
2. Chaudhuri, J.R. (2001) : An Introduction to Development and Regional Planning with special reference to India. Orient Longman, Hyderabad.
3. Friedmann, J. and Alonso, W. (ed.) (1973) : Regional Development and Planning. The MIT Press, Mass.
4. Hettne, B.; Inotai, A. and Sunkel, O.(eds.) (1999-2000): Studies in the New Regionalism. Vol. I-V. Macmillan Press, London.
5. Kuklinski, A.R. (1972): Growth Poles and Growth Centres in Regional Planning. Mouton and Co., Paris.
6. Kuklinski, A.R. (ed.) (1975): Regional Development and Planning : International Perspective, Sijthoff-Leydor.
7. Leys, C. (1996): The Rise and Fall of Development Theory. Indian University Press, Bloomington, and James Curry, Oxford.
8. Mahapatra, A.C. and Pathak, C.R. (eds.) (2003): Economic liberalization and Regional Disparities in india. Special Focus on the North Eastern Region. Star Publishing House, Shillong.
9. Mahesh Chand and V. K. Puri ; Regional Planning in India, Allied Publishers, New

Delhi, 1983.
10. Misra, R.P. (ed.) (1992) : Regional Planning: Concepts, Techniques, Policies and Case Studies. 2nd edition. Concept Publishing Company., New Delhi.
11. Misra, R.P. and Natraj, V.K. (1978): Regional Planning and National Development. Vikas, New Delhi.
12. Planning Commission of India: Eighth Five Year Plan (1992-97) Vol. I, Govt. of India, New Delhi.
13. K. V. Sundaram : Urban and Regional Planning in India, Vikas Publishing House, 1986, New Delhi
14. R. P. Mishra, (1988), Moonis Raza (ed) Regional Development Vol. 10, Contribution toIndian Geography Heritage Publishers, New Delhi.
15. A. Kundu and Moonis Raza (1988) : Indian Economy: The Regional Dimension, CSRD/SSS, JNU. New Delhi.
16. S.C. Patnaik, (1981), Economics of Regional Development and Planning in Third World Countries, Associate Publishing House, New Delhi.

GEOG- 204

Agricultural Geography

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Nature, scope and significance of agricultural geography.
2. Origin and dispersal of agriculture.
3. Determinants of agricultural patterns: physical, technological and cultural factors

UNIT-II

4. Concepts of land capability survey, landuse and cropping pattern.
5. Approaches in agricultural regionalization: Von Thunen Model of agricultural land use, crop combination, concentration and diversification.
6. Agro-climatic Zonation : Concept and Indian experience.

UNIT-III

7. Bases of identification of agricultural systems by Whitllesey and agricultural typology by Kostrowiki.
8. Measurements of regional imbalances in agricultural productivity.
9. Green revolution: Its impacts and consequences in India.

UNIT-IV

10. Food production and security in India.
11. Neo-liberalization and Indian agriculture.
12. Agriculture and climate change: Impacts and adaptation.

Suggested Readings:

1. Symons, Leslic (1967): Agricultural Geography, G. Bell and Sons, London.
2. Geoffrey, H.F.: (1970) Geography of Agriculture: Themes in Research, Practice Hall, N.J.
3. Morgon, W.B. and Munton, R.J.C.: (1971) Agricultural Geography Methuen, London.
4. Singh Jasbir and Dhillon S.S. (1994) Agricultural Geography, Tata Mc Graw Hill, New Delhi.
5. Husain, Majid (1996), Systemic Agricultural Geography Rawat Publications, Jaipur.
6. Tarrant, J.R. (1974) Agricultural Geography, Willey, New York.
7. Safi, Mohammad (2007) Agricultural Geography.
8. Singh Jasbir (1989) Agricultural Geography.
9. Bowler TR (1992) The Geography of Agriculture in Developed Market Economics, Longman.
10. Grigg D (1995) Introduction to Agricultural Geography, Routkdge, London.

GEOG-205

Interpretation of Toposheets and Morphometric Analysis (Practical)

Max. Marks :80

Time:- 3Hrs.

Distribution of Marks	
Exercises	45 marks
Viva-Voce	20 marks
Record book	15 marks

Note:- The examiner shall set four questions, one from each unit. The candidate shall attempt three questions including theory questions which is compulsory.

UNIT-I

Interpretation of toposheets : (a) Physical features and (b) Cultural features.

1. Profile Analysis: Transverse and Longitudinal
    a) Serial Profiles
    b) Superimposed Profiles
    c) Composite Profiles
    d) Projected Profiles
    e) Longitudinal or valley Thalweg Profile.

UNIT-II

2. Linear Aspects of streams :
    a) Relationship between stream order and stream Number
    b) Relationship between stream order and Average stream length.
3. Areal Aspects of streams:
    a) Drainage Frequency
    b) Drainage Texture/Density

UNIT-III

5. Relief Aspect of Streams
    a) Area Height Curve
    b) Altimetric frequency curve
    c) Hypsographic Curve
    d) Hypsometric Integral Curve
    e) Clinographic or clinometric curve

UNIT-IV

6. Slope Analysis
    a) Wentworth's Method of Average Slope
    b) G. H. Smith's Method of Relative Relief.

Suggested Readings:-

1. Manual of Photographic interpretation (1960), American Society of photogrammetry, The George Banta Co., Wisconsin.
2. Lilies, T. M. and Kiefer R. W. (1987), Remote Sensing and Image Interpretation, Jhon Wiley and Sons, New York.
3. Sabins, P. F., (1987), Remote Sensing, Freeman, New York.
4. Singh, R. L. (1986), Practical Geography, Kalyani Publications, Ludhiana.
5. Monkhouse, F. J. and Wilkinson (1980), Maps and Diagrams, B.I. Publications, New Delhi.
6. Miller, A., (1953), The Skin of the Earth, Methuen and Co., London. Dury, G. H. (ed.), (1966), Essays in Geomorphology, Heinmann, London.
7. Dury, G.H. (1966) Essays in Geomorphology Heinmann, London.

GEOG-301
Geography and Ecosystem

Max Marks: 80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Concept of Ecosystem; Types, components and function of ecosystem.
2. Energy flow in ecosystem: food chain, food web, trophic levels, ecological production and ecological pyramids.
3. Biogeochemical cycles: Hydrological, carbon, oxygen and nitrogen cycles

UNIT-II

4. Biome: Scheme of Classification: factors affecting the distribution of biomes;
    a. Tropical evergreen rain forest biome
    b. Savana biome
    c. Monsoon biome
    d. Temperate biome
    e. Marine biome
2. Ecosystem approach and its relevance in geography

UNIT-III

3. Man-environment relationship: Classification of resources; use and ecological imbalance with reference to soils, forests and energy resources
4. Biodiversity and conservation: preservation and conservation of ecosystem through resource management.

UNIT-IV

5. Problems of pollution: concept of air, water, and noise pollution.
6. Environment legislation: The Stockholm Conference, the Earth Summit, Kyoto Protocol and Copenhagen Conference, Environmental laws in India (the Wild Life Act, Water Act, Forest Act, Environment Protection Act and National Environment Tribunal Act).

Suggested Readings:

1. Ackerman, E.A., Geography as a Fundamental Research Discipline, University of Chicago Research Papers, 1958.
2. Agarwal, A. and sen, S. The Citizens Fifth Report. Centre for Science and Environment New Delhi 1999.
3. Bertalanffy, L. General Systems Theory, George Bragiller New York, 1958.
4. Bodkin, E.: Environmental Studeis, Charles E.Merril Pub Co., Columbu, Ohio, 1982.
5. Chandna, R.C.: Environmental awarness, Kalyani Publishers, New Delhi, 1998.
6. Chorley, R.J., Geomorphology and General Systems Theory, U.S.G.S. Professional Paper, 500B, 1962.

