

D.D.U. Gorakhpur University, Gorakhpur
Department of Geography
M.A. in Geography, CBCS Programme

| M.A. Two Years Choice Based Credit System Programme | | | | | |
|---|--|----------|--------------|----------|-------------|
| Paper Code | Title of the Paper | Course | Marks | | Total Marks |
| | | | Written | Internal | |
| GEO 101 | Geographical Thought: Concepts & Issues | Core | 70 | 30 | 100 |
| GEO 102 | Principles of Geomorphology | Core | 70 | 30 | 100 |
| GEO 103 | Principles of Economic Geography | Core | 70 | 30 | 100 |
| GEO 104 | a) Cartography b) Field Survey- Instrumental | Core | 60 | -- | 100 |
| | | | -- | 40# | |
| GEO 105* | Environmental Studies | Elective | 70 | 30 | 100 |
| GEO 106* | Marketing Geography | Elective | 70 | 30 | 100 |
| | Total marks of Semester-I | | Total | | 500 |
| GEO 201 | Advanced Geomorphology | Core | 70 | 30 | 100 |
| GEO 202 | Physical and Economic Geography of India | Core | 70 | 30 | 100 |
| GEO 203 | Cultural Geography | Core | 70 | 30 | 100 |
| GEO 204 | Quantitative Geography | Core | 70 | 30 | 100 |
| GEO 205* | Resource Appraisal & Management | Elective | 70 | 30 | 100 |
| GEO 206* | Rural Development | Elective | 70 | 30 | 100 |
| | Total marks of Semester-II | | Total | | 500 |
| GEO 301 | Oceanography | Core | 70 | 30 | 100 |
| GEO 302 | Regional Geography of India | Core | 70 | 30 | 100 |
| GEO 303 | Population Geography | Core | 70 | 30 | 100 |
| GEO 304 | a) Regional Analysis b) Field Work Dissertation | Core | 60 | -- | 100 |
| | | | -- | 40# | |
| GEO 305* | Agricultural Geography | Elective | 70 | 30 | 100 |
| GEO 306* | Industrial Geography | Elective | 70 | 30 | 100 |
| GEO 307* | Remote Sensing | Elective | 70 | 30 | 100 |
| GEO 308* | Transport Geography | Elective | 70 | 30 | 100 |
| | Total marks of Semester-III | | Total | | 500 |
| GEO 401 | Climatology | Core | 70 | 30 | 100 |
| GEO 402 | Research Methodology | Core | 70 | 30 | 100 |
| GEO 403 | Environmental Hazards & Disaster Risk Reduction | Core | 70 | 30 | 100 |
| GEO 404 | Geospatial Technology | Core | 70 | 30 | 100 |
| GEO 405* | Political Geography | Elective | 70 | 30 | 100 |
| GEO 406* | Geography of Tourism | Elective | 70 | 30 | 100 |
| GEO 407* | Geographical Information System (GIS) | Elective | 70 | 30 | 100 |
| GEO 408* | Regional Planning | Elective | 70 | 30 | 100 |
| GEO 409* | Urban Geography | Elective | 70 | 30 | 100 |
| | Total marks of Semester-IV | | Total | | 500 |

*In each semester any one elective paper is to be opted.

#**Justification of Internal:** Field survey and surveying with different instruments are integral part of the discipline. Internal evaluation process involved proper evaluation with internal and external examiners.

Semester-I

Paper – I

Paper Code: GEO101

Course: Core

Title of the Paper: Geographical Thought: Concepts and Issues

Credits- 05, Marks- 70

Continuous Internal Assessment, Marks-30

| Unit | Topics | Sub Topics | Periods |
|---|-----------------------------|--|----------------------|
| 1 | Introduction | Changing Paradigm of Geography, Development of Dualism in Geography, Physical v/s Human Systematic v/s Regional, Fallacy of Dualism | 05 05 |
| 2 | Positivism in Geography | Concept of Positivism, Quantitative Revolution and its Impact; Systems and Models in Geography; Theories and Laws in Geography. | 04 03 06 05 |
| 3 | Major Concepts | Concept of Earth Surface; Concept of landscape; Concept of Region, Typology and Regionalisation Concept of Spatial Organization. | 02 02 04 02 |
| 4 | Humanistic Geography | Radical Geography: Geography as a Science of Human Welfare; Behavioralism & Phenomenology in Geography | 06 03 |
| 5 | Post-modernism in Geography | Concept of Post-modernism in Geography, Salient features of Post-modernism, Feminist & Gender Geography | 05 04 04 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ presentation/Exercises/Field work | | | |

Reference Books:

