ORDINANCE, REGULATION & SYLLABUS

For

B.A./B.Sc. [GEOGRAPHY]

Offered by

NEHRU GRAM BHARATI

(DEEMED TO BE UNIVERSITY),

KOTWA-JAMUNIPUR-DUBAWAL

PRAYAGRAJ-221505

UTTAR PRADESH

Session:

From 2019 – 2020

PREAMBLE

It gives me immense pleasure to lead the family of more than 200 students and staff in Department of Geography, Nehru Gram Bharati (Deemed to be University) which has doubled in strength every second year. The University has situated sub-tropical monsoon climate near confluence of river *Ganga*, *Yamuna* and extinct *Sarswati*, Allahabad. The University has faced number of obstacles in last ten years facing Socio-economic backwardness, political instability, insurgency and finance. In such challenging situations, the education and health sectors couldn't develop as desired.

The department is well equipped with the GIS and Remote Sensing lab, Cartographic lab, Water analysis lab, Earth & Soil lab and Computer lab. The physical infrastructure of the department is sufficient to support the Post Graduate and Ph. D. students in near future. Very soon PG Diploma Course in GIS and Remote Sensing and Geoinformatics will start in the department. The facility of e-library has facilitated the e-learning resources for the students. Very soon new and applied aids of e-learning would be available to all the students and staff. The department provides equal opportunity to everyone irrespective of gender, community, region or belonging. The student's participation and keen interest in academic and extracurricular activities provide the catalysm to us in fostering more proactive measures for academic development. Career opportunity in Geography is very vast. The Career Counselling committee of the department is working hard to address the career related problems of the students and ensure their good placement. I wish all the students of the department to excel in the field they choose for their future. Last but not least, students are the only treasures we have, so don't hesitate to meet me anytime.

The Philosophy of Geography Programme is to equip the student with theoretical and practical knowledge of the interrelationship between physical and human environment. Hence the Programme is designed in such a way that the student will understand, utilize and effectively manage their environment. Geography as an academic discipline in the Nehru Gram Bharati (Deemed to be University) was introduced in 2009. The staff will adequately provide dynamic environment for training and research.

The department is growing and changing very fast in terms of staff composition, number of students and course content. The department has state of the art laboratories,

classrooms, conference halls with multimedia facilities, staff offices, separate toilets for staff and students (male and female), computer room, examination & records room, central and departmental libraries with e-journal and e-book facilities and 4 wheel drive vehicles for the field survey. With the support from the University management the facilities are increasing every day. The department continues to provide an avenue for training in basic research and workforce development for the country and the people as a whole. The students of the department are so trained that they can work in almost all the spheres of civil services, demography, health, women and child development, urban, rural and regional development and planning etc for the country and beyond; in various ministries and at every level of government from local to national, Non Governmental Organizations, Community Based Activities as well as in any private sector. The training of Geographical Information System and remote sensing will make the students well equipped in digital cartography and highly skilled to get employment in any sectors of economy from micro level to the global.

The objectives of the Department are as following:-

i. To provide training in the principles of geographic ideas or knowledge as applicable in various spheres of life.

ii. To foster awareness of and concern about economic, social, political, ecological, and spatial interdependences in the physical and human environment.

iii. To enable students acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.

iv. To create new patterns of behaviour of individuals and interactions between groups and society as a whole towards the environment.

v. To provide students with opportunities to acquire the necessary applied skills that will enable them pursue career in areas like Environmental Impact Assessment, Geographic Information System (GIS), Remote Sensing, Metrological Station (IAF), Cartography, Surveying, Urban planning, Rural Development, Medical/Health geography etc. Such knowledge and skills will enable geography graduates to fit into many areas of both public and private sectors of the economy.

vi. To create diverse educational experiences fostering a deep understanding of sustainability at all the levels in the World.

Nehru Gram Bharati (Deemed to be University)

Faculty of Arts

Department of Geography

B. Sc. / B. A. Geography: 3 Years Semester Course Outline, 2019-20

NOTE: The courses for B.Sc. & B.A. are identically the same, except code GEOB/ GEOA

SEMESTER I

Paper Code	Explanation	Paper Title
GEOB 101	Theory	Physical Geography - Earth System
GEOB 102	Theory	Physical Geography – Atmospheric System
GEOB 103	Practical	Analysis of Geographical Data and Graphical Representation

SEMESTER II

Paper Code	Explanation	Paper Title
GEOB 104	Theory	Human Geography
GEOB 105	Theory	Economic Geography
GEOB 106	Practical	Field Work - Surveying and Mapping

SEMESTER III

Paper Code	Explanation	Paper Title
GEOB 107	Theory	Regional Geography of World: Asia, Europe, North America and Australia
GEOB 108	Theory	Regional Study of Developed and Developing Countries: USA and China
GEOB 109	Practical	Map Projection and Weather Map

SEMESTER IV

Paper Code	Explanation	Paper Title
GEOB 110	Theory	Geography of India- I
GEOB 111	Theory	Geography of India- II
GEOB 112	Practical	Elementary Statistics

SEMESTER V

Paper Code	Explanation	Paper Title
GEOB 113	Theory	History of Geographical Thought
GEOB 114	Theory	Earths Dynamic System
GEOB 115	Theory	Climatology
GEOB 116	Practical	Map Information

SEMESTER VI

Paper Code	Explanation	Paper Title
GEOB 117	Theory	Population Geography
GEOB 118	Theory	Agricultural Geography
GEOB 119	Theory	Remote Sensing and Geographical Information System
GEOB 120	Practical	Field Study, Field Trip and Report Writing

SEMESTER I

Physical Geography - Earth System

Theory **GEOB 101**

UNIT-I

Meaning, scope and development of physical geography; origin of the earth –Theories of Kant, Laplace, Chamberlin, James Jeans.

