

Maharshi Dayanand University, Rohtak
Scheme of Examination
B.A. / B.Sc. (Honours) Geography

B.A./ B.Sc. (Hons.) programme in Geography shall be of three years duration spread over six semesters. Each semester shall consist of four theory papers and one practical paper carrying 100 marks each. The theory paper will comprise of 80 marks for end-semester examination and 20 marks for internal assessment. The first two semesters shall contain one theory paper English from other than Geography. All the semesters shall contain one theory paper as subsidiary paper from other than Geography. The end-term examination of all theory and practical papers shall be of three and four hours respectively. A board of two examiners shall conduct the Practical Examination.

Semester 1 Examination (2011-12 onwards)

Paper Code	Nomenclature of Paper	End-Term Exam	Internal Assessment
101	Introduction to Geography	80	20
102	Fundamentals of Physical Geography	80	20
103	English-I	80	20
104	Subsidiary Paper	80	20
105	General Cartography (Practical)	100	
	a) Lab Test	60	
	b) Practical Record	30	
	c) Viva-Voce	10	

Semester-II Examination (2011-12 onwards)

201	Ecology and Environment	80	20
202	Fundamentals of Human Geography	80	20
203	English-II	80	20
204	Subsidiary Paper	80	20
205	Representation of Physical Features (Practical)	100	
	a) Lab Test	60	
	b) Practical Record	30	
	c) Viva-Voce	10	

Semester- III Examination (2011-12 onwards)

301	Geomorphology	80	20
302	Regional Development	80	20
303	Geography of India	80	20
304	Subsidiary Paper	80	20
305	Thematic Cartography (Practical)	100	
	a) Lab Test	60	
	b) Practical Record	30	
	c) Viva-Voce	10	

Semester-1V Examination (2011-12 onwards)

401	Climatology	80	20
402	Population Geography	80	20
403	Statistical Techniques in Geography	80	20
404	Subsidiary Paper	80	20
405	Basic Principles of Land Surveying (Chain-Tape, Plane Table Survey and Clinometer) (Practical)	100	
	a) Lab Test	60	
	b) Practical Record	30	
	c) Viva-Voce	10	

Semester-V Examination (2012-13 onwards)

501	Modern Geographical Thought	80	20
502	World Regional Geography	80	20
503	Optional – 1. Agricultural Geography	80	20
	2. Urban Geography	80	20
	3. Geography of Tourism	80	20
504	Subsidiary Paper	80	20
505	Map Projections, Prismatic Compass Surveying and Field Report (Practical)	100	
	a) Lab Test (Unit I & II)	60	
	b) Practical Record and Field Report	30	
	c) Viva-Voce	10	

Semester-VI Examination (2012-13 onwards)

601	Oceanography	80	20
602	Economic Geography	80	20
603	Optional – 1. Industrial Geography	80	20
	2. Political Geography	80	20
	3. Social and Cultural Geography	80	20
604	Subsidiary Paper	80	20
605	Fundamentals of Remote Sensing (Practical)	100	
	a) Lab Test (Interpretation of Aerial Photographs)	60	
	b) Practical Record	30	
	c) Viva-Voce	10	

Paper-101

INTRODUCTION TO GEOGRAPHY

Max.Marks: 100

End Term exam: 80

Internal Assessment: 20

Unit-I

The nature of Geography; core Geographic concepts: location, direction, patterns and distance; physical and cultural attributes; the pattern concepts and process concepts; geography and society.

Unit-II

Developments of geography during ancient period; contributions of Greeks and Romans: Herodotus, Eratosthenes, Strabo, Ptolemy; developments of geography in India during Vedic period; contributions of Arab scholars: Ibn Batuta, Ibn Khaldun, Al Baruni.

Unit- III

Age of exploration and discoveries: contribution to expansion of geographic horizons; revival of geography as scientific discipline: contributions of Kant and Varenius.

Unit- IV

Dualisms in geography: systematic and regional geography; physical and human geography; study of the following view points: areal differentiation, landscape school, locational school, spatial organization.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Ali, S. M. (1966), *The Geography of Puranas*, People's Publishing House, Bombay.
- Dikshit, R.D. (1994), *The Art and Science of Geography: Integrated Readings*, Prentice-Hall of India Pvt Ltd. New Delhi.
- Dikshit, R.D. (1997), *Geographical Thought: A Contextual History of Ideas*, Prentice-Hall of India Pvt Ltd. New Delhi.
- Hartshorne, R. (1959), *Perspective on Nature of Geography*, Rand McNally, Chicago.
- Hartshorne, R. (new print 1976), *The Nature of Geography*, Lancaster.
- Husain, M. (2nd ed. 1990), *Evolution of Geographical Thought*, Rawat Publications, Jaipur.
- James, P. (1972), *All Possible Worlds: A History of Geographical Ideas*, Odessey Press, Indianapolis.
- Minshull, R. (1970), *The Changing Nature of Geography*, Hutchinson, London.
- Maurya, S.D (2010 in Hindi), *Bhugolik Chintan Ka Itihas*, Prayag Pustak Bhawan, Allahabad.
- Prasad, D. (in Hindi), *Bhugolik Chintan Ki Samiksha*, Sharda Pustak Bhawan, Allahabad
- Kaushik, S.D. (2007), *Prichyatmak Bhugol*, Rastogi Publications, Meerut.
- Husain, M. (in Hindi), *Bhugolik Chintan Ka Itihas*, Rawat Publications, Jaipur.
- Holt-Jensen, (1980), *A Geography: Its History and Concepts*, Longmans.

Paper-102
FUNDAMENTALS OF PHYSICAL GEOGRAPHY

Max. Marks: 100
End Term exam: 80
Internal Assessment: 20

Unit-I

Nature and scope of Physical Geography; origin of earth: Binary Star Hypothesis of Russel, Hypothesis of Otto Schimidt, Gaseous hypothesis of Kant, Nebular hypothesis of Laplace; distribution of land and water, shape and size of the earth: latitude, longitude, movements, rotation and revolution.