7. Eyre, S.R. and Jones, G.R.J. (eds.), Geography as Human Ecology, Edward Arnold, London, 1966.
8. Kormondy, E.J.: Concepts of Ecology, Prentice Hall, 1989.
9. Manners, I.R. and Mikesell, M.W. (eds.), Perspectives on Environment, Commission on College Geography, Publ. No.13, Washington, D.C., 1974.
10. Nobel and Wright: Environmental Science, Prentice Hall, New York 1996.
11. Odum, E.P.: Fundamentals of Ecology, W.B. Saunders, Philadelphia, 1971.
12. Russwurm, L.H. and Sommerville, E.(eds.): Man's Natural Environment- A systems Approach, Duxbury, Massachusets, 1985.
13. Sharma, H.S.: Ranthambhore Sanctuary-Dilemma of Eco-development, Concept, New Delhi, 2000.
14. Simmons, I.G.: Ecology of Natural Resources, Edward Arnold, London, 1981.
15. Singh, S.: Environmental Geography, Payag Publications, Allahabad, 1991.
16. Smith, R.L: Man and his Environment: An Ecosystem Approach, Harper & Row, London, 1992.
17. I.N.E.P.: Global Environmental Outlook, U.N. Pub, New York, 1998.
18. World Resources Institute: World Resources, (Latest Report) Washington D.C.
19. World Watch Institute: State of the World, Latest Report) Washington, D.C.

GEOG-302 (A)
Field Methods in Geography (Socio-economic) (Theory)

Max. Marks: 40
Time 3 Hrs.

Note:- There will be seven questions in all. Question No.1 is compulsory and consists of 5 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 6 long questions, three from each unit. The candidate shall attempt THREE long questions selecting at least one from each unit. All questions carry equal marks.

UNIT-I

1. Significance of Field work in Geography
2. Identification of Research Problem and Formulation of Research Design.
3. Types and Sources of Data
4. Preparation of Questionnaires

UNIT-II

5. Sample Design
6. Collection of socio-economic data.
7. Retrieval and Analysis of Data
8. Format of Report Writing.

Suggested Readings:

1. Har Prasad (1992): Research Methods and Techniques in Geography, Rawat Publishers, Jaipur.
2. Mishra, H.N. and Singh V.P. (ed.) (1998), Research Methodology: Social, Spatial and Policy Dimensions, Rawat Publishers, Jaipur.
3. Goode and Hat, Research Methodology in Social Sciences, Oxford University Press, New Delhi.
4. Black James A and D.J. champion (1976): Methods and Issues in social Research, New York, Jolm Wiley and Sons, Inc.
5. Young, PV. An introduction to research methodology.

GEOG-302 (B)
Project Report based on Field Survey

Max. Marks:40
Time 3 Hrs.

The students will have to write a project report based on field survey which shall be duly supervised by the teacher.

Scheme of Evaluation:

1. Report writing-25 marks
2. Viva voce on Report-15 marks.

GEOG- 303 (i)

Urban Geography

Max Marks:80
Time: 3 Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Urban Geography: nature, scope and concepts.
2. Origin and evolution of towns and factors of urban growth.
3. Economic base of cities: concept and employment ratio.

UNIT-II

4. Functional classification of cities: concepts and scheme of classification.
5. Rural Urban Fringe: structural characteristics and its development.
6. City and region: concepts of influence and dominance, methods of delimitation of area of influence and area of dominance.

UNIT-III

7. Urban morphology and landuse structure: city core, commercial, industrial and residential areas.
8. Models of city structure: concentric zone model by E.W.Burgess, sector model by Homer Hoyt and multiple nuclei model by Harris and Ullman

UNIT-IV

9. Central place theory of Christaller and Losch.
10. Rank size rule and Law of primate city.
11. Social area analysis.

Suggested Readings:

1. Mayer H.M. and Kohn, C.F. (1968), Readings in Urt. The university of Chicago Press, Chicago.
2. Berry, J.E. & et al. (Eds.), 1970, Geography Perspective on Urban System, Prentice Hall, New Jersey.
3. Cater, Herald (1972), The study of Urban Geography, Edward Arnold, London.
4. Johnson, James (Eds.), 1974, Suburban Growth, John Wiley and sons, London.
5. Sinha, S.P. (1984), Processes and Fattern of Urban Development in India: A.C. study of Haryana, The associated Publishers, Ambala Caltt.David Clark (1982), Urban Geography, Croom Halm, London and Cambridge.
6. Northern, Urban Geography
7. Raymond and Murphy: American cities.
8. Michanel Pacione: Urban Geography.
9. R.Ramachandra: Urbanization and Urban System in India.

GEOG- 303 (ii)
Geography of Well-being (with special reference to India)

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Welfare Geography: Concept of social well-being, development and approaches to study human welfare.
2. Human beings: needs and wants, quality of life, level of living and state of well-being in India. identification of social indicators, their data sources and problem.

UNIT-II

3. Human Development Index, poverty and its measures, poverty and inequality in India
4. Gender issues in the process of development and gender development index.

UNIT-III

5. Structure of education in Independent India, Regional patterns of educational development; enrolment and dropouts with reference to school education.
6. Financing education and education policy in India.

UNIT-IV

7. Geography of health and structure of health services in India.
8. Health policy and programmes in independent India.

Suggested Readings:

1. Ahmad, Aijazuddin, Social Geography, Rawat Publication, New Delhi, 1999.
2. Dreze Jean, Amartya Sen, Economic Development and Social opportunity, Oxford University Press, New Delhi, 1996.
3. Sen, Amartya & Drze Jean, Indian Development: Selected Regional Perspectives, Oxford University Press, 1966.
4. David M.Smith (1977), Human Geography: A Welfare Approach, Arnold Heinemann.
5. D.M.Smith (1973), The Geography of Social Well-being in the United States. M.cGraw- Hill, New York.
6. D.M. Smith (1977); Where the Grass is Greener: Geographical perspectives on inequality, Penguin, Haemonds worth.
7. Coates, B.E., R.J. Johnston and P.L. knox(1977), "Geography and Inequality", Oxford University Press, London.
8. National Nutrition Monitoring Bureau (2000), "Dynamic Database on Diet and Nutrition", National Institute & Nutrition, Hyderabad
9. Draze, Jean and Amartaya Sen (2002), India: Development and Participation, OUP, New Delhi,
10. Uma Kapila (2007) (ed). India's Economic Development Since 1947. Academic Foundation.

GEOG- 303 (iii)

Fluvial Geomorphology

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Fluvial System: types, variables, feedbacks, thresholds, responses and scales in fluvial geomorphology.
2. Water erosion: types of water erosion and erosive processes, monitoring of water erosion (field measurements and models) management problems associated with erosion.

UNIT-II

3. Sediment transfer: sources, modes, storage and movement of sediment load and yield, controls as sediment yield, human activity and sediment yield
4. Channel forms and processes: channel types, geometry, size, shape, channel pattern, bedrock channels and associated land forms.

UNIT-III

5. Floodplain morphology: processes of formation, geomorphic units, flood frequency and magnitude, catastrophic and paleo floods.
6. Human adjustment in floodplains.

UNIT-IV

7. Managing river channels: channelization and flow regulation; impacts of water management on the physical, chemical and ecological condition of channels and floodplains, river restoration.
8. Remote sensing and GIS applications in mapping, monitoring and management of fluvial environments.