UNIT-II

Geological history of earth; interior of the earth; Rocks; isostasy, earth's movements - endogenetic and exogenetic, volcanic and earthquakes;

UNIT-III

Major landforms: mountains, plateaus and plains; weathering; drainage pattern; landforms formed by running water, wind and glacier.

UNIT-IV

Depth zones of the oceans continental shelf, continental slope, deep sea plains and ocean deeps.

UNIT-V

Bottom relief of Atlantic and Indian Oceans; salinity; tides; ocean currents; coral reefs.

Books Recommended

1. Barry, R. G. and Chorley, R. J. (1998): Atmosphere, Weather and Climate. Routledge, London.
2. Bryant, H. Richard (2001): Physical Geography Made Simple, Rupa and Company, New Delhi.
3. Bunnett, R.B. (2003): Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore) Private Ltd.
4. Garrison, T. (1998): Oceanography, Wordsworth Company., Belmont.
5. Lake, P. (1979): Physical Geography (English and Hindi editions), Cambridge University Press, Cambridge.
6. Leong Goh Cheng (2003): Certificate Physical and Human Geography, Oxford University Press, New Delhi.
7. Monkhouse, F.J. (1979): Physical Geography. Methuen, London
8. Singh, S. (2003): Physical Geography. (English and Hindi editions.). Prayag Pustak Bhawan, Allahabad;
9. Trewartha, G.T., Robinson, A.H., Hammond, E.H., and Horn, A.T. (1976/1990): Fundamentals of Physical Geography, 3rd edition. MacGraw-Hill, New York.
10. Strahler, A.N. and Stahler, A.M. (1992): Modern Physical Geography. John Wiley and Sons, New York.

11. Wooldridge, S.W. and Morgan, R.S. (1939): The Physical Basis of Geography- An Outline of Geomorphology. Longman, London. Recent edition and Reprint.

Physical Geography – Earth Atmospheric System

Theory **GEOB 102**

UNIT-I

Composition and structure of the atmosphere; Insolation; Temperature: vertical and horizontal distribution;

UNIT-II

Pressure and pressure belts; Winds: planetary, periodic and local.

UNIT-III

Monsoons; humidity and rainfall; Koeppen & Thonthwaite classification of world climates; Major climatic types- equatorial, monsoon, Mediterranean, west European and Savanna types.

UNIT-IV

Abiotic and biotic components of the biosphere; characteristics and types of ecosystem; biosphere as an ecosystem; biotic succession.

UNIT-V

Man and biosphere, distribution and dispersal of plants; biome types– equatorial rainforest, monsoon, savanna and temperate grassland biomes.

Books Recommended

1. A. Holmes and D.L. Holmes: Principles of Physical Geology, ELBS.
2. A.N. Strahler and A.H. Strahler: Modern Physical Geography, John Wiley and Sons, New York.
3. F. Press and R. Siever: The Earth, W. H. Freeman and Co., San Francisco.
4. M.J. Bradshaw et.al.: The Earth's Changing Surface, ELBS.
5. J.S. Gardner: Physical Geography, Harper Row and Co.
6. R.H. Bryant: Physical Geography, W.H. Allen and Co.
7. Savindra Singh: Physical Geography, Prayag Pustak Bhawan, Allahabad.
8. Savindra Singh: Bhautik Bhoogol,Vasundhara Prakashan, Gorakhpur
9. G.T. Trewartha and L.A. Horn: An Introduction to Climate, McGraw Hill and Co.
10. H.J. Critchfield: General Climatology, Prentice Hall of India, New Delhi.
11. D.S. Lal: Climatology, Sharda Pustak Bhawan, Allahabad.
12. Savindra Singh: Climatology, Prayag Pustak Bhawan, Allahabad
13. M.G. Gross: Oceanography, A View of the Earth, McGraw Hill and Co.
14. R.C. Sharma and M.Vatal: Oceanography for Geographers, Chaitanya Publishing House, Allahabad.
15. Healey Cox and Moors: Biogeography, Blackwell and Co.
16. Wytts: Principles of Biogeography, McGraw Hill & Co.
17. Savindra Singh: Environmental Geography, Prayag Pustak Bhawan, Allahabad.
18. Savindra Singh: Paryavarana Bhoogol, Prayag Pustak Bhawan, Allahabad
19. Savindra Singh: Jalvayu Vigyan , Prayag Pustak Bhawan, Allahabad

20. Daya Shankar Lal: Jalvayu Vigyan avam Samudra Vigyan, Sharda Pustak Bhawan, Allahabad

Analysis of Geographical Data and Graphical Representation

Practical **GEOB 103**

Section A: Analysis of Geographical Data

1. Classification of spatial data; geographical data matrices; concept of measurement scales -nominal, ordinal, interval and ratio; concept & Types of variable independent dependent, discrete continuous; map scales - representative fraction (RF).
2. Statistical methods: (i) frequency distribution - class intervals, frequency, frequency density, cumulative and relative frequency; (ii) measure of central tendencies; mean, weighted mean, median, mode; (iii) measure of dispersion --range, quartile, mean deviation, standard deviation, variance and coefficient of variation.
3. Transformation and combination of data- linear scale, standard score (Z score), rank order, Range standardization.

Section B: Graphical Representation

1. Scales and coordinate systems: arithmetic and logarithmic scale, Cartesian coordinates, polar coordinates.
2. Line graphs, circular graph, logarithmic graphs and scatter graphs; compound line and bar graphs, divided circles, divided rectangles and triangular graphs.
3. Histograms, frequency curves, pyramids, block piles, hythergraph and climograph.