Unit-II

Origin of continent and ocean basin: sliding continents theory of Daly, continental drift theory of Wegner; definition and classification of rocks: igneous, sedimentary and metamorphic; Earth movements: orogenic and epirogenic; weathering and erosion.

Unit-III

Composition and structure of atmosphere; insolation and temperature: vertical and horizontal distribution; air pressure and winds: planetary, periodic and local.

Unit- IV

Relief of ocean floor; temperature and salinity; circulation of oceanic water: sea waves, ocean currents and tides.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Bunnett, R.B. (2003): *Physical Geography in Diagrams*, Orient Longman, New Delhi.
Monkhouse, F.J. (1979): *Physical Geography*, Methuen, London
Trewartha, G.T., Robinson, A.H., Hammond, E.H., and Horn, A.T. (3rd Ed. 1990): *Fundamentals of Physical Geography*, MacGraw-Hill, New York
Strahler, A.N. and Stahler, A.M. (1992): *Modern Physical Geography*, John Wiley and Sons, New York.
Singh, S. (2003): *Physical Geography*, Prayag Pustak Bhawan, Allahabad.
Wooldridge, S.W. and Morgan, R.S. (1959): *The Physical Basis of Geography- An Outline of Geomorphology*, Longman, London.
Lake, P. (1979): *Physical Geography*, Cambridge University Press, Cambridge
Singh, M.B. (2001): *Bhoutik Bhugol*, Tara Book Agency, Varanasi
Singh, S.N. and Singh, V. (2002): *Bhoutik Bhugol*, Mishra Trading Corporation, Varanasi.

Paper-102
FUNDAMENTALS OF PHYSICAL GEOGRAPHY

Max. Marks: 100
End Term exam: 80
Internal Assessment: 20

Unit-I

Nature and scope of Physical Geography; origin of earth: Binary Star Hypothesis of Russel, Hypothesis of Otto Schmidt, Gaseous hypothesis of Kant, Nebular hypothesis of Laplace; distribution of land and water, shape and size of the earth: latitude, longitude, movements, rotation and revolution.

Unit-II

Origin of continent and ocean basin: sliding continents theory of Daly, continental drift theory of Wegner; definition and classification of rocks: igneous, sedimentary and metamorphic; Earth movements: orogenic and epirogenic; weathering and erosion.

Unit-III

Composition and structure of atmosphere; insolation and temperature: vertical and horizontal distribution; air pressure and winds: planetary, periodic and local.

Unit- IV

Relief of ocean floor; temperature and salinity; circulation of oceanic water: sea waves, ocean currents and tides.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Bunnett, R.B. (2003): *Physical Geography in Diagrams*, Orient Longman, New Delhi.
Monkhouse, F.J. (1979): *Physical Geography*, Methuen, London
Trewartha, G.T., Robinson, A.H., Hammond, E.H., and Horn, A.T. (3rd Ed. 1990): *Fundamentals of Physical Geography*, MacGraw-Hill, New York
Strahler, A.N. and Stahler, A.M. (1992): *Modern Physical Geography*, John Wiley and Sons, New York.
Singh, S. (2003): *Physical Geography*, Prayag Pustak Bhawan, Allahabad.
Wooldridge, S.W. and Morgan, R.S. (1959): *The Physical Basis of Geography- An Outline of Geomorphology*, Longman, London.
Lake, P. (1979): *Physical Geography*, Cambridge University Press, Cambridge
Singh, M.B. (2001): *Bhoutik Bhugol*, Tara Book Agency, Varanasi
Singh, S.N. and Singh, V. (2002): *Bhoutik Bhugol*, Mishra Trading Corporation, Varanasi.

Paper 105
GENERAL CARTOGRAPHY

Max. Marks: 100
Lab Test 60
Practical Record 30
Viva-voce 10

Unit-I

Basic Concepts of Cartography: Meaning, nature and subject matter of Cartography; Maps – Elements and Classification of maps

Unit-II

Map Scales.

- (i) Methods of expressing a scale
- (ii) Conversion of Statement of Scale into R.F. and R.F. to statement of scale.
- (iii) Plain Scale (Km and mile)
- (iv) Comparative Scale
- (v) Diagonal Scale

Unit-III

Measurement of distances and areas on Maps; enlargement and reduction of Maps; Latitude and Longitude; Global Time: Indian standard time, World time-zones, International date-line.

Note:

At least fifteen exercises are to be prepared covering all the topics. In the examination, the lab test shall comprise of six questions in all with at least two questions from each unit. The candidate has to attempt three questions selecting one from each unit.

Suggested Reading List:

- Monkhouse, F.J. and Wilkinson, F.J. (1985), *Maps and Diagrams*, Methuen, London
- Raisz, E. (1962), *General Cartography*, John Wiley and Sons, New York.
- Sarkar, A. K. (1997), *Practical Geography: A Systematic Approach*, Orient Longman, Kolatta.
- Singh, R.L. and Rana P.B. Singh (in English & Hindi 1993), *Elements of Practical Geography*, Kalyani Publishers, New Delhi.
- Singh, L.R. (2006), *Fundamentals of Practical Geography*, Sharda Pustak Bhawan, Allahabad.
- Sharma, J.P. (2001), *Prayogik Bhugol*, Rastogi Publication, Meerut

Paper- 201
ECOLOGY AND ENVIRONMENT

Max. Marks:100
End- term exam:80
Internal Assessment:20

Unit-I

Meaning and component of environment; geography as study of environment; man-environment relationship; Ecology and Ecosystem; Components of the ecosystem: abiotic, biotic.

Unit-II

Functional characteristics of ecosystems: Food chains and food webs; ecological pyramids; energy flow; biomes and its types; biodiversity: importance, causes for the loss of biodiversity.

Unit-III

Environmental pollution: meaning, types and causes of pollution; air pollution, water pollution, noise pollution, land degradation; depletion of ozone layer; green house effect and climate change

Unit-IV

Conservation and management of environment; role of international and national policies; role of UNO: RIO summit, Kyoto protocol, Copenhagen summit.