- Adhikari, Sudipto (2009): Fundamentals of Geographical Thought, Chaitanya Pub. House, Allahabad.
- Arild, H. J. (1999): Geography: History and Concepts, SAGE Publications, London
- Chorley, R. J. (Ed): Directions in Geography, Methuen and Co., London
- Chorley, R.J. & Haggett, P. eds. (1967): Integrated Models in Geography, Methuen, London.
- Davies, W.K.D. (1972): The Conceptual Revolution in Geography, University of London Press, London.
- Dear, M. J. and Flusty, S. (2002): The Spaces of Postmodernity: Readings in Human Geography. Blackwell Publishers, Oxford.
- Dickinson, R.E. (1969): The Makers of Modern Geography, Routledge and Kegan Paul, London.
- Dikshit, R. D. (2004): Geographical Thought. A Critical History of Ideas. Prentice-Hall of India, New Delhi. (in English and Hindi).
- Dikshit, S.K. (2001): Bhaugolik Chintan Ka Udbhav Avam Vikas, Vishwavidyalaya Prakashan, Varanasi.
- Hartshorne, R. (1959): Perspectives on the Nature of Geography, John Murray, London.
- Harvey, D. (1969): Explanation in Geography, Edward Arnold, London.
- Harvey, M. E. and Holly, P.B. (2002): Themes in Geographic Thought. Rawat Publications., Jaipur and New Delhi.
- Hubbard, P., Kitchin, R., Bartley, B. and Fuller, D. (2002): Thinking Geographically: Space, Theory and Contemporary Human Geography. Continuum, London.
- Husain, Majid (2001): Evolution of Geographical Thought, Rawat Publications, Jaipur.
- James, P.E. & Jones, C.F. (1954): American Geography : Inventory & Prospect, Syracuse Univ. Press, New York.
- James, P.E. (1980): All Possible World: A Hundred Years of Geography, Sachin Pub. Jaipur.
- Johnston, R, Gregory D, Pratt G, Watts M. and Whatmore S. (2003): The Dictionary of Human Geography. Blackwell Publishers, Oxford. 5th edition.
- Johnston, R.J. (1984): Geography and Geographers, Arnold Heinemann, London.
- Johnston, R.J. (1985): The Future of Geography, Methuen and Company Ltd., New York. (2003 edition published).
- Johnston, R.J. and Sidaway, J.D. (2004): Geography and Geographers. 6th edition, Edward Arnold, London.
- Peet, R. (1998): Modern Geographical Thought. Blackwell Publishers Inc, Massachusetts.
- Richard, P. (1998): Modern Geographical Thought, Blackwell, Singapore
- Richard, Peet (1977): Radical Geography, Methuen & Co. Ltd., London.
- Sack, R. D. (ed.) (2002): Progress. Geographical Essays. John Hopkins University Press, Baltimore.
- Sauer, C. O. (1963): Land and Life. University of California Press, Berkeley.

26. Singh, Jagdish (2008): Bhaugolik Chintan KeMooladhar, GyanodayaPrakashan, Gorakhpur.
 27. Taylor, G. (ed.) (1953): Geography in the Twentieth Century. Methuen and Company Ltd., London.

Paper – II

Code: GEO102

Course: Core

Title of the Paper: Principles of Geomorphology

Credits- **05**, Marks- 70,

Continuous Internal Assessment, Marks-30

| Unit | Topics | Sub Topics | Periods |
|---|---------------------------------|---|----------------------|
| 1 | Fundamentals of Geomorphology | Meaning & Scope, Fundamental Concepts of Geomorphology, Evolution of Geomorphic Ideas during Medieval and Modern Period, Recent Trends in Geomorphology. | 02 06 03 03 |
| 2 | Tectonism | Earth Movements–Epeirogenesis and Orogenesis, Concept of Plate Tectonics- Mountain Building, Vulcanicity and Earthquakes, Palaeomagnetism | 02 06 04 |
| 3 | Geomorphic Agents and Processes | Denudation-Weathering & Erosion, Mass Movement, Types & Resultant Landforms. | 05 03 |
| 4 | Processes and landforms | Geomorphic Cycle & Landforms by Fluvial, Arid, Glacial, Periglacial, Underground & Marine Processes. | 18 |
| 5 | Structural Geomorphology | Polycyclic Landforms; Erosional Surfaces, Uniclinal Structures & Landforms | 02 04 02 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ presentation/Exercises/Field work | | | |

Reference Books:

- Anhert, F. (1996): Introduction to Geomorphology, Edward Arnold, London.
- Bloom. A.L. (1979): Geomorphology, Prentice Hall, New Jersey, USA.
- Chorley, R. J., Schumm, S.A. and Sugden, D.E. (1984): Geomorphology, Methuen, London.
- Dayal, P. (1987): Geomorphology (in Hindi), Patna.
- Dikshit, K.R. et.al. (1994): India Geomorphological Diversities, Rawat Pub. Jaipur.
- Fairbridge, R.W. (1968): Encyclopaedia of Geomorphology, Reinholdts, New York.
- Kale, V.S. and Gupta, A. (2001): Introduction to Geomorphology, Orient Longman, Hyderabad.
- King, C.A.M. (1968): Techniques in Geomorphology, Edward Arnold, London.
- Melhorn, W.N. & Flemal, R.C. (1981): Theories of Landforms Development, George Allen Unwin, London.
- Miller, A. A. (1953): The Skin of the Earth, Methuen and Co. Ltd., London
- Ollier, C.D. (1981): Tectonics and Landforms, Longman, London.
- Sharma, H.S. (1987): Tropical Geomorphology, Concept Publishing company, New Delhi.
- Sharma, H.S. and Kale, V.S. (2009): Indian Geomorphology, Rawat Pub. Jaipur.
- Singh, Savindra (2005): Geomorphology, PrayagPustak Bhawan, Allahabad. (Hindi & English)
- Small, R.J. (1976): The Study of Landforms, Cambridge University Press, Cambridge.
- Sparks, B.W. (1988): An Introduction to Geomorphology, Longman, London.
- Steers, A. (1958): The Unstable Earth, Methuen, London
- Strahler, A.H. and Strahler, A.N. (1992): Modern Physical Geography, John Wiley, New York
- Strahler, A. N. (1964): Quantitative Geomorphology of Drainage Basins and Channel Networks, In: Handbook of Applied Hydrology, Ven Te Chow, Ed., Section 4-II, McGraw-Hill Book Company, New York
- Tarbutck, E. J. and Lutgens, F. K. (2009): Earth Science, Prentice Hall, New Jersey
- Thornbury, W.D. (1969): Principles of Geomorphology, New Age International (p) Ltd., New Delhi.
- Tricart, J. & Cailleux, A. (1972): Introduction to Climatic Geomorphology, Longman, London.
- Twidale, C.R. (1976): Analysis of Landforms, John Wiley. London.
- Wooldridge, S.W. and Morgan, R.S. (1959): The Physical Basis of Geography- An Outline of Geomorphology. Longmans Green, London