Suggested Readings:

1. Chorley R.J. (ed) 'Introduction of Fluvial Processes Methuen & Co. London, 1973.
2. Coates D.R. And Vitek J.I. Thresholds in Geomorphology. George Allen Unwin, London 1980.
3. Gregory K.J. 'River Channel Changes' John Wiley & Sons, New York, 1977.
4. Geogory K.J. and Walling, D.E.: Drainage Basin: Forms and Process-A Geomorphological Approach. John Wiley & Sons, New York, 1985.
5. Kingston D.Fluvial Forms and Processes Edward Arnold, London, 1984.
6. Leopold C.B et.al..: Fluvial Processes in Geomorphology; Freeman, London 1964.
7. Morisawa (ed) Fluvial Geomorphology. George Allen & Unwin, 1981.
8. Gleick, P.H. (ed): Water in Crisis Oxford University Press, New York 1993.
9. Morisawa M: 'Streams – Their Dynamics and Morphology' McGraw Hill, New York, 1968.
10. Charlton, R.2008. Fundamentals of Fluvial Geomorphology, Routledge, London.

GEOG- 303 (iv)

Historical Geography (with Special Reference to India)

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Nature and scope of Historical Geography; relationship between history and geography.
2. Source materials for studies in historical geography-religious texts, epics and literary sources; travel accounts, archival sources, chronicles, old maps, revenue records; limitations of sources.

UNIT-II

3. Ancient India: sources of information; process of peopling in different parts of the country;
4. Patterns of urbanization, Janapadas; administrative organization of space.

UNIT-III

5. Medieval India: Sources of information; economic basis of cities, trade routes, patterns of urbanization, territorial arrangements of administration.
6. Colonial India: Sources of information; territorial arrangement for administration; comparative study of British Provinces and Princely States; colonial urban development, spatial manifestations of colonial economic policies with reference to agriculture and industry; environmentalism and other issues during 20^{th} century.

UNIT-IV

7. Regional Imbalances in Development during colonial period.
8. Regional Development in Post-independent India.

Suggested Readings:

1. Ali, S.M.: The Geography of the Puranas, Peoples Publishing House, Delhi, 1966.
2. Baden-Powel: Land Systems of British India. Publication Division, Govt. of India, New Delhi. 1960
3. Carter, H.: An Introduction to Urban Historical Geography. Edward Arnold, Baltimore, 1983.
4. Cunningham, A, The Ancient Geography of India, Bharatiya Publishing House, Varanasi, 1975.
5. Habeeb, I.: The Agrarian System of Mughal India, Oxford University Press, London, 1963.
6. Habeeb, I.: An Atlas of the Mughal Empire, Oxford University Press, Delhi, 1982.
7. Schwartzberg, J.: Historical Atlas of South Asia, Chicago University Press, Chicago, 1980.
8. Sircar, D.C.: Studies in the Geography of Ancient and Medieval India. Motilal Banarasi Das Publishers, Delhi, 1960.

GEOG- 303 (v)

Geography of Transport

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Nature, scope, significance and development of transport geography.
2. Factors associated with the development of transport system; economic, social, cultural and institutional.
3. Economic and regional development and transport development.

UNIT-II

4. Characteristics and relative significance of different modes of transport: railways, roads, airways, and waterways, pipelines, etc.
5. Structure- accessibility and flow models; network structure, graph theoretic measures, measurement of accessibility, models of network change, linear programming and gravity models.

UNIT-III

6. Theories related to freight route structure.
7. Bases of spatial interaction, complementarity, intervening opportunities and transferability.
8. Patterns of movement: the type, patterns of movement and transport modes. Transport network ; the function, pattern of movement, geometry and transport development.

UNIT-IV

9. Transport policy and planning in India.
10. Urban transport: growth and problem of urban transportation. Environmental degradation: vehicular pollution and congestion alternatives to the transport system in mega cities in India
11. National highway development and planning in India.

Suggest Readings:

1. Chorley R.J. & Hagett P.: Models in Geography Methuen & Co. London. 1967.
2. Hurst, M.E.(ed.): Transportation Geography, McGraw-Hill, 1974.
3. Hagget, F and Chorlley, R.J. Network Analysis', Edward Arnold, London, 1968.
4. Hay, A.: Transport Economy, MacMillan, London, 1973.
5. Hoyle, B.S.(ed): Transport and Development, MacMillan, London, 1973.
6. Raza, M. and Agrawal Y.P. :Transport Geography of India, Concept, New Delhi, 1985.
7. Robison H & Bamford C.G.: Geography of Transport Machdonals & Evans. London 1978.
8. Taffe, E.J. & Gauthier (Jr.) H.L. Geography of Transportation, Prentice-Hall, Englewood Cliffs, N.J., 1973.
9. Ullman E.L.: American Commodity Flow University of Washington Press 1957.
10. White H.P. and Senior, M.L. Transport Geography, Longman, London, 1983.
11. Mukherji

GEOG- 304 (i)
Political Geography

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Definition, nature and scope of political geography, approaches: the functional approach and the unified field theory
2. State, nation and nation State.
3. Geographic elements of the state; physical, human, economic, administrative and circulatory systems.

UNIT-II

4. Unitary, federal and regional state.
5. Distinction between frontiers and boundaries, demarcation of boundaries, classification and functions of boundaries.

UNIT-III

6. Land locked states.: advantages and disadvantages.
7. Core areas and capitals, their types and classification.
8. Global strategic views: Mahan and Sea power; Mackinder and Heartland; Spykman and Rimland Servasky and Air power.

UNIT-IV

9. The developing laws of the sea; geopolitical significance of Indian Ocean
10. Political geography of India with special reference to water disputes and riparian claims, Kashmir problem and Indo-Pak relations.

Suggested Readings:-

1. Alexander, L.M. World Political Patterns Ran Mc Nally, Chicago, 1963.
2. De hlij, H.J. and Glassner, Martin Systematic Political Geography, John Wiley, New York, 1968.
3. Dikshit, R.D .Political Geography: A Contemoporary perspective, Tata McGraw Hill, New Delhi, 1996.
4. Dikshit, R.D. Political geography: A Century of Progress, Sage, New Delhi, 1999.
5. Sukhwal, B.L. Modern Political Goegraphy of India Sterling publishers, New Delhi. 1968.
6. Taylor, Peter: political Geography Longman, London. 1985.
7. Fisher Charles A.: Essays in Political Geography, Methuen, London, 1968.
8. Pounds N.J.G.: Political Geography. McGraw Hill, New York, 1972.
9. John R. Short: An introduction to Political Geography Routledge, London, 1982.
10. Moddie, A.E: Geography Behind Political Hutchinson, London, Latest edition.
11. Prescott. J.R.V..: The Geography of Frontiers and Boundaris Aldine, Chicago.
12. Deshpande C.D: India-A Regional Interpretation Northern Book Centre, New Delhi, 1992.
13. Panikkar K.M.: Geographical Factors in India History:2 Vols, Asia Publishing House Bombay, 1959.

GEOG- 304 (ii)
Geography of Rural Settlement

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Nature, scope, significance and development of settlement geography. Approaches in rural settlement geography.
2. Histogenesis of rural settlements: historical development, distribution of rural settlements, size and spacing of rural settlements in India.

UNIT-II

3. Types, forms and patterns of rural settlements: cause and effects, functional classification of rural settlements.
4. Characteristics of rural settlements in the urban fringe areas and remote areas.
5. Rural service centres: Christaller model, functional score and service centre hierarchy, rank size rule.

UNIT-III

6. Classification and Regionalization: Rural settlement regions of India and their characteristics.
7. Social issues in rural settlements: Poverty, housing and shelter, rural-urban interaction, deprivation and inequality.

UNIT-IV

8. Environmental issues in rural settlements.
9. Cultural landscape elements in rural settlements in different geographical environments.
10. Rural development planning in India.