Note: -

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

Odum, E.P. (3rd Ed 1971), *Fundamentals of Ecology*, W B Saunders Co, Philadelphia.
Strahler, A.N. and Stahler, A.M. (1986): *Geography and Man's Environment*, John Wiley and Sons, New York.
Agarwal K.C. (2001), *Environmental Biology*, Nidhi publishers Ltd, Bikaner
Odum E.P. (1971), *Fundamentals of Ecology*, WB Saunders Co, London.
Saxena H.M. (1999), *Environmental Geography*, Rawat, Publications, Jaipur.
Sharma P.D. (1999), *Ecology and Environment*, Rastogi Publications, New Delhi.
Heywood V.H & Watson R.T. (1995), *Global Biodiversity Assessment*, Oxford University Press.
Dash M.C.: *Fundamentals of Ecology*, Tata McGraw Hill New Delhi.

Paper- 202
FUNDAMENTALS OF HUMAN GEOGRAPHY

Max. Marks: 100
End Term exam: 80
Internal Assessment: 20

Unit-I

Nature and scope of Human Geography; branches of Human Geography; man-environment relationship; determinism and Possibilism

Unit-II

Evolution of man; classification and characteristics of races; human adaptation to environment: Eskimo, Bushman, Pygmy, Naga, Bhil.

Unit-III

Classification of economic activity: primary, secondary and tertiary, Models in Geography: Von-Thunen's model of agricultural location and Edward Ullman's model of spatial interaction

Unit-IV

Human settlements: Types and pattern of settlements with reference to India; Christaller's central place theory.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

Chisholm, M. (2nd Ed 1985), *Human Geography*, Penguin Books, London.
Husain, M. (in English & Hindi 1994), *Human Geography*, Rawat Publications, Jaipur.
Michael, C.M. (1997), *Process and Change in Human Geography*, Nelson, London.
Singh, L.R. (2005), *Fundamentals of Human Geography*, Sharda Pustak Bhawan, Allahabad.
Kaushik, S.D. (in Hindi), *Manav Bhugol Ke Saral Sidhant*, Rastogi Publications, Meerut.
Singh, D.P. (in Hindi), *Manav Bhugol Ke Mool Tatav*, Sharda Pustak Bhawan, Allahabad.

Paper 205

REPRESENTATION OF RELIEF AND PLANE TABLE SURVEY

Max. Marks: 100
Lab Test 60
Practical Record 30
Viva-voce 10

Unit-I

Intervisibility: determination methods; Interpolation of Contours.

Unit-II

Profiles: types of profiles, drawing of profiles and cross sections; representation of relief – methods.

Unit-II

Representation of different landforms with the help of profiles and cross sections; area: height diagrams, hypsometric curve and altimetric frequency histogram.

Note:

At least fifteen exercises are to be prepared from covering all the topics. In the examination, the lab test shall comprise of six questions in all with at least two questions from each unit. The candidate has to attempt three questions selecting one from each unit.

Suggested Reading List:

Sharma, J.P. (3rd Ed 1989), *Prayogik Bhugol*, Rastogi Publications, Meerut.

Singh, R.L. and Rana P.B. Singh (in English & Hindi 1993), *Elements of Practical Geography*, Kalyani Publishers, New Delhi.

Singh, L.R. (2006), *Fundamentals of Practical Geography*, Sharda Pustak Bhawan, Allahabad.

Paper-301
GEOMORPHOLOGY

Max. Marks: 100
End. term exam: 80
Internal Assessment: 20

Unit-I

Nature and scope of Geomorphology; fundamental concepts; Plate tectonics; Theory of Isostasy: Pratt and Airy; geological time scale.

Unit-II

The earth's interior; Endogenetic forces: folds and faults and associated topography; volcanoes and earthquakes.

Unit-III

Exogenetic forces: weathering and mass wasting; the work of river, wind, glacier, sea wave and underground water and their associated features; Cycle of erosion: Davis and Penk.

Unit-IV

Application of geomorphology to hydrology, economic activities; resource exploration, military action, highway construction, dam site selection.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Savindra, S. (2004) *Geomorphology*, Prayag, Pustak Bhavan, Allahabad.
Thornbury, W. (1990), *Principles of Geomorphology*, Willy, New Delhi.
Douglass. W. B. and Robert. S. A. (2001), *Tectonic Geomorphology*, Blackwell Science. Inc. U.S.A.
Enayat A. (1982): *Physical Geography*, Kalyani Publishers, Ludhiana.
Bloom A L (1992): *Geomorphology*, Prentice Hall of India, New Delhi.
Woodlidge, S.W. and Morgan. R.S. (1959): *An outline of Geomorphology*, Orient Longmans, London.
Savindra S. (in Hindi, 2000): *Bhuakriti Vighan*, Prayag, Pustak Bhavan, Allahabad.
Jat, B. C.(in Hindi) *Bhu-akriti Vighan* ,Rawat Publications, Jaipur.
Parsad, G. (in Hindi), *Bhu-akriti Vighan*, Sharda Pustak Bhawan, Allahabad.
Dev,S. (in Hindi), *Bhu-akriti Vighan*, Vishvabharati Publication, New Delhi.
Goutam, A. (in Hindi), *Bhu-akriti Vighan* , Rastogi Publication, Meerut.

Paper-302
REGIONAL DEVELOPMENT

Max. Marks: 100
End term exam:80
Internal Assessment: 20

Unit I

Concept of region: types of region; methods of delineation of region; growth and development; concept of regional development.

Unit II

Growth and development theories: growth pole theory; spatial diffusion theory; cumulative-causation model; polarization and trickle down effects; Human Development Index & its indicators

Unit III

Regional patterns of development and imbalances in India; planning for regional development; role of agriculture, industry and infrastructure in regional development.