Books Recommended

1. S. Gregory: Statistical Methods and Geographer, Longmans and Co.Londan
2. M.R. Spingel: Theory and Problems of Statistics, McGraw Hill International.
3. N.M. Downie and R.W. Heath: Basic Statistical Methods, Harper Row and Co.
4. F.F. Goxton and L.J. Cowden: Applied General Statistics, Prentice Hall of India.
5. T.P. Kanitkar and S.V. Kulkarni: Surveying and Levelling, Part I, Ava Prakashan.
6. B.C. Punamia: Surveying, Standard Book House.
7. R.L. Singh: Prayogatmak Bhoogol ke Tatwa, Tara Publications, Varanasi.
8. R.C. Tiwari evm S.Tripathi: Abhinav Prayogatmak Bhoogol, Prayag Pustak Bhawan, Allahabad
9. R.L. Singh: Elements of Practical Geography, Kalyani Publication, New Delhi
10. A.K. Sarkar: Practical Geography-A Systematic Approach, Orient Longman, Kolkata, 1997.
11. G.R.P. Lawrence: Cartographic Methods, Methuen, London, 1968.

SEMESTER II

Human Geography

Theory **GEOB 104**

UNIT-I

Nature, scope and development of human geography; Branches of human geography; man and environment relationship - determinism, possibilism Neo determinism and probabilism.

UNIT-II

Approaches - ecological, spatial, behavioural and welfare; Evolution of man; Classification of races; Characteristics of races and their broad distribution.

UNIT-III

Human adaptation to environment: Eskimo, Masai and Bushman; Primitive people of India: Tharu, Naga and Bhil.

UNIT-IV

Growth of population; Distribution of population; Major human agglomerations; Types of Migration; migration problems and planning Trends of Urbanization.

UNIT-V

Rural settlements: characteristics, types and regional pattern; Urban settlements: evolution, functional types, patterns, classification; and morphology; Rural houses in India: types, classification and regional pattern.

Books Recommended

1. Chisholm, M. (1985): Human Geography, 2nd edition, Penguin Books, London.
2. De Blij, H.J.(1996): Human Geography: Culture, Society and Space,. 2nd edition. John Wiley and Sons, New York,
3. Fellman, J. D., Arthur, G., Judith, G., Hopkins, J. and Dan, S. (2007): Human Geography: Landscapes of Human Activities. McGraw-Hill, New York. 10th edition.
4. Haggett, P. (2004): Geography: A Modern Synthesis. 8th edition, Harper and Row, New York.
5. Hussain, M. (1994): Human Geography, Rawat Publications, Jaipur.
6. Johnston, R. J., Gregory, D., Pratt, G. and Watts, M. (2009): The Dictionary of Human Geography. 5th edition, Basil Blackwell Publishers, Oxford.
7. Kaushik, S.D. and Sharma, A.K. (1996): Principles of Human Geography (in Hindi), Rastogi Publication, Meerut.
8. Norton, W. (2008): Human Geography, Oxford University Press, New York. 5th ed.
9. Singh, K. N. and Singh, J. (2001): Manav Bhugol. Gyanodaya Prakashan, Gorakhpur. 2nd edition.
10. Singh, L.R. (2005): Fundamentals of Human Geography, Sharda Pustak Bhawan, Allahabad
11. Smith, D. M.(1977): Human Geography- A Welfare Approach, Edward Arnold (Publishers) Ltd., London
12. Stoddard, R.H., Wishart, D.J. and Blouet, B.W. (1986): Human Geography. Prentice-Hall, Englewood Cliffs, New Jersey.

Economic Geography

Theory **GEOB 105**

UNIT-I

Meaning and approaches to economic geography; Main concepts of economic geography; Resource: concept and classification; Resource conservation.

UNIT-II

Natural resources: soil, forest and water; Mineral resources: iron ore and bauxite; Power resources: coal and petroleum; Principal crops: wheat, rice and cotton.

UNIT-III

Agricultural regions of the world (Derwent Whittlesey); Theory of agricultural location (Von Thunen); Theory of industrial location (Weber); Major industries: iron and steel, and cotton textiles.

UNIT-IV

World transportation: major trans-continental railways, and sea routes; WTO and International trade: patterns and trends; Major trade blocs: EEC, ASEAN; Effect of globalization on developing countries.

UNIT-V

Cultural and social processes - social interactions, social groups and organization; diffusion of cultures; cultural hearths; major cultural realms, major religions of the world.

Books Recommended

1. Alexander, J. W. (1988): Economic Geography. Prentice-Hall, New Delhi,.
2. Bryson, J., Henry, N., Keeble, D. and Martin, R. (eds.) (1999): The Economic Geography Reader: Producing and Consuming Global Capitalism. John Wiley and Sons, Inc, New York.
3. Clark,G. L., Gertler, M. S. and Feldman, M. P. (eds.) (2000): The Oxford Handbook of Economic Geography. Oxford University Press, USA.
4. Coe, N. (2007): Economic Geography: A Contemporary Introduction. Blackwell Publishers, Inc., Massachusetts.
5. Gautam, A. (2006): Aarthik Bhugol Ke Mool Tattava, Sharda Pustak Bhawan, Allahabad.
6. Guha, J. S. and Chattoraj, P.R. (2002): A New Approach to Economic Geography: A Study of Resources. The World Press Private Limited, Kolkata.
7. Hanink, D. M. (1997): Principles and Applications of Economic Geography: Economy, Policy, Environment. John Wiley and Sons, Inc, New York.
8. Hartshorne, T. A. and Alexander, J. W. (1988): Economic Geography (3rd revised edition) Englewood Cliff , New Jersey, Prentice Hall
9. Hudson, R. (2005): Economic Geographies: Circuits, Flows and Spaces. Sage Publications, London.
10. Knowles, R, Wareing, J. (2000): Economic and Social Geography Made Simple, Rupa and Company, New Delhi.
11. Sokal, Martin 2011. Economic Geographics of Globalisation: A short Introduction. Cheltenham, UK: Edward Elgar.