Suggested Readings:-

1. Alam, S.M. et. Al.: Settlement System of India, Oxford and IBH Publication Co, New Delhi, 1982.
2. Brock, J.O.M and Welb, J.W.: Geography of Mankind. McGraw Hill, London, 1978.
3. Chisholm, M.: Rural settlements and Land Use, John Wiley, New York, 1967.
4. Clout, H.D.: Rural Geography, Permagon, Oxford, 1977.
5. Daniel, P. and Hopkinson, M.: The Geography of Settlement. Oliver & Byod, Edinburgh, 1986.
6. Grover, N.: Rural Settlements – A Cultural Geographical analysis, Inter-India Publication, Delhi, 1985.\
7. Hudson, R.S.: A Geography of Settlements, MacDonald & Evans., New York, 1976.
8. Mitra, A.: Report on House Types and Village settlement Patterns in India. Publication Development, Govt. Of India, Delhi 1960.
9. Ramchandran, H,: Village Clusters and Rural Development, Concept Publication, New Delhi, 1985.
10. Rao, E.N.: Strategy for Integrated Rural Development, B.R. Publication Cor., Delhi, 1986.
11. Rappoport, A.: House form and Culture, Prentice Hall, New Jersey, 1969.
12. Sen, L.K. (ed.): Readings in Micro-level Planning and Rural Growth Centres. National Institute of Community Development, Hyderabad, 1972.
13. Srinivas, M.N.: Village India, Asia Publication House, Bomday, 1968.
14. Wanmali, S.: Service Centres in Rural India, B.R. Publication Cor., New Delhi, 1983.

15. Mayrr, I and R.J. Haqqet. (1979) Settlements: Theory and Practice. Harper & Row, London.
16. Singh, R.L. (ed) (1978) Transformation of Rural Habitat in Indian Perspectives: A Geographic Dimension, NGSI Research Publication, No. 19, Varanasi.

GEOG- 304 (iii)

Soil Geography

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Spatio-temporal dimension of soil forming factors: parent material, flora and fona, climatic, topographic.
2. Processes of soil formation and soil development: physical, biotic and chemical.

UNIT-II

3. Physical properties of soils: morphology, (texture, structure, colour, porosity and permeability), water, air and temperature
4. Chemical properties of soils: soils reaction and controlling factors, humus, soil clays, pH, EC.

UNIT-III

5. Genetic classification of soils, taxonomic classification of soils: zonal, azonal and intra-zonal soils, their characteristics and world patterns.
6. Soil erosion, degradation and conservation methods to improve the physical qualities of soils.

UNIT-IV

7. Evaluation of land and soil: parametric and non parametric systems, land capability classification, soil survey, modern techniques, field study of soil profile and their characteristics.
8. Soil reclamation and management, soil survey and landforms in environmental management; integrated soil and water management; sustainable development of soil resources with reference to India.

Suggested Readings:-

1. Bunting, B.T.: The Geography of Soils, Hutchinson, London, 1973.
2. Govinda Rajan, S.V. and Gopala Rao, H.G.: Studies on Soils of India. Vikas Publications, New Delhi, 1978.
3. Mc. Bride, M.B.: Environmental Chemistry of Soils, Oxford University Press, New York, 1999.
4. Raychoudhuri, S.P.: Soils of India, ICAR, New Delhi, 1958.
5. Buckman, H.O and Brady, N.C. 1960. The Nature and Properties of Soils. MacMillan, New York.
6. Clark, GR. 1957. Study of Soil in the Field, Oxford University Press, Oxford.
7. Sehgal, J.2000. Pcdology-concepts and Applications. Kalyani Publications, New Delhi.
8. Pitty, A.F. 1978. Geography and Soil Properties. University Press, London.
9. Foth H.D. and Turk LM. 1972. Fundamentals of Soil Science. John Wiley, New York.
10. Brickland, PW. 1984. Soils and Geomorphology. Oxford University Press, London.
11. Daji, JA.1970. A Text Book of Soil Science. Asia Publishing House, New Delhi.

GEOG- 304 (iv)

Geography and Disaster Management

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Definition, nature and classification of disasters.
2. Geography and disasters: major disasters of world, disaster profile of India
3. Tectonic Disasters: Volcanoes, Earthquakes, Tsunamis, Landslides.

UNIT-II

4. Hydrological Disasters: Floods and Droughts
5. Climatic Disasters: Cyclones, Heavy Precipitation.
6. Human Induced Disasters: Epidemics, Industrial and Transport Disasters; Wars and Terrorism induced Disasters

UNIT-III

7. Vulnerability to Disasters and Affecting Factors.
8. Planning for Disaster Mitigation and Preparedness.
9. Mitigation Measures of Disasters.

UNIT-IV

10. Post Disaster Recovery and Rehabilitation
11. Impacts of Disaster on Society and Economy
12. Remote Sensing and GIS Applications in Disaster Prevention and Monitoring.

Suggested Readings:

1. Nlaikie, P and other (1994) At Risk: Natural Hazards, People;s Vulnerability and Disasters, Routledge, London.
2. Carter, NW (1991), Disaster Management: A Disaster Manager's Handbook, ADB, Manila.
3. Cuny, FC (1983) Disasters and Development, Oxford University Press.
4. Hewitt, K (1977) Regions of Risk: A Geographical Introduction to Disasters, Longman, Harlow.
5. Kates RW and I Burton (1986) Geography, Resources and Environment, Vol. I & II, Themes from the work of Gilbert F White, The University of Chicago Press, Chicago
6. Smith K (1996) Environmental Hazards: Assessing Risks and Reducing Disasters, Routledge, London.
7. Varley, A, Disaster, Development and Environment, John Wiley and Sons, Chichester.

GEOG- 304 (v)

Biogeography

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Nature, scope and significance of biogeography.
2. Basic ecological principles: Bioenergy cycle in territorial ecosystem; energy budget of the earth; trophic levels and food web.
3. Origin of fauna and flora: Major gene centres; domestication of plants and animals and their disposal agents and roots.

UNIT-II

4. Distribution of plant life on the earth and its relation to soil, climate and human activities.
5. Geographical distribution of animal life on the earth and its relation to vegetation types, climate and human activities.

UNIT-III

6. Communities-Nature of communities and ecosystems: bio-diversities; human induced communities change; habitat decay and conservation of biotic resources.
7. Industrial effluent and its effect on fresh water and marine biology.

UNIT-IV

8. Environmental hazards: Ecological consequences, human perception and adjustment with respect to flood, drought and earthquake.
9. Bio-Reserves in India.
10. National forest and wild life policy of India.

Suggested Readings:-

1. Agarwal, D.P.: Man and Environment in India Through Ages, Book & Books, 1992.
2. Bradshaw, M.J.:Earth and Living Plant, ELBS, London, 1979.
3. Cox, C.D. and Moore, P.D.: Biogeography: An Ecological and Evolutionary Approach 5th edn. Blackwell, 1993.
4. Gaur, R.: Environment and Ecology of Early Man in Northern India R.B. Publication Corporation, 1987.
5. Hoyt, J.B.: Man and the Earth, Prentice Hall, U.S.A. 1992.
6. Huggett, R.J.: Fundamentals of Biogeography. Routeldge, U.S.A. 1998.
7. Lllies, J.: Introduction of Zoogeography, McMillan. London. 1974.
8. Khushoo, T.N. and Sharma, M.(eds.): Indian Geosphere-Biosphere Har-Anand Publication, Delhi 1991.
9. Lapedes, D.N. (ed.): Encyclopedia of Environmental Science, McGraw Hill, 1974.
10. Mathur, H.S.: Essentials of Biogeography, Anuj Printers, Jaipur, 1998.
11. Pears, N.: Basic Biogeography 2nd edn. Longman, London, 1985.
12. Simmon, I.G.: Biogeography, Natural and Cultural, Longman, London 1974.
13. Tivy, J.: Biogeography: A study of Plants in Ecosphere 3rd edn. Oliver and Boyd, U.S.A., 1992.

WWF related website
Wild Life Institute of India Publications

GEOG- 305 (A)

Introduction to Remote Sensing (Theory)

Max Marks:40
Time : 3 Hrs.

Note:- There will be seven questions in all. Question No.1 is compulsory and consists of 5 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 6 long questions, three from each unit. The candidate shall attempt THREE long questions selecting at least one from each unit. All questions carry equal marks.