Unit IV

Five year planes in India: features, objectives and assessment (a general introduction); programmes on poverty alleviation and unemployment with special reference to the post economic reform period.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Bhat, L.S. (1972): *Regional Planning in India*, Indian Statistical Institute, Calcutta
- Chand, M. and Puri, V.K. (2004): *Regional planning in India*; Allied Publishers, New Delhi, reprint.
- Chandana, R. C. (2009): *Regional Development and Planning*. Kalyani Publishers, New Delhi.
- Kuklinski, A.R. (ed.) (1975): *Regional Development and Planning: International Perspectives*, Sijthoff-Leyder
- Mishra, R.P, Sundaram, K.V., and Prakasarao, V.L.S. (1976): *Regional Development Planning in India*, Vikas Publishers., New Delhi.
- Mishra, R.P. (1969): *Regional Planning*. University of Mysore, Mysore.

Mishra, R.P. (2002): *Regional Planning, Concepts, Techniques, Policies and Case Studies*. Concept Publishing Company, New Delhi.

Sharma, P.R. (ed.) (1993): *Regional Policies and Development in the Third World*. Rishi Publication., Varanasi.

Sundaram, K.V. (1977): *Urban and Regional Planning in India*, Vikas Publishers. New Delhi.

Dube, K.K. and Singh, M.B. (1986):. Tara Book Agency, Varanas

Chandana, R. C. (2009): *Pradeshik Niyojan and Vikash*, Kalyani Publishers, New Delhi.

Shrivastav and Sharma.(1997) *Pradeshik Niyojan and Santulite Vikash*. Vashundhara Publication, Gorakhpur.

Paper-303
GEOGRAPHY OF INDIA

Max. Marks-100
End Term exam-80
Internal Assessment-20

Unit-I

Physiographic divisions; drainage system; climate; climatic regions (Koeppen); soil and natural vegetation.

Unit II

Minerals and power resources (iron ore, coal and petroleum); multipurpose projects; irrigation; major industries: iron and steel, cotton textile, sugar and automobile.

Unit III

Major Crops (rice, wheat, sugarcane, cotton and tea); Green revolution and its consequences; Macro-regions of India (agricultural, industrial).

Unit IV

Population growth: trends and pattern; sex and age-structure; literacy and urbanization.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Deshpande, C.D., *India: A Regional Interpretation*, Northern Book Centre, New Delhi
- Johnson, B.L.C. (1980), *India: Resources and Development*, Arnold-Hinemann, London.
- Spate, O.H.K. & Learmonth, *India and Pakistan: Land, People and Economy*, Methuen, London.
- Khullar, D.R. (2000), *India: A Comprehensive Geography*, Kalyani Publishers, New Delhi.
- Singh, R.L. (1971), *India: A Regional Geography*, National Geographical Society of India, Varanasi.
- Singh, J. (2003), *India: A Comprehensive Systematic Geography*, Gyanodaya Prakashan, Gorakhpur.
- Singh, G. (1995), *A Geography of India*, Atma Ram & Sons, New Delhi.
- Sharma, T.C. & Coutinho (1991), *Economic and Commercial Geography of India*, Vikas Publishing House, New Delhi.
- Tirtha, R. & Gopal Krishan (1992), *Emerging India*, Conpub Ann Arbour Publishers, Michigan.

Paper 305
THEMATIC CARTOGRAPHY

Max. Marks:100
Lab Test 60
Practical Record 30
Viva-voce10

Unit-I

Cartography: an introduction; techniques in thematic data presentation: bar, line and circle diagram, ergograph, hythergraph and climograph.

Unit-II

Techniques in thematic mapping: selection of class intervals; areal data: choropleth, dot method, proportional circles and spheres; point data: isopleths; linear data: flow line.

Unit-III

Cartographic overlays: areal, point and line data; choropleth maps to be overlain by bar diagrams/ line graphs/ circles, dot map to be overlain by proportional circles/ spheres.

Note:

At least fifteen exercises are to be prepared from all the units covering all the topics. In the examination, the lab test shall comprise of six questions in all with at least two questions from each unit. The candidate has to attempt three questions selecting one from each unit.

Suggested Reading List:

Sharma, J.P. (3rd Ed 1989), *Prayogik Bhugol*, Rastogi Publications, Meerut.
Singh, R.L. and Rana P.B. Singh (in English & Hindi 1993), *Elements of Practical Geography*, Kalyani Publishers, New Delhi.
Monkhouse, F.J. and Wilkinson, F.J. (1985), *Maps and Diagrams*, Methuen, London
Singh, L.R. (2006), *Fundamentals of Practical Geography*, Sharda Pustak Bhawan, Allahabad.

Paper –401
CLIMATOLOGY

Max. Marks-100
End Term exam-80
Internal Assesment-20

Unit-I

Meaning and scope of Climatology; Climate and Weather; elements of climate; Factors affecting climate; composition and structure of atmosphere; atmospheric temperature: vertical and horizontal distribution.

Unit-II

Atmospheric pressure and wind distribution; Atmospheric moisture: humidity, evaporation and forms of condensation; types of precipitation; world patterns of rainfall.

Unit-III

Air masses: concepts and classification; atmospheric disturbances; tropical and temperate cyclones and anticyclones.

Unit-IV

Climatic regions; Classification of Koppen and Thornthwaite; climate changes and Global warming: evidences, causes, consequences and measure of its control.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

Chorley, R.J.(2001), *Atmosphere, weather and Climate*, Methuen, London.

Critchfield, H. J. (2002), *General Climatology*, Prentice Hall of India, New Delhi.

Finch, J.C. and Trewartha, G.T. (), *Elements of Weather and Climate*, Prentice-Hall, London.

Lal, D.S. (in English & Hindi, 1986), *Climatology*, Chaitanya Publications, Allahabad.

Singh, S. (in Hindi, 2006), *Jalwayu Vigyan*, Prayag Pustak Bhawan, Allahabad.

Singh, M.B. (in Hindi, 1998), *Jalwayu Avam Samudra Vigyan*, Tara Book Agency, Varanasi.