Field Work - Surveying and Mapping

Practical **GEOB 106**

1. Plane Table Survey:

(i) Preparation of map by radial and intersection methods

(ii) Resection (Three-point problem)

(a) Tracing paper or mechanical method, (b) Geometrical method, (c) Trial and error method (inside and outside the triangle)

2. Map Scales –RF, construction of plain, comparative diagonal scale

3. Prismatic Compass Survey:

(i) Preparation of map by open traverse (field book)
(ii) Preparation of map by closed traverse (field book, correction of bearing and removal of closing error).

Books Recommended

1. T.P. Kanitkar and S.V. Kulkarni: Surveying and Levelling, Part I, Avad Prakashan.
2. B.C. Punamia: Surveying, Standard Book House.
3. R.L. Singh: Prayogatmak Bhoogol ke Tatwa , Tara Publications, Varanasi.
4. R.C. Tiwari evm S. Tripathi: Abhinav Prayogatmak Bhoogol, Prayag Pustak Bhawan, Allahabad.
5. R.L. Singh: Elements of Practical Geography, Kalyani Publication, New Delhi
6. A.K. Sarkar: Practical Geography-A Systematic Approach, Orient Longman, Kolkata, 1997.
7. G.R.P. Lawrence: Cartographic Methods, Methuen, London, 1968.

SEMESTER III

Regional Geography of World: Asia, Europe, North America and Australia

Theory **GEOB 107**

UNIT-I

Concept of region in geography; systematic vs regional geography, types and classification of regions (formal and functional); Criteria of delimitation and characteristics of natural, cultural, economic and political regions.

UNIT-II

Asia in the context of world; structure; relief; drainage; climate; natural vegetation and soils; spatial distribution of population; economic base; Regional studies of south, south–east, east and west Asia.

UNIT-III

Europe: Physical, economic and demographic characteristics; Regional studies of British Isles, Eastern, Western and Mediterranean realm.

UNIT-IV

North America: Physical, economic and demographic set up; Regional studies of Australia.

UNIT-V

Australia: Physical, economic and demographic set up; Regional studies of Australia.

Books Recommended

1. R. Hartshorne : Perspective on Nature of Geography.
2. R. Minshull : Regional Geography - Theory and Practice.
3. G.B. Cressey : Asia's Land and People.
4. W.G. Lant, O.H.K. Spate and C. Fisher: Changing map of Asia.
5. N. Ginsberg (ed.) : The Pattern of Asia.

6. J Kole: A Geography of the World's Major Regions, Routledge, London, 1996.
7. H.J. Deblij: Geography: Regions and Concepts, John Wiley, New York, 1994
8. R.H. Jakson & L.E. Hudman: World Regional Geography :Issues for Today, John Wiley New York, 1991.
9. G.H. Minshull: Western Europe, odd and & Stoughton, NY. 1984.
10. J.H. Patterson: Geography of Canada and the United States, Oxford University Press, 1985.
11. J.P. Kole: Latin America-Economic and Social Geography, Poutter worth, USA, 1975
12. S.P. Dickonson et al: The Geography of the Third World, Routledge, London, 1996
13. P. Gourow: The Terrified World: Longman, London, 1980
14 P.W. Ward & A Miller World Regional Geography: A Question of Place John Willey, NY, 1989.

Regional Study of Developed and Developing Countries: USA and China

Theory **GEOB 108**

UNIT-I

Concepts, bases and characteristics of developed and developing countries; Indicators and Levels of development: Developed, Developing, Under-developed, and Least-developed worlds.

UNIT-II

USA: Physical resource base: landforms, climate, soils, vegetation, power and mineral resources.

UNIT-III

USA: Cultural resource base: population, agriculture, industries, Agricultural and industrial regions of USA.

UNIT-IV

China: Physical resource base: landforms, climate, soils, vegetation, power and mineral resources.

UNIT-V

China: Physical resource base: landforms, climate, soils, vegetation, power and mineral resources, Agricultural and geographical regions of China.

Books Recommended

1. di Blij, H. and Muller, O. (1993): Geography: Regions and Concepts. John Wiley and Sons, New York..
2. Jackson, R. H. and Husman, L. E. (1991): World Regional Geography: Issues for Today. John Wiley and Sons, New York.
3. Jones, P. and Bryan, P. (1954): North America: An Historical, Economic and Regional Geography, Methuen and Company. Ltd, London.
4. Kolb, A. (1971): East Asia, China, Japan, Korea, Vietnam, Methuen, London.
5. Rai, Gayatri (2007): Vishwa Ka Pradeshik Bhugol, Mishra Trading Corporation, Varanasi
6. Sharma, P. R. (ed.) (1991): Perspectives on Third World Development. Rishi Publication, Varanasi.
7. Stamp, L. D. (1976): Asia: A Regional and Economic Geography, Methuen, London.

Map Projection and Weather Map

Practical **GEOB 109**

Map Projection: Conical: simple conic with one and two standard parallels, Bonne's; Cylindrical: simple and equal area; Zenithal (Polar case): equidistant and equal area. Weather Map: Weather symbols, Representation of atmospheric features, Interpretation of Indian daily weather maps (July, October and January).