UNIT-I

1. Fundamentals: Remote Sensing, definition and scope, EMR characteristics, Interaction with matter, remote sensing regions and bands, types of remote sensing.
2. Aerial Photographs: aerial photos, types and scale, resolution, geometric properties of single aerial photos, stereoscopy, stereoscopic parallax, relief displacement.

UNIT-II

3. Satellite Imagery: General orbital characteristics of remote sensing satellites, general characteristics of remote sensing sensors, characteristics of Indian remote sensing satellite and raw Remote Sensing data.
4. Interpretation and Application: Elements of image interpretation, image processing techniques: Visual and Digital. Applications in resource mapping and monitoring

Suggested Readings:-

1. Avery T.E., and G.L. Berlin (1992): Fundamentals of Remote Sensing and Air Photo Interpretation, 514 Ed. Macmillan, New York, USA.
2. Campbell, J.B. (2002) Introduction to Remote Sensing, 3rd ed., Taylor & Francis, New York, USA.
3. Lillesand, Thomas M. and R. Kiffer (1994), Remote Sensing and Image Interpretation, 3rd edition, John Willy & sons, Inc New York, USA.
4. Sabins, F (1982): Remote Sensing Principles and Application, Freemass and Compare, New York, USA
5. Jensen, J.R. (2000), Remote Sensing of the Environment: An earth Resource Perspectives, Pearson Education Inc. India.
6. Aggarwal C.S. and P.K. Garg (2000). Remote Sensing, A.H. Wheeler & Co. Ltd, New Delhi.
7. Nag and Kudrat (2002), Remote Sensing and Image Interpretation, Concept Publishers, Delhi.
8. Meenakhi Kumar(2000), Text book on Remote Sensing; NCERT, New Delhi.
9. Anji Reddy (2000) Remote Sensing and Geographical Information System (An Introduction), Hyderabad.

GEOG- 305 (B)

Introduction to Remote Sensing (Practical)

Max. Marks: 40
Time: 3 Hrs.

Laboratory Work: 24
Practical Record Book: 06
Viva-Voce: 10

Note: There will be three exercises and candidate has to attempt all. All questions carry equal marks.

Exercises:

1. Identification of Flight Line
2. Scale of Photographs.
3. Determination of height of objects from single vertical photographs
4. Identification of objects and features with stereoscope.
5. Preparation of Thematic maps on landuse/land cover
6. Georeferencing of satellite imagery in image processing software.
7. Image to image rectification.
8. Creating subset.
9. Merging images of various resolution
10. Making false colour composite

GEOG- 401

Geographical Thought

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Classification of knowledge, Nature of Geography and its place among sciences
2. Nature of Geographic knowledge during ancient (Greek and Roman) and medieval (Arab) periods
3. Foundation of Modern Geography-contributions of Varenius, Kant, Humboldt and Ritter.

UNIT-II

4. Emergence of Geography as a study of (i) physical features (ii) chorology (iii) landscapes.
5. Concepts and dualism in Geography: Environmental Determinism and Possibilism, Areal Differentiation; Physical vs Human Geography, and Systematic vs Regional Geography

UNIT-III

6. Quantitative Revolution-Emergence of theoretical geography
7. Positivist Explanations in Geography- Laws, theories, models, inductive & deductive logic.

UNIT-IV

8. Behavioral and Humanistic Perspectives in Geography
9. Social Relevance in Geography- Welfare, Radical and Feminist Perspectives
10. Postmodernism and Geography.

Suggested Readings:

1. Dickinson, R E (1969), The Makers of Modern Geography, London.
2. Dikshit, RD (1997), Geographical Thought- A Contextual History of Ideas, Prentice Hall of India, New Delhi.
3. Harvey David (1989), Explanation in Geography, Edward Arnold, London.
4. Hartshorne, R (1959), Perspectives on the Nature of Geography, Rand MacNelly, Chicago.
5. James PE and Martin J Geoffrey (1972) All possible Worlds, John Wiley and Sons, New York.
6. Johnston, RJ (1983) Geography and Geographers, Edward Heinemann, London
7. Peet, Richard (1998) Modern Geographical Thought, Oxford, Blackwell Publishers.

GEOG-402
Hydrology and Oceanography

Max. Marks :80
Time: 3Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Definition, nature, scope and historical development of hydrology. Relationship of hydrology with other physical sciences.
2. Hydrological cycle, estimation of global water budget, human impact on hydrological cycle.

UNIT-II

3. Rainfall: frequency, intensity and measurement, accuracy of rainfall measurement, determination of average rainfall (Arithmetic mean, Theiesson polygon, isohytel methods), variations in rainfall and world distribution.
4. Sources and measurement of stream flow, hydrograph and its components, analysis of hydrograph, factors affecting the hydrograph shape, methods of hydrograph separation, variations in runoff, rainfall-runoff relationship.

UNIT-III

5. Major topographic features of ocean basins, bottom relief of Atlantic, Pacific and Indian oceans.
6. Sources, classification and distribution of ocean deposits, corals-origin, types and conditions for development. Theories of the origin of coral reefs (Subsidence and standstill).

UNIT-IV

7. Origin, causes, types and effects of the ocean currents, currents of the Atlantic, Pacific and Indian oceans.
8. Oceanic temperature: distribution and causes of variation.
9. Composition of oceanic water and distribution of salinity.

Suggested Readings:

1. Chorley, R. J. Water, Earth and Man, Methuen, London, 1969.
2. Rao, K.L. India's Water Wealth, Orient Longman, New Delhi, 1975.
3. Ward, WC, Principles of Hydrology, McGraw Hill, New York, 1967
4. King CAM, Oceanography for Geographers, 1962
5. Subramanya K. 1994. Engineering Hydrology, Tata McGraw-Hill Publishing Company Limited, New Delhi.
6. Patra K.C. 2010. Hydrology and Water Resource Engineering, Norsa Publishing House, New Delhi.
7. Reddi, P.J. 1992. A Text Book of Hydrology, Laxmi Publications, New Delhi.
8. Siddhartha, K.1999. Oceanography-A brief Introduction, Kisalaya Publications, New Delhi.
9. Lal, DS. 2007. Oceanography. Sharda Pustak Bhawan, Allahabad.
10. Singh. S. 2008. Oceanography. Prayag Pustak Bhawan, Allahabad
11. Sharma RC and Vatal M. 1993. Oceanography for Geographers, Chaitanya Publishing House, Allahabad.

GEOG- 403 (i)

Regional Geography of India (with special reference to Haryana)

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Concept and types of regions and regionalization
2. Regional Diversities in India
3. Critical Review of schemes of regionalization of India: Baker and Stamp, Pithawala, Spate and Learmonth and R L Singh.

UNIT-II

4. Macro Regions of India: Himalayas, Indo-Ganga Plains, Indian Peninsula; physical and socio-economic characteristics
5. Bases of demarcation of Meso Regions in India.
6. Schemes of socio-economic regionalisation: Asok Mitra, P.Sengupta & Galina Sadasyuk, B.K. Roy.

UNIT-III

7. Physical and economic diversities in Haryana

   i. Relief, Climate, Drainage, Groundwater, Soils and Natural Vegetation
   ii. Agriculture and its spatial organization
   iii. Industry, Transport and Communication

UNIT-IV

8. Demographic characteristics and diversities in Haryana.
9. Social diversities in terms of education and health in Haryana.
10. Social region of Haryana.

Suggested Readings:

1. Deshpande CD (1992), India: A Regional Interpretation, ICSSR and Northern Book Centre.
2. Singh, RL (ed.) (1971): India- A Regional Geography, National Geographical Society, Varanasi
3. Singh, Jasbir singh (1976) Agricultural Geography of Haryana, Vishal Publishers, Kurukshetra.
4. Spate OHK And ATA Learmonth (1971)- India and Pakistan, Methuen, London.
5. Tirtha R and Gopal Krishna (1996), Emerging India, Rawat Publications, Jaipur.
6. Census of India (1981) Regional Division in Haryana.
7. Census of India (2001), Administrative Atlas of Haryana.
8. FICCI (2007), State of Infrastructure in Haryana.
9. www.nic.gov.in (web site related to Haryana).