Goutam, A. (in Hindi), *Jalwayu Avam Samudra Gyan*, Sarda Pustak Bhawan, Allahabad.

Paper-402
POPULATION GEOGRAPHY

Max. Marks: 100
End Term exam: 80
Internal Assessment: 20

Unit I

Nature and scope of Population Geography; sources and types of population data: census, sample surveys and vital registration system.

Unit II

World population: growth, causes and consequences; factors affecting population distribution; Migration: types and determinants.

Unit III

Population characteristics: fertility and mortality, age and sex structure, occupational structure.

Unit IV

Population Theories: Malthus and Marx; demographic transition theory; problems of population growth in India; population policy in India.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Agarwala, S.N. (1985): *India's Population Problems*, Tata McGraw hill, New Delhi
Chandna, R. C. (In English & Hindi, 2006): *Geography of Population*. Kalyani Publishers, New Delhi
Hassan, M.I. (2005): *Population Geography*, Rawat Publications, New Delhi
Peters, G. L. and Larkin, R.P. (1983): *Population Geography: Problems, Concepts and Prospects*, Kendall/Hunt, Dubuque, IA.
Trewartha, G.T. (1985): *A Geography of Population: World Patterns*. John Wiley and Sons, New York.
Sawan,A.K.P.C.(2005):*A Text Book of Population Studies*: Kalyani Publishers, New Delhi.
Bansal,S.C, *Adhiwas Avam Janskhya Bhugol*, Rastogi Publications, Meerut
Maurya,S.D,: *Janskhya Bhugol*, Sharada Pustak Bhawan Allahabad

Paper-403

STATISTICAL TECHNIQUES IN GEOGRAPHY

Max. Marks: 100
End Term exam: 80
Internal Assessment: 20

Unit-I

Meaning of statistics; classification and tabulation of statistical data; representation of statistical data: line, bar diagram, histogram ogives; significance of statistical techniques in geography.

Unit-II

Measures of central tendency: mean, median, mode; partition values: quartile, pentile and percentile.

Unit-III

Measures of dispersion: mean deviation, standard deviation; co-efficient of variation; Lorenz's curve.

Unit-IV

Correlation (Karl Pearson and Spearman); significance testing of correlation and co-efficient of determination.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Bhagwathi, V. and Pillai, R.S.N. (2003): *Practical Statistics*, Sultan Chand and Company, New Delhi.
- Gupta, S.P. (1998): *Advanced Practical Statistics*, Sultan Chand and Company, New Delhi
- Mahmood, A. (1986): *Statistical Methods in Geographical Studies*, Rajesh Publications, New Delhi
- Zamir, A. (2002): *Statistical Geography: Methods and Applications*, Rawat Publications, Jaipur
- Gupta, S.P and Alka. : *Sankhiki Bhugol*: Sarda Pustak Bhawan, Allahabad.

Paper 405
BASIC PRINCIPLES IN LAND SURVEYING
(Chain Tape, Plane Table and Clinometer)

Max. Marks: 100
Lab Test 60
Practical Record 30
Viva-voce 10

Unit-I

Chain and Tape Survey: plan preparation; fixing of chains; methods: open and close traverse, Triangulation.

Unit-II

Plane Table Survey: plan preparation, methods: radiation and intersection; two point and three point problems; error correction.

Unit-III

Measurement of height and contouring: clinometer.

Note:

At least fifteen exercises are to be prepared from covering all the topics. In the examination, the lab test shall comprise of six questions in all with at least two questions from each unit. The candidate has to attempt three questions selecting one from each unit.

Suggested Reading List:

Sharma, J.P. (2001), *Prayogik Bhugol*, Rastogi Publication, Meerut
Singh, R.L. and Rana P.B. Singh (in English & Hindi 1993), *Elements of Practical Geography*, Kalyani Publishers, New Delhi.

Paper-501
MODERN GEOGRAPHICAL THOUGHT

Max. Marks: 100
End term exam: 80
Internal Assessment: 20

Unit I

Founders of modern geography: contributions of Alexander von Humboldt, Carl Ritter and Friederich Ratzel.

Unit II

Schools of geographical thought: French, British, German and American.

Unit III

Paradigms in geography; approaches in geography: nomothetic and ideographic; concept of region; space and place in geography.

Unit-IV

Contemporary approaches in geography: positivism, behaviouralism, humanism and radicalism.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Amedo, Douglas (1971), *An introduction to scientific reasoning in Geography*. John Wiley.
- Dikshit, R.D. (1994), *The Art and Science of Geography: Integrated Readings*, Prentice Hall of India, New Delhi.
- Dickinson, R.E. (1969), *Makers of Modern Geography*, Routledge & Kegan Paul, London.
- Hartshorne, R. (1959), *Perspective on Nature of Geography*, Rand McNally, Chicago.
- Husain, M. (In English & Hindi, 1990), *Evolution of Geographical Thought*, Rawat Publications, Jaipur.
- Johnson, R.J. (1983), *Philosophy and Human Geography*. Edward Arnold, London.
- Johnson, R.J. (1983), *Geography and Geographers: Anglo-American Human Geography since 1945*. Arnold Heinemann, London.
- Johnston, R.J. (1988), *The Future of Geography*. Methuen, London.
- Minshull, R. (1970), *The Changing Nature of Geography*. Hutchinson, London.
- Dikshit, R.D. (1997), *Geographical Thought: A Contextual History of Ideas*, Prentice-Hall of India Pvt Ltd. New Delhi.
- Rana, L. (2008), *Geographical Thought: A Systematic Record of evolution*, Concept Publishing Company, New Delhi.
- Dikshit, R.D. (1994), *Bhugolik Chintan ka Vikas*, Prentice Hall of India, New Delhi.
- Prasad, D. (in Hindi), *Bhugolik Chintan Ki Samiksha*, Sharda Pustak Bhawan, Allahabad
- Kaushik, S.D. (2007), *Prichyatmak Bhugol*, Rastogi Publications, Meerut.