Paper – III**Code: GEO103****Course: Core****Title of the Paper: Principles of Economic Geography**

Credits-05, Marks- 70,

Continuous Internal Assessment, Marks -30

| Units | Topic | Subtopic | Periods |
|---|----------------------------------|---|---------|
| 1 | Introduction | Nature and scope, | 3 |
| | | Methods&Approaches of study, | 3 |
| | | Recent trends in Economic Geography | 4 |
| 2 | Fundamental Concepts | Salient features and concepts of Economic Geography | 8 |
| 3 | Location and Economic Activities | Location Theories-Von-Thunen, Modern Theory, | 6 |
| | | Industrial Location Theories- Minimum Cost Theory Market Competition Theory, Integrated Theory, Central place Theory. | 9 |
| 4 | Economic Development | Changing concept of development | 3 |
| | | Theories of Economic development:Classical and New Classical | 4 |
| | | Modern Theories-Growth Pole Theory, MyrdalsTheory | 4 |
| | | World Development Pattern , | 4 |
| | | Sustainable development. | 2 |
| 5 | International Trade | Factors influencing the international trade, | 3 |
| | | Modern Theory of International trade, | 3 |
| | | World Trade Pattern, | 2 |
| | | Concept of Globalization, Liberalization and Privatization | 2 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ presentation/Exercises/Field work | | | |

Reference Books:

- Alexander, J.W. (2012): Economic Geography, Prentice Hall of India, New Delhi.
- Berry, B.J.L. et al. (1976): Geography and Economic Systems, Prentice Hall, Englewood Cliff.
- Boyce, R.D. (1990): Bases of Economic Geography, Holt Rinehart & Winston, New York. Cliffs, N.J. Prentice.
- Dreze, J. and Sen, A. (1996): Economic Development and Social Opportunity. Oxford University Press, New Delhi.
- Haggett, P. (1966): Locational Analysis in Human Geography, St. Martin's Press, New York.
- Hanink, D.M. (1997): Principles and Applications of Economic Geography, Economy,
- Hartshorne, T.A. & Alexander, J.W. (1994): Economic Geography, Prentice Hall of India, New Delhi.
- Hodder, B.W. & Lee, R. (1996): Economic Geography, Methuen, London.
- Janaki, V.A. (1985): Economic Geography, Concept Publishing Co., New Delhi.
- Jones & Darkenwald (1960): Economic Geography, New York.
- Knox, P. and J. Agnew (1998): The Geography of the World Economy. Arnold, London.
- Lloyd, P. And P. Dicken (1972): Location in Space: A theoretical approach to Economic Geography, Harper and Row, New York.
- McCarty, H.H. and J.B. Lindberg (1966): A preface to Economic Geography, Englewood, New York.
- Rostov, W.W. (1960): The Stages of Economic Growth, Cambridge Univ. Press, London.
- Singh, K.N and Siddiqui, A (2012): Economic Geography, PrayagPustak Bhawan, Allahabad
- Singh, K.N. & Singh, J. (1996): ArthikBhoogolKeMooltatva, GyanodayaPrakashan, Gorakhpur.
- Smith, G.H. (2000): Conservation of Natural Resources, John Wiley, New York.
- Thomas, Conkling and Yeates (1974): Geography of Economic Activity, Mc Graw Hill, University Press, New Delhi.
- Wheeler, J.O. et.al. (1995): Economic Geography, John Wiley, New York.

Paper – IV**Code: GEO104****Course: Core****Title of the Paper: Cartography**Credits- **03**, Marks- 60,

Continuous Internal Assessment-30Marks

| Units | Topic | Sub topic | Periods |
|---|-----------------|--|---------|
| 1 | Projections | Meaning, Classification and Choice of Projections; Construction and Characteristics of Projections – Lambert’s Conical, Polyconic, Galls’, Equatorial Zenithal Projection - Gnomonic, Stereographic and Orthographic Cases; Sinusoidal, Mollweide and their Interrupted Cases, International Projection. | 13 |
| 2 | Cartograms | Climatic Diagrams, Rainfall Dispersion Diagram; Water Budget; Ergo-graph – Climatic and Circular; Thematic Cartograms – Choropleth, Isopleth, Chorochromatic Diagram; Multiple Dot, Spherical Diagram, Traffic Flow, Land Utilisation Maps | 12 |
| 3 | Geological Maps | Beds, bedding Plane, Strike lines, Outcrop Drawing of Cross Sections – Horizontal, Inclined, Folded, Faulted Strata and Unconformable Series; Interpretation of Geological History – Nature of Relief and Rock Structure and their Correlation | 13 |
| Continuous Internal Assessment | | | 18 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Field Survey- InstrumentalCredis- **02**,