GEOG- 403 (ii)

Natural Resource Management

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Introduction: Concepts, models and approaches of natural resource management.
2. Population pressure, resource use and development.

UNIT-II

3. Use and misuse of resources: Global and Indian Scenario: historical background and future prospects of various resources soil, water, minerals and forests.
4. Conservation and management of resources: Meaning, principles, philosophy and approaches to conservation; resource conservation and management methods.

UNIT-III

5. Resource appraisal and policy making appraisal of land resources, geophysical geochemical and geo-botanical
6. Use of GIS and remote sensing in resource appraisal.

UNIT-IV

7. Institutional managements and policy models towards better management and conservation of resources.
8. Resources development: sustainable resource management concept, methods and sustainable system; integrated resource development and its application.

Suggested Readings:

1. Adams. W.M.: Green Development: Environment Sustainlability in the Third World, Routledge & Chapman Hall, New York, 1990.
2. Granfelt, T.R,, Managing the Globalized Environment, J & L. Composition Ltd. New York, 1999.
3. Holechek, J.L. et al: Natural Resources: Ecology economics & Policy, Perntice Hall, Neww Jersey, 2000.
4. Hooja, R. & Joshi, R.: Desert, Drought and Development, Studies in Resource Management and Sustainability; Rawat Publication, Jaipur, 1994.
5. Howard, M.C. (ed.) Asia's Environmental Crisis, Westview Press, Prouldar, 1993.
6. Kates, R.W. & Burton, I (eds): Geography, Resources and Environment,Vol I & II, University of Chicago Press, Chicago, 1986.
7. M Laren, D.J. and Skinnet, B.J.(eds.): Resources and World Development, John Wiley & Sons, New York, 1986.

8. Newson.: M.D.: Land, Water & Development: River Basin Systems & Management, Routledge London, 1991.
9. Owen, S & Owns, P.L.: Environment Resources & Conservation, Cambridge University Press, New York, 1991.
10. Peckford, John et al. (ed.):1994, Water, Sanitation, Environment & Development, IT Publication, London,
11. Rees, J: Natural Resources: Allocation, Economics and Policy, Methuen, London, 1988.
12. Redcliff, M: Sustainable Development: Exploring the Contradiction: Methuen, London, 1987.
13. Simmons, I.G.: Earth, Air & Water: Resources and Environment in Late 20th Century, Edward Arnold, New York, 1991.
14. Thoman, Alan etal.: Environmental Policies & NGO influence, Routledge, London, 2001.

GEOG- 403 (iii)

Social Geography (with special reference to India)

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Nature and scope of Social Geography and its place among social sciences.
2. Sources and problems of data for study in Social Geography of India.
3. Social differentiation and region formation.

UNIT-II

4. Tribes: Social formations, rural-urban and spatial distribution and impacts of development.
5. Castes: Origin, caste and morphology of settlements, caste and clan territories and distribution of scheduled castes.

UNIT-III

6. Languages: Classification, historical processes of diffusion and geographical distribution.
7. Religions: Origin, historical background and spatial distribution of religious groups.

UNIT-IV

8. Social change and transformation in India.
9. Rural-urban interaction and social change.
10. Social wellbeing -overview of concept.

Suggested Readings:-

1. Ahmad, Aijazuddin, Social Geography, Rawat Publication, New Delhi, 1999.
2. Dreze Jean, Amartya Sen, Economic Development and Social opportunity, Oxford University Press, New Delhi, 1996.
3. Dubey, S.C.: Indian Society, National Book Trust, New Delhi, 1991.
4. Schwartzberg Joseph; An Historical Atlas of South Asia, University of Chicago Press, Chicago, 1978.
5. Sen, Amartya & Drze Jean, Indian Development: Selected Regional Perspectives, Oxford University Press, 1996.
6. Smith, David: Geography: A Welfare Approach, Edward Arnold, London, 1977.
7. Sopher, David.: An Exploration of India, Cornell University Press, 1980.
8. Subba Roa. Personality of India; Pre and Proto Historic foundation of India and Pakistan. M.S. University Baroda, Vadodara, 1958.

GEOG- 403 (iv)

Coastal Geomorphology

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

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UNIT-I

1. Significance of coastal geomorphology, Time as a factor in coastal geomorphology.
2. Classification of coasts and shore: submerged and emerged coasts (upland and lowland),
   classification of coasts by Johnson, Shepard and Valentin, development of marine cycle of erosion.

UNIT-II

3. Waves generation and modification, waves in shallow and deep water, wave energy, waves induced currents, Tsunamis and Seiches, Tides and currents.
4. Processes of marine erosion, factors responsible for marine erosion, Topographic features resulting from marine erosion, structural control of shore zone morphology.

UNIT-III

5. Constructional coastal land forms: Processes and morphology of sandy and muddy shores- beaches and beach ridge, barriers spit and bar; mudflats and marshes (salt and tidal), formation of estuaries and mangrove swamps.
6. Coastal sand dunes and deltas –origin, classification and distribution

UNIT-IV

7. Shoreline change-mechanism, rates and causes
8. Coastal zone management – mapping and monitoring of coastal changes, legal and institutional coastal regulation, effective coastal zone policies.

Suggested Readings:

1. Ahmad, E.: Coastal Geomorphology of India. Orient Longmans, Bombay, 1973.
2. Bose, A.et. al: Coastal Zone Management of West Bengal, Pub. Sea Explorers Institute, Calcutta, 1985.
3. Bird, E.C.: Coasts- An Introduction to Coastal Geomorphology, Basil- Blackwell, Oxford, 1984.
4. Davis J.L: Geographical Variation in Coastal Development. Hafner Pub.Co., New York, 1973.
5. French, P.W.: Coastal and Estuarine Management, Routledge, London, 1997.
6. John, P: An Introduction to Coastal Geomorpholocy. Arnold Heinemann, London, 1984.
7. Kind. C.A.M: Beaches & Coasts, Edward Arnold, London, 1972.
8. Scientific American: Readings in Earth Sciences, Vols I-III. Taraporevala Pub., Bombay, 1975.
9. Shepard, F.P. and Wanless, N.R.: Our changing Coastlines. Oxford University Press, 1971.
10. Pethick, J. 1983. An Introduction to coastal Geomorphology. Oxford University Press, New York.

GEOG- 403(v)

Tropical Climatology

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Nature and scope of Tropical Climatology.
2. Energy balance and temperature distribution in tropical areas.

UNIT-II

3. Atmospheric Pressure and circulation in tropical areas-Hadley Cell, Walker Circulation, ENSO.
4. Monsoons-Theories of origin and characteristics.

UNIT-III

5. Tropical Cyclones-Origin and characteristics.
6. Tropical Rainfall-Dynamics and distribution.

UNIT-IV

7. Tropical Climates-Classification and characteristics.
8. Tropical Climates and agriculture: Human Adaptation to Tropical Climates.
9. Impact of Global Warming on Tropical Climates and Biomass.

Suggested Readings:

1. McGregor, GR and Simon Nierswold (1998) Tropical Climatology: An introduction to the Climates of the Low Latitudes, Wiley Interscience.
2. Barry, RF and RJ Chorley (1998) Atmosphere, Weather and Climate, Routledge, London.
3. Chritchfield, HJ, General Climatology.
4. Das PK (1987) The Monsoons, NBT Publications, New Delhi.
5. Fein JS and PM Stephens (1987) Monsoons, Wiley Intersciences.
6. Robinson PJ and S Henderson (1999) Contemporary Climatology, Henow.
7. Thompson, RD and A Perry (Ed.) (1997): Applied Climatology, Principles and Practices, Routledge, London.
8. Trewartha, GT. An Introduction to Climate. McGraw Hill Company, New York, 1980.