Paper-502
WORLD REGIONAL GEOGRAPHY

Max. Marks: 100
End term exam: 80
Internal Assessment: 20

Unit-I

Geographic realms and regions, criteria for realms and regions, world geographic realms.

Unit-II

Natural regions of the world- location, climate, human life and economic life of- equatorial, monsoon, tropical deserts, Mediterranean & taiga regions

Unit-III

Economics region – major industrial regions of Japan, U.S.A. and China ; cultural regions of the world on the basis of religion.

Unit-IV

Regional geography of South Asia: physiographic divisions; demographic characteristics; industrialization and urbanization.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- di Blij, H. and Muller, O. (1993): *Geography: Regions and Concepts*. John Wiley and Sons, New York
- Heintzelman and High Smith: *World Regional Geography*, Prentice Hall, New Delhi
- Husain .M (2004), *World Geography*, Rawat Publications, Jaipur,
- Jackson, R. H. and Husman, L. E. (1991): *World Regional Geography: Issues for Today*. John Wiley and Sons, New York.
- Tikkha, Bali, Sekhon (2002), *World Regional Geography*, New Academic Publishing Company, Jalandhar.
- Ranganath (2009), *Regional Geography of the World Vidyanidhi*, Gadag,
- Singh,D. *A Regional Geography of the World*, Kalyani Publication, New Delhi
- Rai, Gayatri (in Hindi, 2007): *Vishwa Ka Pradeshik Bhugol*, Mishra Trading Corporation, Varanasi
- Tikkha, Bali, Sekhon (in Hindi, 2002) *Vishwa Ka Pradeshik Bhugol* , New Academic Publishing House.
- Gautam,A (in Hindi), *Vishwa Bhugol*, Sharda Pustak Bhawan, Allahabad.
- Shakshana,H.S and Rahul and Pooja (in Hindi), Vishwa Ka Pradeshik Bhugol, Rastogi Publication, Meerut*
- Spencer, J. E. (1962), *Asia East by South*, John Wiley and Sons, London.
- Kulshreshtha, S.H. (1983), *Simple Geography of Nepal*, Educational Enterprises, Katmandu.
- Rashid, R.E. (1977), *Geography of Bangladesh*, University Press Bangladesh,
- Jonson, B.L.C. (1970), *Geography of South Asia*, Cooke Ceylon.

Paper 503 (1)
AGRICULTURAL GEOGRAPHY

Max. Marks: 100
End Term exam: 80
Internal Assessment: 20

Unit- I

Nature and scope of Agricultural Geography; Approaches to agricultural geography; physical, cultural and institutional factors affecting agriculture.

Unit- II

World farming systems: subsistence, commercial, plantation, dairying and mixed farming; crop concentration and crop diversification; delineation of crop combination regions (Weaver's method).

Unit- III

Agricultural in India: land-use and cropping pattern; development of irrigation and agriculture; agricultural efficiency and agricultural productivity.

Unit –IV

Agricultural planning and policies in India; Agro-climatic regions of India, Green revolution in India; Second generation reforms in Indian agriculture: Land and institutional reforms.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Gregor, H.P. (1970), *Geography of Agriculture*, Prentice-Hall, New York.
Husain, M. (1996), *Systematic Agricultural Geography*, Rawat Publications, Jaipur.
Mishra, R.P. (1967), *Diffusion of Agricultural Innovations*, University of Mysore, Mysore.
Mohammad, A. (1978), *Studies in Agricultural Geography*, Rajesh Publications, New Delhi.
Shafi, M. (2006), *Agricultural Geography*, Pearson Education, New Delhi.
Sen, S. (1975), *Reaping the Green Revolution*, Tata McGraw-Hill, New Delhi.
Singh, J. and Dhillon, S.S. (2000), *Agricultural Geography*, Tata McGraw-Hill, New Delhi.
Singh, S. (1994), *Agricultural Development in India: Regional Analysis*, Kaushal Publications, Shillong.
Singh, B.B. (in Hindi, 1979), *Krishi Bhugol*, Tara Publications, Varanasi.
Husain, M. (in Hindi, 1996), *Krishi Bhugol*, Rawat Publications, Jaipur.
Gautam, A. (in Hindi) *Krishi Bhugol*, Sharda Pustak Bhawan Allahabad.
Sharma, B.L. (in Hindi) *Krishi Bhugol*, Rastogi Publication, Meerut
Kumar, P. (in Hindi) *Krishi Bhugol*, Madhya Pradesh Hindi Academy, Bhopal.

Paper-503 (2)
URBAN GEOGRAPHY

Max. Marks: 100
End term exam: 80
Internal Assessment: 20

Unit -I

Nature and scope of Urban Geography; definition of urban places; evolution of city through historical times: ancient, medieval and modern.

Unit –II

Size and spacing of cities; Rank size rule; Primate city concept and Central Place Theory (Christaller); ecological processes: centripetal and centrifugal forces.

Unit- III

Internal structure of cities: concentric zone theory, sector theory, multi nuclei theory; functional classification of towns.

Unit –IV

Definition and measures of urbanization; urbanization processes; geographical approaches to urbanization; salient features of urbanization in developed and developing countries.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Carter, H. (Latest edition), *The Study of Urban Geography*. Edward Arnold Publishers, London.
- Kanda, A.(1992), *Urban Development and Urban Research in India*, Khama Publication
- Mayor,H.M. Kohn C.F.(1955), *Readings in Urban Geography*, University of Chicago Press, Chicago.
- Singh K and Steinberg F (1998), *Urban India in Crisis*, New Age interns, New Delhi.
- Nangia, S. (1976), *Delhi Metropolitan Region: A Study in Settlement Geography*, Rajesh Publication.
- Ramchandran. R.(1988),*Urbanization and Urban system in India*, New Delhi, Oxford Publication.
- Singh R. B., (2000), *Urban sustainable in the context of Global Change*, oxfors & IBN Publications, New Delhi.
- Singh,R.N. and Mrya,S.D. (in Hindi), *Nagariya Bhugol*, Sharda Pustak Bhawan, Allahabad.