Continuous Internal Assessment-40Marks

| Units | Topic | Sub topic | Periods |
|---|-------------|--|---------|
| 1 | Surveying | Levelling and Plotting by Dumpy Level Measurement of Horizontal and Vertical Angle by Theodolite and Telescopic Alidade | 26 |
| 2 | Survey Camp | Contouring and Plotting of a given area (Outside of the Campus), at least for two days | 26 |
| Continuous Internal Assessment | | | 12 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Chauhan P.R. (2014): Prayogatmak Bhoogol, Vasundhara Publications, Gorakhpur
2. Davis, R.E. and Foote, F.S.: Surveying - Theory and Practices, Tokyo.
3. Kanetkar, T.P. & Kulkarni, S.V.: Surveying and Leveling, Pune.
4. Mailing, D.H. (1973): Co-ordinate Systems and Map Projections. George Philip and Sons Ltd.
5. Misra, R.P. and Ramesh, A. (1999): Fundamentals of Cartography. Concept Publishing Company, New Delhi.
6. Monkhouse, F.J. and Wilkinson, H. R (1962): Maps and Diagrams, Methuen and Company Ltd. and Company Ltd., London.
7. Raisz, E. (1962): Principles of Cartography. McGraw Hill Books Company, Inc., New York.
8. Robinson (1991): Aerial Photography and Cartography, Mac Millan, London.
9. Robinson, A. H. H., Sale R., Morrison J. and Muehrcke, P. C (1984): Elements of Cartography, 6th edition John Wiley and Sons, New York.
10. Sahani, P.B. (1993): Advance Surveying, New Delhi.
11. Singh, J. et.al. (1990): Bhaumikiya Manchitro Ki Ruprekha, Vasundhara Prakashan, Gorakhpur.
12. Singh, L.R. (2001): Practical Geography, Sharda Pustak Bhawan, Allahabad.
13. Singh, R. L. and Singh, Rana P.B. (1993): Elements of Practical Geography. Kalyani Publishers, Ludhiana and New Delhi. (English and Hindi editions).
14. Tiwari, R.C. and Tripathi, Sudhakar (2001): Abhinav Prayogatmak Bhoogol, Prayag Pustak Bhawan, Allahabad.

Paper – V**Code: GEO105****Course: Elective****Title of the Paper: Environmental Studies**Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Units | Topic | Sub topic | Periods |
|-------|-----------------------------|---|--------------------|
| 1 | Concept | Concept of Environment, main elements, approaches to study the Environment | 3 |
| 2 | Ecosystem | Ecosystem: concepts and components, Ecosystems forms and Functions: Trophic level, Ecological Pyramids, Energy flows, Bio-Geo-Chemical Cycles: Carbon, Nitrogen, Oxygen | 2 6 6 |
| 3 | Major Terrestrial Ecosystem | Agriculture, Forests, Grasslands and Deserts, Population Growth and Environment, Carrying Capacity of the Earth: Limits to Growth | 7 2 2 |
| 4 | Environmental Degradation | Types and causes of Environmental Degradation, Environmental Pollution: Types, causes and impact (Air, Water and Land) | 6 8 |
| 5 | Legislation and Management | The Stockholm Conference, The Earth Summit, Environmental monitoring Standards; WTO and India, Environmental policies and Legislations in India (The Wildlife Act, Water Act and Environmental Protection Act), Environmental Management | 02 04 6 6 |

Reference Books:

1. Chandna, R. C. (2002): Environmental Geography, Kalyani, Ludhiana
2. Cunningham, W. P. and Cunningham, M. A. (2004): Principles of Environmental Science: Inquiry and Applications, Tata McGraw Hill, New Delhi
3. Goudie, A. (2001): The Nature of the Environment, Blackwell, Oxford
4. Mathur, H. S. (2003): Essentials of Biogeography. Pointer Publication, Jaipur.
5. Miller, G. T. (2004): Environmental Science: Working with the Earth, Thomson Brooks Cole, Singapore
6. MOEF (2006): National Environmental Policy-2006, Ministry of Environment and Forests, Government of India, New Delhi
7. Nag, P., Kumra, V.K. and Singh, J. (1990): Geography and Environmental Issues at Local, Regional and National Levels. (in 3 vols.), Concept Publishing Company, New Delhi.
8. Odum, E.P. (1975): Ecology. Rowman and Littlefield, Lanham USA.
9. Rajagopalan, R. (2005): Environmental Studies: From Crisis to Cure, Oxford University Press, New Delhi.
10. Reddy, M. A. (2004): Geoinformatics for Environmental Management. B. S. Publishers., Hyderabad.
11. Saxena, H. M. (1999): Environmental Geography. Rawat Publications., Jaipur and New Delhi.
12. Saxena, H. M. (2000): Environmental Management. Rawat Publications., Jaipur and New Delhi
13. Saxena, K.K. (2004): Environmental Studies. University Book House Private Ltd., Jaipur
14. Singh, D.N., Singh, J. and Raju, K.N.P. (eds.) (2003): Water Crisis and Sustainable Management, Tara Book Agency, Varanasi
15. Singh, J. (2001): Paryavaran Evam Samvikas. GyanodayaPrakashan, Gorakhpur.
16. Singh, O., Nag P., Kumra V.K. and Singh J. (eds.) (1993): Frontier in Environmental Geography. Concept Publishing Company, New Delhi.
17. Singh, R. B. (ed.) (1990): Environmental Geography. Heritage Publication, New Delhi.
18. Singh, Rana P.B. (ed.) (1993): Environmental Ethics: Discourses and Cultural Traditions. National Geographical Society of India, BHU, Varanasi.
19. Singh, S. (2006): Environmental Geography. PrayagPustak Bhawan, Allahabad.
20. Singh, S. (2007): ParyavaranBhugol. PrayagPustak Bhawan, Allahabad.
21. Singh, S. N. (1993): Elements of Environmental Geography and Ecology in Hindi, Tara Book Agency, Varanasi
22. UNEP (2007): Global Environment Outlook: GEO4: Environment For Development, United Nations Environment Programme.