GEOG- 404 (i)
Gender Geography

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Growth and evolution of the discipline; its connotation; traditional concept of interdependence between men and women; emergence of patriarchy and capitalism and post-modern feminist movement.
2. Gender based demographic structure; gender gaps in infant mortality rates; maternal mortality rate; female infanticide; gender and longevity gap- their spatial variations.

UNIT-II

3. Male-Female involvement in Economic and Social Activities; multiple role of women in land, water and forest resource management.
4. Involvement of women in household activities, agriculture, mining, construction, industry, service and informal sectors.

UNIT-III

5. Gender gaps in social and public life: education, wage differentials in economic activities, health care and nutrition.
6. Scope for bridging gender gap: empowerment of women and education, economic opportunities, access to reproductive health services, involvement in decision making processes in development and environmental management.

UNIT-IV

7. Gender and Neo-liberalization Policies in India.
8. Making of Gender geography in India.

Suggested Readings:-

1. Boserup, E(1989) Women's Role in Economic Development. Earthscan, London.
2. Dankelman, I & Davidson, J (1989)Women and Environment in the Third World. Earthscan, London.
3. Deblig, H.J (1991) Human Geography-Culture, Society and Space (5th ed.), John Wiley, New York.
4. Haraway, D. (1991) Simians, Cybergs. and Women-The Reinvention of Nature. Rautledge, New York.
5. Johnston, R.J (ed.) (1996), The Dictionary of Human Geography, Blackwell, Oxford,
6. Koblinsky, M. et.al (eds.): The Health of Women-A Global Respective. Westview Press, Boulder, 1993.

7. Lee, D (1988) Women in Geography-A Comprehensive Bibliography. Boca Raton, Florida.
8. Lewis, R. Race, Feminity and Representation. Routledge, New York, 1995.
9. Momsen, JH. & Townsend, J. (eds.): Geography of Gender in the Third World, Albany, New York, 1987.
10. Montagu, A (1964)Man's Most Dangeroud Myth-the fallacy of Race. Cleveland,
11. Reagent, A.C. & Monk J.J. (eds.) Women and Spatial change. Kendell & Hund, Dubuque, Lowa, 1982.
12. Rhodda, A (1991)Women and Environment. Zed, London,
13. Seager, J. & Olson, A.: Women in the world – An International Atlas.
14. Sivant, R.L (1985) Women.-A World Survey, World Priorities Washington, D.C.
15. Skjelsback, I smith, D Gender, Peace and Conflict. Sage, London, 2001.
16. Sowell, T (1994) Race and culture –A world View. Basic Books, New York.
17. UNICEF: The Lesser Child-the Girl in India. United Nations, Geneva, 1990.
18. United Nations (1991)The World's Women, 1970-1990. United Nations, New York.
19. United Nations (1995)World Resources 1994-95. Chapter 3: Women and Sustainable Development. United Nations, New York.

GEOG- 404(ii)

Geography of Tourism (with special reference to India)

Max Marks:80

Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Definition, nature and scope of tourism.
2. Factors influencing tourism, historical, physical, socio-cultural and economic.

UNIT-II

3. Motivating factors of tourism: leisure, recreation, attraction of site and situation.
4. Infrastructure and support system of tourism accommodation and supplementary accommodation.

UNIT-III

5. Tourism potentials in India with reference to northern mountains and plains, peninsula, coastal regions and islands.
6. Impact of tourism: physical, economic, social and perceptional.

UNIT-IV

7. Environmental laws and tourism.
8. Role of foreign capital in tourism and impact of globalization on tourism and health tourism in India.

Suggested Readings:-

1. Bhatia A.K. Tourism Development; Principles and Practices. Sterling Publishers, New Delhi 1996.
2. Bhatiya, A.K. International Tourism – Fundamentals and Practices, Sterling, New Delhi (1991).
3. Chandra R.H.: Hill Tourism: Planning and Development, Kanishka Publishers, New Delhi 1998.
4. Hunter C and Green H: Tourism and the Environment: A Sustainable Relationship, Routledge, London, 1995.
5. Inskeep.E: Tourism Planning: An Integrated and Sustainable Development Approach, Van Nostrand and Reinhold, New York, 1991.
6. Kaul R.K. Dynamics of Tourism & Recreation. Inter-India, New Delhi (1985).
7. Kaur J. : Himalayan Pilgrimages & New Tourism Himalayan Books, New Delhi, 1985.
8. Lea J.: Tourism and Development in the Third World, Routledge, London, 1988.
9. Molton D.: Geography of World Tourism Prentice. Hall, New York, 1993.
10. Pearce D.G. Tourism To-day: A Geographical Analysis, Harlow, Longman, 1987.
11. Robinson, H. A Geography of Tourism. Macdonald and Evans, London, 1996.
12. Sharma J.K. (ed).: Tourism Planning and Development – A New Perspective Kanishka Publishers, New Delhi 2000.
13. Shaw G. And Williams A.M. Critical issues in Tourism-A Geographical perspective, Oxford: Blackwell, 1994.
14. Sinha P.C. (ed): Global Tourism: The Next decade, Oxford, Butterworth, Heinemann, Oxford, 1994.
15. Voase R Tourism: The Human Perspective Hodder & Stoughton, London, 1995.
16. Williams A.M. and Shaw G. (eds): Tourism and Economic Development- Western European Experiences, London.

GEOG- 404 (iii)

Cultural Geography

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Definition, nature and scope of Cultural Geography; cultural elements and components of culture.
2. The evoluation of Human Civilizations with special reference to:
   (i) Mesopotamia
   (ii) The Nile Valley
   (iii) The Indus Valley
   (iv) The Hwang Ho Valley

UNIT-II

2. Bases of cultural diversity and cultural transformation-race, religion and language.
3. Cultural landscape and cultural ecology.
4. The speed and efficiency of operation of cultural processes.

UNIT-III

5. Race, evolution of race, criteria of racial classification, theories of the classification of Races-Zones and Strata or Migration Zone Theory of race evolution.
6. Classification of Races: Major races of the world: Nordics, Mongoloids, Negroids and Caucasoids.
7. Racial Classification in India-Sri Risley, A.C. Haddon, B.S. Guha.

UNIT-IV

8. Tribes of India with main emphasis on Naga, Khasis, Todas, Bhils and Santhals.
9. Patterns of livelihood: Various economic activities, cultural adaptations; agriculture, industrialization and modernization, technological changes and their geographical implications.

Suggested Readings:

1. Wagner, P.L. and Mikesell, M. (1962) Readings in Cultural Geography, the University of Chicago Press, Chicago.
2. Spencer, J.E. and Thomas, W.L. (1973) Introducing Cultural Geography, John Wiley and Sons, New York.
3. Dickens, S.N. (1970) Introduction to Cultural Geography, Xerox College Publishing House, Waltham, Massachusatts.
4. De Blij, Harm J. (1977) Human Geography, Cultural Society and Space, John Wiley and Sons, New York.
5. Taylor G. (1971), the Geography in the Twentieth Century, Asia Publishing House, New Delhi.
6. Magunder, D.N. (1973), Races and Culture of India, Asia Publishing House, New Delhi.
7. Mukerjee, A.B. and Aijazuddin A. (1985) India: Culture, Society and Economy, Inter-India Publications, New Delhi.
8. Craig, Mike (1998): Cultural Geography, Routledge Publications, London.

GEOG- 404 (iv)

Geography of Water Resources

Max Marks:80
Time : 3 Hrs.

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Definition, nature and scope of the geography of water resources. Distribution of water (surface and subsurface), changing trends in use of water, water crises in world.
2. Water demand and use: methods of estimation, agricultural, industrial and municipal uses of water.