Paper 503 (3)
GEOGRAPHY OF TOURISM

Max. Marks: 100
End term exam: 80
Internal Assessment: 20

Unit – I

Nature, scope and significance of Geography of Tourism; geographical basis of tourism; resources & infrastructure for tourism: transportation, accommodation & basic infrastructure.

Unit – II

Type of tourism: recreational, religious and historical; Impact of tourism: physical, economic and social cultural; concept of eco-tourism and medico-tourism; new trends in tourism.

Unit – III

Globalization and tourism; growth and development of tourism in India; National Tourism Policy of India.

Unit – IV

Tourism marketing: marketing concepts & marketing in tourism; tourism circuits; tour agencies.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Bhatia A.K. (1978): *Tourism in India*, Sterling Publications, New Delhi.
Burkard, A.J.(1974): *Tourism: Past, present and future*, Heinemann, London.
Robinson H. (1976): *A Geography of Tourism*, Mac Donald and Evans Ltd, London.
Douglas Pearce (1981): *Topics in Applied Geography: Tourist Development*, Longman, New York.
Ministry of Tourism Govt. of India (1992): *Report on National Action Plan on Tourism*, New Delhi.
Ministry of Tourism Government of India (1996): *Report on National Strategy for Development of Tourism*, New Delhi.
Ministry of Tourism Govt. of India (1999): *Report on National Tourism*
Kapoor, V.K (in Hindi): *Parytan Bhugole* , Vishvabharti Publication, New Delhi.

Paper 505
MAP PROJECTIONS, PRISMATIC COMPASS SURVEYING
AND FIELD REPORT

Max. Marks: 100
Lab Test 60
Practical Record and Field Report 30
Viva-voce10

Unit – I

Map projections: Zenithal, Gnomonic, Stereographic, Conical, Bonne's, Polyconic, Cylindrical, Mercator, Conventional, Sinusoidal and Mollweide's projections (one exercise each)

Unit – II

Prismatic Compass Survey: methods and process of surveying; elimination of error (three exercises)

Unit- III

Field trip to go any one of the following regions: Himalayas region, Vindhyan plateau, Ravalli hills, Thar Desert, Southern Plateau, coastal region, Indian islands or any Area of scheduled tribes in India; preparation of field work report for submission in examination.

Note:

In the examination the lab test shall comprise six questions in all with three questions from unit-1 and II each. The candidate has to attempt any three questions selecting at least one from each unit.

Suggested Reading List:

Sarkar, A. K. (1997), *Practical Geography: A Systematic Approach*, Orient Longman, Kolatta.
Singh, R.L. and Rana P.B. Singh (in English & Hindi 1993), *Elements of Practical Geography*, Kalyani Publishers, New Delhi.
Sharma, J.P. (2001), *Prayogik Bhugol*, Rastogi Publication, Meerut.
Kanetkar, T.P. and S.V. Kulkarni (1985), *Surveying and Levelling*, Vol. 1&2, Pune Vidyarthi griha Prakashan, Pune.
Kothari, C.R. (1990), *Research Methodology: Methods and Techniques*, Wishwa Prakashan, New Delhi.

Paper-601
OCEANOGRAPHY

Max. Marks: 100
End Term exam: 80
Internal Assessment: 20

Unit-I

Nature and scope of Oceanography, configuration of oceans floor: continental shelf, continental slope, deep sea plain/ trenches and ridges; bottom relief of Atlantic and Indian oceans.

Unit-II

Factors affecting ocean temperature and salinity; ocean temperature distribution: horizontal and vertical; salinity: composition, horizontal and vertical distribution

Unit-III

Circulation of oceanic water; tides: type and origin, currents: types, origin and distribution; currents of the Atlantic, the Pacific and the Indian oceans; impact of ocean currents on climate and economy

Unit-IV

Marine deposits; nature, classification and world distribution; coral reef: condition of growth, types and world distribution; Ocean as store house of resources.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

Davis, R. J.A. (1996), Oceanography: An Introduction to the Marine Environment, Wm, C. Brown, Iowa.

King, C.A.M. (1962), Oceanography for Geographers, Arnold, London.

Sharma, R.C. (1985), The Oceans, Rajesh Publications, New Delhi.

Sharma, R.C. and Vatal, M. (1980), Oceanography for Geographers, Chaitanya Publishing House, Allahabad.

Lake, P. (2002), Physical Geography (Indian Edition), Mohit Publications, New Delhi.

Lal, D.S. (in Hindi, 1999), Samundar Vigyan, Sharda Pustak Bhawan, Allahabad.

Gautam, A. (in Hindi), Jalvayu Avam Samudar Gyan, Sharda Pustak Bhawan, Allahabad.

Paper-602
ECONOMIC GEOGRAPHY

Max. Marks: 100
End. term exam :80
Internal Assessment : 20

Unit-I

Nature and Scope of Economic Geography; relation of Economic geography with other branches of social sciences; Location and spatial organization of economic activities (Primary, secondary and Tertiary).

Unit- II

Mineral resources: iron ore and bauxite; Power resources: coal, petroleum, nuclear and hydro electricity; Major industries: iron and steel, textiles, petrochemical; Theory of industrial location (Weber);

Unit -III

Agricultural regions of the world (Derwent Whittlesey); Principal crops: wheat, rice, sugarcane and tea; Theory of agricultural location (Von Thunen).

Unit-IV

Trade and Transport: main features of international trade; transport cost, accessibility and connectivity; major oceanic routes of the world.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Paper-603(1)
INDUSTRIAL GEOGRAPHY

Max. Marks: 100
End term exam: 80
Internal Assessment: 20

Unit-I

Nature and scope of Industrial Geography; history of industrialization: mercantilism, colonialism and industrial revolution; core-periphery model in world industrialization.