Books Recommended

1. Monkhouse, F. J. and Wilkinson, F.J. (1985): Maps and Diagrams. Methuen, London.
2. Raisz, E. (1962): General Cartography. John Wiley and Sons, New York. 5th edition.
3. Robinson, A., Sale, R. Morrison, J. and Muehrcke, P. C. (1984): Elements of Cartography, John Wiley and Sons, New York
4. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata.
5. Sharma, J. P. (2001): Prayogik Bhugol. Rastogi Publication, Meerut 3rd edition.
6. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi.

SEMESTER IV

Geography of India- I

Theory **GEOB 110**

UNIT-I

Geology; Physiographic divisions; Drainage systems; Climate and climatic regions.

UNIT-II

Soil types and distribution; soil erosion and conservation; forests - types and their economic utilization.

UNIT-III

Minerals and power resources (iron ore, and coal); Multipurpose projects: Damodar Valley,
and Bhakhra Nangal; Irrigation.

UNIT-IV

Crops (rice, wheat, cotton, sugarcane, and tea); Agricultural regions; Green revolution and its consequences.

UNIT-V

Meso-regions of India (Karnataka plateau, and Uttarakhand) and their characteristics.

Books Recommended

1. Chauhan, P.R. and Prasad, M. (2003): Bharat Ka Vrihad Bhugol, Vasundhara Prakashan, Gorakhpur.
2. Farmer, B.H. (1983): An Introduction to South Asia. Methuen, London
3. Gautam, A. (2006): Advanced Geography of India, Sharda Pustak Bhawan, Allahabad
4. Johnson, B.L.C. (1963): Development in South Asia. Penguin Books, Harmondsworth
5. Krishnan, M.S. (1982): Geology of India and Burma, CAS Publishers and Distributors, Delhi.
6. Khullar, D.R. (2007): India: A Comprehensive Geography, Kalyani Publishers, New Delhi
7. Nag, P. and Gupta, S. S. (1992): Geography of India, Concept Publishing Company, New Delhi.
8. Rao, B.P. (2007): Bharat kee Bhaugolik Sameeksha, Vasundhara Prakashan, Gorakhpur.
9. Sharma, T.C. and Coutinho, O. (2003): Economic and Commercial Geography of India, Vikas Publishing House Private Ltd. New Delhi.
10. Singh, J. (2003): India: A Comprehensive Systematic Geography. Gyanodaya Prakashan, Gorakhpur.
11. Singh, J. (2001): Bharat: Bhougolik Aadhar Avam Ayam, Gyanodaya Prakashan, Gorakhpur.
12. Singh, R.L. (ed.) (1971): India: A Regional Geography. National Geographical Society of India, Varanasi.
13. Spate, O.H. K., Learmonth A. T. A. and Farmer, B. H. (1996): India, Pakistan and Sri Lanka. Methuen, London, 7th edition.
14. SukhwaI, B.L. (1987): India: Economic Resource Base and Contemporary Political Patterns. Sterling Publication, New Delhi.
15. Tiwari, R.C. (2007): Geography of India, Prayag Pustak Bhawan, Allahabad.
16. Wadia, D. N. (1959): Geology of India. Mac-Millan and Company, London and student edition, Madras.

Geography of India- II

Theory **GEOB 111**

UNIT-I

Irrigation, agriculture - trends and problems, dry land agriculture, agricultural regions, green and white revolution and agro-climatic regions.

UNIT-II

Population – distribution, growth, density, trends and problems; Road, rail and air transport; inland waterways, foreign trade.

UNIT-III

Industrial growth and development; industrial localization with reference to iron and steel, cotton textile, sugar, cement and chemical, and paper industries, Industrial regions.

UNIT-IV

Trends of Urbanization, urban problems, urban slums, urban policy, regional disparities in economic development, planning regions, multi-level planning bases of India federalism.

UNIT-V

Environmental pollution in India, Geography of Uttar Pradesh.

Books Recommended

1. R.L. Singh (ed.): India : A Regional Geography, NGSI, B.H.U., Varanasi 1971.
2. T.C. Sharma and O. Coutinho: Economic and Commercial Geography of India.
3. B.N. Sinha: Industrial Geography of India.

4. O.H.K. Spate and A.T.A. Learmonth: India and Pakistan.
5. D.N. Wadia : Geology of India.
6. R.C. Tiwari, Geography of India, Prayag Pustak Bhawan, Allahabad.
7 D.R. Khullar : India : A Comprehensive Geography, Kalyani Publishers, Ludhiana.
8. India Reference Annual 2006, Publication Division, Govt. of India, New Delhi
9. Ram Chandra Tiwari: Bharat Ka Bhoogol, Prayag Pustak Bhawan, Allahabad
10. C.B. Mamoria: Bharat ka Bhoogol, Sahitya Bhawan, Agra
11. Alka Gautam:Bharat Ka Bhoogol Sharda Pustak Bhawan, Allahabad
12. Bharat 2006: Publication Division, Bharat Sarkar, New Delhi

Elementary Statistics

Practical **GEOB 112**

Sources of data; classification and Tabulation of data; Measures of central tendency: mean, median and mode, and quartile; Measures of dispersion: mean deviation, standard deviation, Correlation (Karl Pearson and Spearman).