Paper – V**Code: GEO106****Course: Elective****Title of the Paper: Marketing Geography**

Credits-05, Marks- 70

Continuous Internal Assessment-30Marks

| Unit | Topics | Sub Topics | Periods |
|---|--|---|----------------------|
| 1 | Concept & Evolution | Definition, Scope and Evolution of Marketing Geography, Spatial Organization of Markets | 08 04 |
| 2 | Typology of Markets | Periodic & Regulated Markets, Urban & Rural Markets Hierarchy of Markets and their Role in Economic Development. | 02 02 06 |
| 3 | Spatio-temporal Characteristics of Markets | Market Cycles, Development of Marketing System, Market Area Region, Vertical and Horizontal Relations of a Market. | 02 04 04 04 |
| 4 | Marketing and Rural Development | Role of Marketing in Rural Development, Christaller's Central Place Theory, Market as a Service Centre | 02 06 04 |
| 5 | Globalization & Marketing | Impact of Globalization on Marketing, Social Structure and Marketing. Marketing and Innovation Diffusion. | 04 04 04 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

- Garnier, J. Beaujau&Delobez, A. (1979): Geography of Marketing, Longman, London.
- Shrivastava, V.K. & Dixit, R.S. (1995): VipranBhoogol, Madhya Pradesh Hindi Granth Academy, Bhopal.
- Bromley, R.J. (1979): Periodic Markets, Daily Markets and Fares : A Bibliography, Monash Pub.
- Davies, R.L.,(1977): Marketing Geography with Special Reference to Retailing Methun, London
- Shrivastava, V.K. (1987): Geography of Marketing and Rural Development, Inter India Pub. New Delhi.
- Saxena, H.M. (1984): Marketing Geography, Starling Publication, New Delhi.
- Saxena, H.M. (1975): Geography of Transport & Marketing, S,Chand& Com., New Delhi.
- Saxena, H.M. (1988): Rural Markets and Development, Rawat Publications, Jaipur.
- Shrivastava, V.K. & Chauhan, P.R. (2001): Marketing of Agricultural Produce & Rural Development, Vasundhara Prakashan, Gorakhpur.
- Shrivastava, Hari Om (1992): VipranBhoogol, Vasundhara Prakashan, Gorakhpur.
- Berry, B.J.L. (1967): Geography of Market Centres and Retail Distribution, Prentis Hall, Englewood Cliff.
- Alvater, E. (1992): The Future of the Markets, Verso, London.
- Dixit, R.S. (2004): Agricultural Marketing in India, Shubhi Publications, Gurgaon.

Semester II

Paper – I

Code: GEO201

Course: Core

Title of the Paper: Advanced Geomorphology

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub Topics | Periods |
|---|-------------------------|--|----------------------------|
| 1 | Geological Time | Concept of time: cyclic, graded and steady state; Concept of morphogenetic region; Geological Time Scale | 02 03 05 |
| 2 | Models in Geomorphology | Models of Landscape Development by W.M. Davis, W. Penk, L.C. King and M. Morisawa, Slope Evolution and Classification; Theories of Slope Development by Davis, Penk and King; | 08 03 06 |
| 3 | Morphometry | Morphometric Analysis of Relief – Hypsometric Curve, Altimetric Frequency Curve, Histogram and Clinographic Curve; Strahler's Method of Drainage Ordering; Frequency and Density of the Drainage | 06 03 |
| 4 | Regional Geomorphology | Geomorphology of Jammu & Kashmir Region, Chhotanagpur Plateau Region, Deccan Trap, Arawali Region, Rajasthan Desert. | 03 03 03 02 03 |
| 5 | Applied Geomorphology | Geomorphology & Minerals, Energy, Civil Projects- Dam & Road Construction Geomorphology in Disaster Management; | 04 04 02 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