Unit-II

Factors of industrial location; theories of industrial location : Weber, Hoover , Losch and Smith

Unit-III

Distribution, growth, production, and problems of iron and steel, cotton textile and sugar industries in India, industrial policies in India.

Unit-IV

Major industrial regions; Great Lakes region of USA, Ruhr industrial region, Yangtze region of China, Mumbai- Ahmedabad industrial region of India

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Kulkarni, M.R. (1991), *Industrial Development*, National Book Trust, New Delhi.
Alexanderson, C. (1967): *Geography of Manufacturing*, Prentice-Hall of India, New Delhi.
Hoover, E. M. (1948): *Location and Space Economy*, McGraw Hill, New York.
Lodha, R.M.(2005): *Audyogika Bhoogol*, Rajasthan Hindi Granth Academy, Jaipur
Miller, E. (1962): *A Geography of Manufacturing*, Prentice-Hall, Englewood Cliffs, New Jersey.
Riley, R. C. (1973): *Industrial Geography*, Chatto and Windus Ltd. London.
Singh, M. B. (1990): *New Perspectives in Industrial Geography.*, Lotus Publication, Varanasi.
Singh, M. B. (1988): *Industrial Geography*, Lotus Publication, Varanasi.

Paper-603(2)
POLITICAL GEOGRAPHY

Max. Marks: 100
End term exam: 80
Internal Assessment: 20

Unit-I

Nature and scope of Political Geography; approaches to the study of political geography: morphological and functional.

Unit-II

Concept of nation, state and nation-state; geographic characteristics of states: size, shape, location, cores and capitals; frontier and boundaries.

Unit-III

Global geo-strategic views: Mahan, Mackinder, Spykman and Seversky.

Unit-IV

Forms of Government: unitary and federal; electoral abuses; Malapportionment, Gerrymandering.

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 short answer type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

- Cohan, S. (1964), *Geography and Politics in Divided World*, Random House, New York.
De Blij, H.J. and Glassner, M. (1968), *Systematic Political Geography*, John Willey and Sons, New York.
Dikshit, R.D. (2000), *Political Geography: A Contemporary Perspective*, Prentice Hall, New Delhi.
Pounds, N.J.G. (1972), *Political Geography*, McGraw Hill Publications, New York.
Singh, T.D. (1988), *Hind Mahasagar Avam Parimandaliya Rashtra: Ek Bhugolik Adhyan*, Tara Book Agency, Varanasi.
Sukhwai, B.L. (1987), *Modern Political Geography of India*, Sterling Publication, New Delhi.

Paper-603 (3)
SOCIAL AND CULTURAL GEOGRAPHY

Max. Marks: 100
End. term exam: 80
Internal Assessment: 20

Unit –I

Nature and development of Social Geography; Social Geography in the realms of social sciences; concept of social space; Social differentiation and stratification; Social segregation and social morphology.

Unit-II

Elements of Social Geography: Ethnicity, Tribe, Dialect, Language, Caste & Religion; Linguistic regions in India.

Unit-III

Nature and scope of Cultural Geography; Origin and dispersal of various culture; Culture: definition , elements and components; Cultural area and realm.

Unit-IV

Habitats of man and the origin of the civilization in the world; Racial Elements in India's Population; Tribes of India (Santhal, Gond, Todda, Naga and Bhil).

Note:

The question paper will have five units. Each of the first four units of the question will contain two questions from each unit of the syllabus. Candidate is required to attempt one question from each unit. Unit-V shall be compulsory and contain 8 multiple choice/objective type questions covering the entire syllabus. All questions carry equal marks.

Suggested Reading List:

Admed, A. (2004), *Social Geography*, Rawat Publication, New Delhi

Jones, E. and Eyles, J. (1977), *An Introduction to Social Geography*, Oxford University Press, Oxford.

Rubenstein, J.M. and Becon, J.M. (1990), *Cultural Geography*, John Wiley and Sons, New York.

Spencer, J.E. and Thomas, W.L. (1969), *Cultural Geography*, John Wiley and Sons, New York.

Maurya, S.D. (in Hindi), *Samajik Bhugol*, Sharda Pustak Bhawan, Allahabad.

Parsad, G. (in Hindi), *Sanaskriti Bhugol*, Sharda Pustak Bhawan, Allahabad.

Paper 605
FUNDAMENTALS OF REMOTE SENSING

Max. Marks: 100
Lab Test :60
Practical Record: 30
Viva-voce: 10

Unit I

History and development of Photogrammetry; types of aerial photographs and their applications; Remote sensing: definition and applications; active and passive remote sensing; remote sensing platforms; comparison between aerial photographs and satellite images; basic concepts in GIS

Unit II

Interpretation of Annotations on an aerial photograph; scale determination on vertical aerial photographs; availability and acquisition of aerial photographs in India; Image interpretation (aerial photograph); elements of image interpretation (one exercise on each element).

Unit III

Stereoscope vision; pocket and mirror stereoscope: construction and applications; Identification and mapping of physical and cultural features on aerial photographs.

Note:

At least fifteen exercises are to be prepared from all the units covering all the topics. In the examination, the lab test shall comprise of six questions in all with at least two questions from each unit. The candidate has to attempt three questions selecting one from each unit.

Suggested Reading List:

Deekshatulu, B.L. and Rajan, Y.S. (ed.) (1984): *Remote Sensing*, Indian Academy of Science, Bangalore
Gautam, N.C. and Raghavswamy, V. (2004). *Land Use/ Land Cover and Management Practices in India*, B.S. Publication., Hyderabad
Micheal, N.D.: *Geographic Information Systems*, Wiley India Pvt. Ltd. New Delhi
Nag, P. (ed.) (1992): *Thematic Cartography and Remote Sensing*, Concept Publishing Company, New Delhi
Rampal, K.K. (1999): *Handbook of Aerial Photography and Interpretation*, Concept Publishing Company, New Delhi
Chaunial, D. D. (2004): *Remote Sensing and Geographical Information System* Sharda Pustak Bhawan, Allahaba.