UNIT-II

3. Agricultural use of water: estimation of crop-water requirement, water balance and drought; major and minor irrigation projects, water harvesting techniques, soil water conservation.
4. Irrigation- waterlogging, salinity and alkalinity of soils, over exploitation of ground water, water quality parameters, water pollution: river and ground water pollution.

UNIT-III

5. Water resource problems: Water demand and supply, water quality, interstate water disputes, institutional and financial constraints, water rights, ecohydrological consequences of environmental degradation, footprints of water, virtual water.
6. Impact of water resources development on economic development, important water resources projects in India, positive and negative environmental impacts of water resources projects (with special reference to Bhakra Nangal, Indira Gandhi Canal and Damodar Valley Corporation).

UNIT-IV

7. Problems of water resource management: Floods, magnitude/frequency, structural and non-structural adjustment of flood hazards; flood forecasting. Droughts-occurrence and management.
8. Conservation and planning for the development of water resources, integrated basin planning; conjunctive use of surface and ground water resources; watershed management, water policy, water management in urban areas, inter basin transfer of water (interlinking).

Suggested Readings:

1. Aggarwal, Anil and Sunita Narain : Dying Wisdom: Rise, Fall and Potential of India's Traditional Water Harvesting System, Centre of Science and Environment, New Delhi, 1997.
2. Jones, J.A.: Global Hydrology; Processes, Resources and Environmental management, Longman, 1997.
3. Michael. A.M.: Irrigation: Theory and Practices, Vikas Publishing House Pvt. Ltd., New Delhi, 1978.

4. Mather, J.R., Water Resources Distribution, Use and Management, John Wiley, Marylane, 1984.
5. Newson, M. Land Water and Development River Basin Systems and their Sustainable Management, Routledge, London, 1992.
6. Rao, K.L.: India's Water Wealth, Orient Longman, New Delhi, 1979.
7. Tideman, E.M. Watershed Management; Guidelines for Indian Conditions, Omega, New Delhi, 1996.
8. Gurjar RK and Jat B.C. 2008. Geography of water Resources, Rawat Publications, Jaipur.
9. www.wsscc.com (website related to water and sanitation)

GEOG- 404 (v)

Urbanization in India

Max. Marks 80

Time: 3 Hrs

Note:- There will be nine questions in all. Question No.1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. History of urbanization in India: Ancient, Medieval, Colonial and post independence phases of urbanization.
2. Processes of urbanization: Socio-cultural, political, economic and geographical processes.

UNIT-II

3. Patterns of urbanization: settlement structure, level of urbanization, criteria of measurement and spatial patterns of urbanization in India.
4. Recent trends of urbanization in India.

UNIT-III

5. Urban regions of India: case studies of metropolitan regions of Delhi, Mumbai, Kolkata and Chennai.
6. Contemporary Urban issues: Urban poverty, slums and urban renewal, urban infrastructure and solid waste management.

UNIT-IV

7. Role of urbanization in economic and social change.
8. SEZ : Concept, policies and consequences.
9. National urbanization policy.

Suggested Readings:

1. Alam. S.M.: Hyderabad- Secunderabad Twin Cities Asia Publishing House, Bombay, 1964.
2. Alam, SM and Khan, W: Metropolitan Hyderabad and its Region: A Strategy for Development, Asia Publishing House, Bombay, 1972.
3. Berry, B.J.L. and Horton F.F. Geographic Perspectives on Urban Systems, Prentice Hail, Englewood Cliffs, New Jersey, 1970.
4. Carter: The Study of Urban Geography, Edward Arnold Publishers, London, 1972.
5. Chorley, R.J. and Haggett P. (ed.) : Models in Geography, Methuen, London, 1966.
6. Dickinson, R.E.: City and Region, Routeldge, London, 1964.
7. Dwyer, D.J. (ed.) The City as a Centre of Change in Asia, University of Hong Kong Press, Hongkong, 1971.
8. Gibbs J.P.: Urban Research Methods D. Van Nostrand Co.Inc. Princeton, New Jersey, 1961.
9. Hall P.: Urban and Regional Planning, Routeldge, London, 1992.
10. Hanser, Philip M. and Schnore Leo F.(ed.): The Study of Urbanization, Wiley, New York, 1965.
11. James, P.E. and Jones C.F. (eds.): American Geography, Inventory and Prospect, Syracuse University Press, Syracuse, 1954.
12. Kundu, A.: Urban Development and Urban Research in India, Khanna Publication, 1992.
13. Meyor, H,M. Kohn C.F. (eds.): Readings in Urban Geography, University of Chicago Press, Chicago, 1955.
14. Mumford, L Culture of Cities, Mc & Co. London, 1958.

15. Nangia, Sudesh Delhi Metropolitan Region: A study in settlement geography, Rajesh Publication, 1976.
16. Rao V.L.S.P: Urbanization in India: Special Dimensions. Concept Publishing Co. New Delhi.
17. Rao V.L.S.P: The Structure of an Indian Metropolis: A study of Bangalore Allied Publishers Bangalore, 1979.
18. Singh K and Steinberg F.(eds.): Urban India in Crisis, New Age Iterns, New Delhi, 1998.
19. Smailes A.E.: The Geography of Towns, Hutchinnson, London, 1953.
20. Tewari, Vinod K, Jay A. Weinstein, VLS Prakasa Rao (editors) Indian Cities: Ecological Perspectives, Concept, 1986.

GEOG- 405 (A)

Fundamental of Geographical Information Systems (Theory)

Max Marks:40
Time : 3 Hrs

There will be seven questions in all. Question No.1 is compulsory and consists of 5 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 6 long questions, three from each unit. The candidate shall attempt THREE long questions selecting at least one from each unit. All questions carry equal marks.

UNIT-I

1. GIS: concept, definition and development.
2. Hardware and software requirements for GIS environment
3. Data for GIS : (i) Spatial data and their sources (ii) Non –spatial data and their sources; (iii) data structure: vector and raster
4. Data Base Management System; Sources of errors in GIS database.

UNIT-II

5. Map, scale and map projection: Need of projection, spherical co-ordinate system and properties.
6. Integration of Remote Sensing data into GIS and its application in resource mapping, urban management and real time mapping.
7. Current issues in GIS.

Suggested Reading :

1. Ian Heywood, Sarah. C and Srinivaras Raju (2006), An Introduction to GIS, Peason Education, Delhi.
2. Prithvish Nag and Samita Sengupta (2007). GIS Concepts and Business opportunities, Concept publication, Delhi.
3. Jeffery Stare and John Estes (1990) Geographical Information Systems: An introduction, Prentice Mall.
4. Chrisman, Nicholas, (1997) Exploring GIS. John Wiley and Sore.
5. ESRI, (1997) Readings in: GIS at work in the Community.
6. ARC News, ESRI, Red Lands, California.
7. GIS World, Inc, Fort Collings, Colorado
8. D.J. Maguire, M.F. Goodchild and D.W. Rhind (1991), Geographical Information System: Principles and Applications, Longman Scientific and Technical.
9. T. Bernhardsen (1999), GIS: An Introduction, Wiley, New York.

GEOG- 405 (B)

Fundamental of Geographical Information Systems (Practical)

Max Marks:40
Time : 3 Hrs.

Distribution of Marks:

Exercises/Lab work	24 Marks
Project Work	6 Marks
Viva voce	10 Marks

Note: Students have to prepare a Project file using spatial and non-spatial data based on 6 exercises mentioned below:

Practical Exercises:

1. Georeferencing
2. Creation of Geo-data base and shape file.
3. On screen digitization/vectorisation of spatial data in the form of 3 layers: polygon, polyline and point.
4. Adding attributes to these layers and statistical calculations.
5. Displaying attribute data on map by various methods.
6. Preparing layout and printing of theme map.