- Anhert, F. (1996): Introduction to Geomorphology, Edward Arnold, London.
- Bloom. A.L. (1979): Geomorphology, Prentice Hall, New Jersey, USA.
- Chorley, R. J., Schumm, S.A. and Sugden, D.E. (1984): Geomorphology, Methuen, London.
- Dayal, P. (1987): Geomorphology (in Hindi), Patna.
- Dikshit, K.R. et.al. (1994): India Geomorphological Diversities, Rawat Pub. Jaipur.
- Fairbridge, R.W. (1968): Encyclopaedia of Geomorphology, Reinholdts, New York.
- Kale, V.S. and Gupta, A. (2001): Introduction to Geomorphology, Orient Longman, Hyderabad.
- King, C.A.M. (1968): Techniques in Geomorphology, Edward Arnold, London.
- Melhorn, W.N. & Flemal, R.C. (1981): Theories of Landforms Development, George Allen Unwin, London.
- Miller, A. A. (1953): The Skin of the Earth, Methuen and Co. Ltd., London
- Ollier, C.D. (1981) Tectonics and Landforms, Longman, London.
- Sharma, H.S. : (1987) Tropical Geomorphology, Concept, New Delhi.
- Sharma, H.S. and Kale, V.S. (2009): Indian Geomorphology, Rawat Pub. Jaipur.
- Singh, Savindra (2005): Geomorphology, PrayagPustak Bhawan, Allahabad. (Hindi & English)
- Small, R.J. (1976): The Study of Landforms, Cambridge University Press, Cambridge.
- Sparks, B.W. (1988): An Introduction to Geomorphology, Longman, London.
- Steers, A. (1958). The Unstable Earth, Methuen, London
- Strahler, A.H. and Strahler, A.N. (1992): Modern Physical Geography, John Wiley, New York
- Strahler, A. N. (1964): Quantitative Geomorphology of Drainage Basins and Channel Networks, In: Handbook of Applied Hydrology, Ven Te Chow, Ed., Section 4-II, McGraw-Hill Book Company, New York
- Tarback, E. J. and Lutgens, F. K. (2009): Earth Science, Prentice Hall, New Jersey

21. Thornbury, W.D. (1969) : Principles of Geomorphology, New Age International (p) Ltd., New Delhi.
22. Tricart, J. & Cailleux, A. (1972): Introduction to Climatic Geomorphology, Longman, London.
23. Twidale, C.R. (1976): Analysis of Landforms, John Wiley. London.
24. Wooldridge, S.W. and Morgan, R.S. (1959): The Physical Basis of Geography- An Outline of Geomorphology. Longmans Green, London

Paper – II

Code: GEO202

Course: Core

Title of the Paper: Physical and Economic Geography of India

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub Topics | Periods |
|---|--------------------------|--|----------------------------|
| 1 | Geology & Relief | Geological Evolution– Plains, Plateaus, Mountains and Coasts; Origin of Himalayas, Origin of River Systems of India. Delimitation & Characteristics of Physiographic Regions | 06 02 02 06 |
| 2 | Climatic Characteristics | Mechanism of the Indian Monsoon Climatic Regions Agro-Climatic Regions | 04 02 04 |
| 3 | Resource Base | Population Characteristics. Population Resource Regions; Role of Green Revolution & Bio technology in agriculture; Agricultural Regions & New Trends in Indian Agriculture Mineral Resource Regions; | 02 02 03 02 02 |
| 4 | Industrial Development | Industrial Policies & Trend of Industrialization; Industrial Regions & Industrial Complexes. Impact of Globalization on Indian Economy; | 03 04 03 |
| 5 | Development pattern | Regional Development and Disparities Special Economic Zones; Problems & Prospects of Industrially Backward Regions; Planning Regions of India: Delimitation and Salient Features. | 03 03 03 04 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Bansal, S.C. (1999): Advanced Geography of India, Meenakshi Publication, Meerut.
2. Chauhan P.R. (2001): Bharat Ka VrihatBhoogol, Vasundhara Prakashan, Gorakhpur.
3. Deshpande C.D (1992): India: A Regional Interpretation, Northern Book Centre, New Delhi.
4. Gautam, Alka (2001): Geography of India, Sharda Pustak Bhawan, Allahabad.
5. Govt. of India : Economic Survey, Ministry of Finance, New Delhi (Different Issues)
6. Hussain, Majid (2008): Advance Geography of India, Tata Mc Graw Hill, New Delhi.
7. Johnson, B.L.C. (1983): Development in South Asia, Penguin Books, Harmondsworth.
8. Khullar, D.R. (2006): India: A Comprehensive Geography, Kalyani Pub., New Delhi.
9. Krishnan, M. S. (1968): Geology of India and Burma, 4th edition. Higgin Bothams Private. Ltd., Madras.
10. Nag, P. and Gupta S. S. (1992): Geography of India, Concept Publishing. Company, New Delhi.

11. Sharma, T. C. (2003): India: Economic and Commercial Geography, Vikas Publication., New Delhi.
12. Singh, J. (2003): India: A Comprehensive and Systematic Geography, GyanodayaPrakashan, Gorakhpur.
13. Singh, R. L. (ed.) (1971): India. A Regional Geography, National Geographical Society of India, Varanasi.
14. Spate, O.H.K. & Learmonth, A.T.A. (1954): India & Pakistan, Methuen, London.
15. Tiwari, R. C. (2007): Geography of India, PrayagPustak Bhawan, Allahabad
16. Wadia, D. N. (1959): Geology of India. MacMillan and Company, London and Madras.