Books Recommended

1. Bhagwathi, V. and Pillai, R.S.N. (2003): Practical Statistics, Sultan Chand and Company, New Delhi
2. Ebdon, D. (1977): Statistics in Geography: A Practical Approach, Blackwell Publishers Inc., Massachusetts
3. Gregory, S. (1973): Statistical Methods and the Geographer, Longman, London.
4. Gupta, S.P. (1998): Advanced Practical Statistics, Sultan Chand and Company, New Delhi
5. Mahmood, A. (1986): Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi
6. Zamir, A. (2002): Statistical Geography: Methods and Applications, Rawat Publications, Jaipur.

SEMESTER V

History of Geographical Thought

Theory **GEOB 113**

UNIT-I

Meaning and scope of geography; Changing philosophy of geography; Geography as an interdisciplinary science; Geography as social science; Geography as a synthesizing science; Explanations in Geography.

UNIT-II

Development of Geography in the ancient classical period; Contributions of Greek, Roman, Indian and Chinese scholars.

UNIT-III

Geography in the dark ages –contributions of Arab geographers; Period of renaissance age of explorations and discoveries and their impacts.

UNIT-IV

Development of Geography in the modern classical period; Rise of philosophical and scientific analysis in geography; Contributions of German, French, British, American and Russian schools of thought.

UNIT-V

Dichotomies in geography: physical vs human, systematic vs regional etc. Different approaches to the study of geography – areal differentiation, landscape, ecological and locational. Development of geography in the first half of the 20th century; fundamental concepts in physical, human, economic and settlement geography.

Books Recommended

1. Minshull: The Changing Nature of Geography
2. Dickinson: The Makers of Modern Geography.
3. Chisholn: Human Geography-Evolution and Revolution
4. D. Harvey: Explanations in Geography, Edward Arnold.
5. East and Wooldridge: The Spirit and Purpose of Geography.
6. P. Haggett: Geography: A Modern Synthesis
7. M. Hussain: Evolution of Geographical Thought, Rawat Publication, Jaipur.
8. R.D. Dixit: Geographical Thought, Prentice Hall of India Pvt .Ltd. New Delhi.
9. R. Hartshrone: Perspective on the Nature of Geography, Rawat Publication, Jaipur.
10. R.J. Chorley & P. Haggett: Models in Geography
11. Majid Hussain: Bhaugolik Vichardharaon ka Itihas, Rawat Pub., Jaipur
12. R.D. Dixit: Bhaugolik Vichardhara, Prentice Hall of India, Pvt .Ltd. New Delhi.

Earths Dynamic System

Theory **GEOB 114**

UNIT-I

Diastrophism; Origin of Continents, Ocean, Basins; Theories of Lothian Green, F.B. Taylor, A.G. Wegener; Plate Tectonic Theory; Isostasy; Volcanism and associated landforms.

UNIT-II

Folding and faulting; Formation of folded mountains; Theories of mountain building, geosynclinal theory of Kober.

UNIT-III

Thermal convection theory of Jeffreys, Convection current theory of Holmes, sliding continent theory of Daly, Plate Tectonic Theory.

UNIT-IV

Concept of cycle of erosion by W. M. Davis and W. Penck; Interruption in normal cycle of erosion and poly cyclic relief.

UNIT-V

Mass movement of rock wastes; Mecharism of coastal, ground water and periglacial processes and resultant landforms.

Books Recommended

1. A.L. Bloom: Geomorphology, Prentice Hall, New Delhi.
2. B.W. Sparks Geomorphology Longmans, London
3. C. Embleton and C.A. M.King: Glacial and Preiglacial Geomorphology, Edward Arnold Publishers, London
4. M.J. Bradshaw et. al: The Earths Changing Suface, ELBS,U.K.
5. R.J. Chorley, et. al. Geomorphology, Methuen, London.
6. R.J. Small: The Study of Landforms, Cambridge University Press, Cambridge.
7. Savindra Singh: Geomorphology, Prayag Pustak Bhawan, Allahabad
8. V.S.Kale and A. Gupta: Introduction to Geomorphology, Orient Longman Ltd. Hyderabad.
9. Savindra Singh Bhuakriti Vigyan,Vasundhara Prakashan, Gorakhpur.
10. D.S. Lal: Climatology, Sharda Pustak Bhawan, Allahabad
11. G.T. Trewartha and L.A. Horn: An Inroduction to Climate, International Studies.
12. H.J. Critchfield: General Climatology, Prentice Hall of India, New Delhi.
13. P.K. Das: Monsoons, National Book Trust, New Delhi
14. R.J. Chorley and R.G. Barry: Atmosphere, Weather and Climate, Mathuen & Co. Ltd. London.
15. Savindra Singh : Climatology, Prayag Pustak Bhawan, Allahabad.
16. Savindra Singh :Jalvayu Vigyan, Prayag Pustak Bhawan, Allahabad.

Climatology

Theory **GEOB 115**

UNIT-I

Meaning and scope of climatology; Atmosphere: Composition and structure; Insolation: determinants and distribution; Temperature: Controlling factors and Distribution; Processes of heating and cooling of the atmosphere.

UNIT-II

Heat budget of earth and atmosphere; Temperature change; Air stability and its importance;

Laws of Horizontal Motion and general Atmospheric Circulation, Monsoon, Jet Stream and

their significance with reference to India

UNIT-III

Precipitation: Theories of Precipitation Formation, forms and types; Air Masses: classification and modification; Fronts: source regions, types and associated weather.

UNIT-IV

Cyclones: tropical and temperate; hurricanes; tornadoes; thunderstorm; Climatic classification: Köppen and Thornthwaite;

UNIT-V

Earthquakes and Tsunamis; Global Warming: causes and consequences; Climatic change: evidences and theories.