Paper – III

Code: GEO203

Course: Core

Title of the Paper: Cultural Geography

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Units | Topic | Sub topic | Periods |
|---|-----------------------------|---|----------------------------|
| 1 | Introduction | Concept of Culture, Nature Scope and Significance of Cultural Geography; Approaches and Development; Relationships of Culture with Environment, Resources and Technology. | 02 04 02 02 |
| 2 | Origin of Man & Races | Origin & Dispersal of Man, Types & Dispersal of Human Races; Racial Composition of India; Linguistic and Religious Structure of the World. Cultural Diffusion | 02 03 03 05 02 |
| 3 | Cultural Development | Use of Fire and its control, Domestication of Plants and Animals; Renewal and Dispersal Activities of Crops – Paddy, Maize, Sugarcane and Rubber | 02 04 09 |
| 4 | Innovations | Agricultural Practices and Innovations; Industrial and Technological Revolution and its impact on Culture. Globalization and Cultural Development | 03 03 04 |
| 5 | Cultural Realms and Ecology | Concept of Cultural Hearths; Major Cultural Realms and Regions of the World. Cultural Landscape and Cultural Ecology | 02 04 04 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Anderson, K., Domosh, M., Pile, S. and Thrift, N. (2003): Handbook of Cultural Geography, SAGE Publications, London
2. Blunt, A., Gruffudd, P., May, J., Ogborn, M. and Pinder, D. (2003): Cultural Geography in Practice, Edward Arnolds Limited, London
3. Carter, G.F. (1998) Man and the Land: A Cultural Geography, Rienhart, New York.
4. Coulborn, R. (1959): The Origin of Civilized Societies, Princeton University Press, Princeton, New Jersey.
5. Dicken, S.N. & Pitts, F.R. (1970): Introduction of Cultural Geography : A Study of Man and his Environment, Edwin & Co. Waltham, Massachusetts.
6. Dikshit, S.K. & Tripathi, R.D. (2001): SanskritcBhoogol, Vasundhara Prakashan, Gorakhpur.
7. Dohus, F.E. & Sommers, L.M. (ed) (1967): Cultural Geography – Selected Readings, Dunn – Donnally Publishing Corporation, New York.
8. Domosh, M., Neumann, R. P., Price, P. L. and Jordon-Bychkov, T. G. (2009): The Human Mosaic- A Cultural Approach to Human Geography, WH Freeman, New York

9. Duncan, J. S., Johnson, N. C., and Schein, R. H. (2004): A Companion to Cultural Geography, Blackwell Publishing Ltd, Oxford
 10. Frazier, E.F. (1957): Race and Cultural Contacts in the Modern World; A.A. Knopf, New York.
 11. Iaian, R. and Richards, P. (2003): Studying Cultural Landscapes, Oxford University Press, London
 12. Jordon, G. (1995): Cultural Politics, Blackwell, Oxford
 13. Mike, C. (1998): Cultural Geography, Routledge, London
 14. Rostlund, F. (1988): Outline of Cultural Geography, California Book Co. Berkley.
 15. Salter, C.L. (1971): The Cultural Landscape, Durbury Press, California.
 16. Sopher, D.E. (1978): Geography of Religions, Prentice Hall, New Jersey.
 17. Spencer, J.E. and Thomas, W.L. (1978): Introducing Cultural Geography, John Willey and Sons, New York.
 18. Wagner, P.J. and Mikesell, M.W. (1962): Readings in Cultural Geography, University of Chicago Press.
- Wagner, P.L. (1972): Environment of People, Prentice Hall, Englewood Cliffs

Paper – IV

Code: GEO204

Course: Core

Title of the Paper: Quantitative Geography

Credits- 05, Marks- 70

Continuous Internal Assessment-30

| Units | Topic | Sub topic | Periods |
|---|--------------------------------|---|---------|
| 1 | Statistical Methods | Collection, Processing and Management of Data; Measurement of Scale; Concept and Methods of Sampling; Correlation – Pearson’s Product Moment(r), Spearman’s Rank Correlation (rho), Coefficient of Determination; Regression Analysis and Confidence Limit; Residuals and Residuals Mapping; Test of Significance; Chi square and Student ‘t’ test. | 20 |
| 2 | Measurement of Spatial Pattern | Measurement of Spatial Pattern and Inequality – Z score, Lorenz Curve and Gini’s Coefficient, Location Quotient, Coefficient of Localization & Localization Curve, | 20 |
| 3 | Spatial Techniques | Nearest Neighbour Analysis, Network Analysis, Graph Techniques and Degree of Connectivity, Shape Analysis, Gravity Model | 20 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Bailey, T. and Gatrell, A. C. (1995): Interactive Spatial Data Analysis. Longman, Harlow.
2. Berry, B.J.L. & Marble, D.F. (1968) Spatial Analysis: A Reader in Statistical Geography, Prentice Hall, Englewood.
3. Chauhan P.R. (2014) PrayogatmakBhoogol, Vasundhara Publicaiions, Gorakhpur
4. Dorling, D. and Fairborn, D. (1997): Mapping. Ways of Representing the World. Longman, Harlow.
5. Duncan, O.D. et.al. (1961) : Statistical Geography, Free Press of Glen Co., New York.
6. Gregory, S. 1968) : Statistical Methods and Geographers, Longman, London.
7. Griffith, D. A. and Amehein (1997): Multivariate Statistical Analysis for Geographers. Prentice Hall, Englewood Cliffs, New Jersey.
8. Griffith, D. A. and Amehein (1997): Statistical Analysis for Geographers. Prentice Hall, Englewood Cliffs, New Jersey.
9. Haggett, P. & Chorley, R.J. (1969): Network Analysis, Edward Arnold, London.
10. King, L.J. (1969): Statistical Analysis in Geography, Longman, London.
11. Nag, P. (ed.) (1984): Census Mapping Survey, Concept Publishing Company, New Delhi.
12. Nair, N. B. (1996): Encyclopedia of Surveying, Mapping and Remote Sensing. Rawat Publications, Jaipur and New Delhi.