Books Recommended

1. Barry, R.G. and Carleton, M. (2001): Synoptic and Dynamic Climatology, Routledge, London.
2. Chorley, R.J. (2001): Atmosphere, Weather and Climate. Methuen, London.

3. Critchfield, H.J. (2002): General Climatology. Prentice-Hall of India, New Delhi..
4. Finch, J. C. and Trewartha, G. T.: Elements of Weather and Climate. Prentice-Hall, London.
5. Kendrew, W.C. (1998): Climatology. Edward Arnold, London. 5th edition.
6. Lal, D.S.(1986): Climatology. Chaitanya Publications, Allahabad.
7. Oliver, J.E. and Hidore, J.J. (2003): Climatology: An Atmospheric Science, Pearson Education Private Ltd, Patparganj, Delhi.
8. Robinson, P. J. and Henderson, S. (1999): Contemporary Climatology, 2nd edition, Pearson Education Ltd., Harlow, UK.
9. Singh, M.B. (1998): Jalvayu Avam Samudra Vigyan. Tara Book Agency, Varanasi.
10. Singh, M.B. (1999): Jalvayu Avam Jal Vigyan. Tara Book Agency, Varanasi,. 11. Singh, S. (2005): Climatology. Prayag Pustak Bhawan, Allahabad.
12. Singh, S. (2006): Jalvayu Vigyan. Prayag Pustak Bhawan, Allahabad

Map Information

Practical **GEOB 116**

Section A: Primary and Special Purpose

1. Topographical maps

(a) Scales of different topographical maps (b) Representation of reliefs: contours - types, intervals, slopes, characteristics and Patterns representation of important landforms by contours and their cross sections.

(c) Representation of physical and man-made features by conventional symbols. Description of topographical maps of different physical regions of India.

2. Weather Maps

(a) Representation of weather elements

(b) Reading of weather maps

© Preparation of weather map through given weather summaries.

3. Geological Map

(a) Representation of rock outcrops, bedding planes, dips and strikes, unconformity and faults.

(b) Drawing of cross sections and determination of dip angles and bed thickness.

© Interpretation of Geological Features.

Section B: Processing of mapped information

1. Analysis of Settlement- mean centre, standard distance, quadrate count method nearest neighbour method.

2. Analysis of Transport and Drainage network- measurement of length, Transport network, cyclometric number, B India and connectivity, matrix. Drainage network ordering, bifucation ration and length ratio, drainage density and drainagged district.

3. Analysis of Areas-Slope Indices and contract number measurement of area,

4. Analysis relief, profiles, areas height diagram, relative relief, slope analysis, altimetric and hypsometric analysis.

5. Inferential statistics-parametric and non parametric lists-population and sample, the null hypothesis, level of significance, one and two tailed tests, by type I and Type II errors

procedure for conducting a statistical test, chi-square test, student's T test, variance test (F test).

Section C: Basics of Computer System

Starting word, creating, serving and inserting files; formatting pages, paragraphs and sections; Editing texts; Tabs and tables; Working with charts and graphs; Printing; Application in geographical mapping.

Books Recommended

1. A.H. Robinson et.al. : Elements of Cartography, John Wiley.
2. G.M. Bennison : An Introduction to Geological Structures and Maps, Edward Arnold, London.
3. G.C. Dickinson : Maps and Air Photographs, Edward Arnold, London.
4. J.S. Keates : Cartographic Design and Production, Longman, London.
5. M.S. David : Patterns in Human Geography, David Charles, Penguin.
6. N.M. Downie and R.W. Heath : Basic Statistical Methods, Harper Row and Co.
7. S. Gregory : Statistical Methods and Geographer, Longman, London.
8. T.W. Birch : Maps - Topographical and Statistical, Oxford University Press.
9. J.P. Sharma: Prayogatmak Bhoogol,Rastogi & Co. Meerut.
10. J. Singh,V.K. Srivastava & B.P. Rao: Baumikiya Manchitron ki Ruprekha,Vasundhara Prakashan, Gorakhpur .
11. R.C. Tiwari and Sudhaker Tripathi: Abhinav Prayogatmak Bhoogol, Pryag Pustak Bhawan, Allahabad.
12. R.L.Singh: Prayogatmak Bhoogol ke Mool Tatwa,Tara Publication,Varanasi.
13. Russel A.Stulz: Learn Microsoft Word 6.0 for Windows in a day BPB Publications, New Delhi.

SEMESTER VI

Population Geography

Theory **GEOB 117**

UNIT-I

Nature and scope of population geography; Sources and types of population data: census, sample survey and vital registration system.

UNIT-II

World population: growth, causes and consequences; Factors affecting population distribution; Migration: types and determinants; Urbanization: trends and pattern.

UNIT-III

Population dynamics: fertility and mortality, age and sex structure; Occupational structure; Demographic transition theory; human resource development: indicators and patterns.

UNIT-IV

Population problems - over population, under population; optimum population; population planning and control -- theories of Malthus, Marx and Rostov.

UNIT-V

INDIA:- Population growth; Distribution of population; Density types; Population problems;

Population Policy; measures of population control in India.

Books Recommended

1. Chandna, R. C. (2006): Geography of Population. Kalyani Publishers, New Delhi.
2. Clarke, J.I. (1972): Population Geography. Pergamon Press, Oxford.
3. Demko, G.J., Rose, H.M., and Schnell, G.A. (1970): Population Geography: A Reader, McGraw Hill, New York.
4. Dube, K.K. and Singh, M.B.(1994): Jansankhya Bhoogol, Rawat Publications, Jaipur.
5. Garnier, B.J. (1993): Geography of Population. 3rd edition. Longman, London.
6. Jones, H. R. (1981): A Population Geography. Harper and Row, New York.
7. Peters, G. L. and Larkin, R.P. (1983): Population Geography: Problems, Concepts and Prospects. Kendall/Hunt, Dubuque, IA.
8. Trewartha, G.T. (1985): A Geography of Population: World Patterns. John Wiley and Sons, New York.
9. Zelinsky, W. (1966): A Prologue to Population Geography. Prentice Hall, New Jersey.

Agricultural Geography

Theory **GEOB 118**

UNIT-I

Meaning and scope of agricultural geography; Approaches to agricultural geography; Physical, cultural and institutional factors affecting agriculture.

UNIT-II

Crop concentration and crop diversification; Delineation of crop combination regions; Agricultural regions of the world; Detailed study of subsistence, plantation, commercial and mixed farming;

UNIT-III

Agricultural land-use and carrying capacity; Land use pattern with special reference to India; Measures of agricultural efficiency and agricultural productivity.

UNIT-IV

Agro-climatic regions of India, Green revolution in India; Second generation reforms in Indian agriculture.

UNIT-V

Land and institutional reforms; Organic and contract farming; Agricultural planning and policies in India.

Books Recommended

1. Dumont, R.(1970): Types of Rural Economy: Studies in World Agriculture, Douglas Manin, London Methuen.
2. Gregor, H. P. (1970): Geography of Agriculture. Prentice-Hall, New York. 3. Husain, M. (1996): Systematic Agricultural Geography, Rawat Publications, Jaipur.
4. Misra, R. P. (1967): Diffusion of Agricultural Innovations, University of Mysore, Mysore.
5. Mohammad, A.(1978): Studies in Agricultural Geography, Rajesh Publications, New Delhi

6. Morgan, W. B. and Norton, R.J.C. (1971): Agricultural Geography. Methuen, London.
7. Sauer, O. C. (1969): Agricultural Origins and Dispersals. MIT Press, Cambridge.
8. Shafi, M. (2006): Agricultural Geography, Pearson Education, New Delhi.
9. Sen, Sudhir (1975): Reaping the Green Revolution. Tata McGraw-Hill, New Delhi
10. Shafi, M.(2000): Agricultural Geography of South Asia, McMillan, Delhi
11. Singh, B.B. (1979) : Krishi Bhugol. Tara Publications, Varanasi.
12. Singh, J. and Dhillon, S.S. (2000): Agricultural Geography. Tata McGraw Hill, New Delhi.
13. Singh, S. (1994): Agricultural Development in India: A Regional Analysis, Kaushal Publications, Shillong.
14. Symons, L. (1967): Agricultural Geography. George Bell and Sons, London.
15. Tarrant J. R. (1974): Agricultural Geography. John Wiley and Sons, New York.

Remote Sensing and Geographical Information System

Theory **GEOB 119**

UNIT-I

Remote Sensing: Concept and Scope; Electro-magnetic Radiation: Characteristics, Spectral regions and Bands; Interaction with earth surface features and atmosphere; Spectral Signature.

UNIT-II

Types of Remote Sensing: Air borne and Space borne; Aerial photos: Types and Characteristics; Remote Sensing satellites: Platforms and sensors.

Unit III

Visual and Digital image processing techniques; Remote Sensing application in resource mapping and environmental monitoring.

UNIT-IV

FUNDAMENTALS OF GIS: Concepts and definitions; Evolution and development of GIS; Computer environment for GIS; GIS as decision support system.

UNIT-V

Application of GIS technology in utilities management and other fields-GIS in land information system, urban management, environmental of management and emergency response system; Adoption of GIS technology in India; GIS project designing and implementation, Future prospects of GIS.

Books Recommended

1. Curran, P.J. (1985): Principles of Remote Sensing, Longman, London
2. Lillesand, T.M. and Kiefer, R.W. (2000): Remote Sensing and Image Interpretation. 4th edition. John Wiley and Sons, New York
3. Campbell, J.B. (2002): Introduction to Remote Sensing. 5thedition, Taylor and Francis, London.
4. Bhatta, B. (2010): Remote Sensing and GIS, Oxford University Press, New Delhi.
5. Nag Prithvish and Kudrat M. (1998): Digital Remote Sensing, Concept Publishing Company, New Delhi
6. S. Aronoff: Geographic Information Systems: A Management Perspective, D.D.L. Publication, Ottawa, 1989.
7. P.A. Burrough: Principles of Geographic Information Systems for Land Resource Assessment, Oxford University Press, New York, 1986.

8. D.R. Fraser, Taylor: Geographic Information Systems, Pergaman Press, Oxford, 1991.
9. D.J. Peuquet and D.F.Marble: Introductory Readings in Geographic Information Systems, Taylor & Francis, Washington, 1990.
10. J. Star and J Estes: Geographic Information Systems: An Introduction, Prentice Hall, England Cliff. New Jersey, 1994.
11. Marks S. Monmonier: Computer- Assisted Cartography, Prentice Hall, Englewood Cliff, New Jersey, 1982.
12. I. Heywood et al: An Introduction to Geographical Systems, Pearson Education, Ltd. New Delhi, 2002.
13. Christopher B. Jones: Geographical Information Systems and Computer Cartography, Addison Wealey Longman Ltd. England, 1997.

Field Study, Field Trip and Report Writing

Practical **GEOB 120**

Fieldwork: Meaning, types and objectives of fieldwork; Fieldwork methods and techniques;
Importance of fieldwork in geography, Field work-based report writing.
Field Trip: Uttarakhand, Vindhyan Plateau, Thar Desert, Coastal area.

THE END