13. Pal S.K (1998) Statistics for Geoscientists, Concept Publications, New Delhi.
14. Rogerson, P.A. (2001): Statistical Methods in Geography, Sage, London.
15. Shaw, G. and Wheeler, D. (1994): Statistical Techniques in Geographical Analysis, Prentice Hall, Englewood Cliffs, New Jersey.
16. Shirvastava, V.K. & Prasad, M. (2007): Statistical Methods in Geography (in Hindi), Vasundhara Prakashan, Gorakhpur.
17. Singh, K.N and Siddiqui, A (2012) Economic Geography, PrayagPustak Bhawan, Allahabad.
18. Taylor, P.J. (1977): Quantitative Methods in Geography, HughtonMiffin Co., Boston.
19. Thrower, N. (1996): Maps and Civilization. Cartography, Culture and Society, University of Chicago Press, Chicago.
20. Unwin, D. (1982): Introductory Spatial Analysis, Methuen and Company Ltd., London.
- Walford, N. (1995): Geographical Data Analysis. John Wiley and Sons, Chichester.

Paper – V

Code: GEO205

Course: Elective

Title of the Paper: Resource Appraisal & Management

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topic | Subtopic | Periods |
|---|----------------------------------|---|------------------|
| 1 | Introduction | Concept of Resources , Classification of Resources , Attributes of resources , Natural resources-Definition, Concepts and Approaches of Resource management. | 2 2 2 6 |
| 2 | Utilization of Natural Resources | Distribution, Utilization and problems of natural resources with special reference to India. Land , Water, Forest, Energy Resources | 2 8 |
| 3 | Problems of Resource Utilization | Population explosion and pressure on resources. Resource Regions of the World, Development and environmental crises, Natural hazards and Risk management with emphasis on Earthquake , Flood & Drought | 4 3 2 8 |
| 4 | Conservation And Management | Meaning, Principles and Approaches to conservation, Resource appraisal and management methods, Emerging issues. | 3 3 3 |
| 5 | Polices and Planning | Land , Water and Forest policy in India, Sustainable Resource development – Concept, Methods and Dimensions. Integrated Resource development –Ecological, Economic and Social aspects. | 5 3 4 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Behra, Deepak Kumar (2000): Resource Management Through Indigenous Knowledge, New Delhi.
2. Berry, B. J.L. (1976): Geography of Economic Systems, Prentice Hall, Englewood Cliff
3. Boyce, R. D. (1974): Bases of Economic Geography, Holt, Rinehart and Winston, New York
4. Hartshorne, T. A. and Alexander, J. W. (2010): Economic Geography, PHI, New Delhi
5. Holechek, J.L. et.al. (2000): Natural Resources: Ecology, Economics and Policy, Prentice Hall, New Jersey.
6. Kellogg, C.F. (1986): Food, Soil and People, The Manhattan Publishing Co. New York.
7. Rao, B.P. (2006): Resources and Environment, Vasundhara, Prakashan, Gorakhpur.
8. Siddhartha, K. (2000): Economic Geography: Theories, Process and Patterns,

9. Simmans, I.G. (1981): The Ecology of Natural Resources, Edward Arnold, London.
10. Singh, Jagdish (1998): SansadhanBhoogol, GyanodayaPrakashan, Gorakhpur.
11. Smith, D. M. (1971): Industrial Location: An Economic Geographical Analysis, John Wiley and Sons, New York.
12. Singh, K.N and Siddiqui, A (2012): Economic Geography, PrayagPustak Bhawan, Allahabad
13. Smith, G.H. (ed.) (2000): Conservation of Natural Resources, John Wiley, New York.
14. Smith, J.R. (1987): Industrial and Commercial Geography, London.
15. United Nations (2007): Human Development Report, Oxford, UNDP.
16. Zimmermann, E.W. (1966): Introduction to World Resources, Harper & Row, New York.

Paper – V

Code: GEO206

Course: Elective

Title of the Paper: Rural Development

Credits- 05, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub Topics | Periods |
|---|------------------------------|--|----------------------|
| 1 | Introduction | Concept and Models of Rural Development, Dualism in Development, Integrated Area Development | 04 03 03 |
| 2 | Infrastructure | Irrigation, Transport and Marketing; Sanitation & Health facilities | 08 02 |
| 3 | Major Issues | Problems of Rural Areas, Causes & Consequences of Rural Population Migration in India. Sectoral Imbalances in Rural Development | 02 06 07 |
| 4 | Sectors of Rural Development | People's Participation and Panchayati Raj Role of Administrative and Political Nexus Rural-Urban Divide and Continuum, Core and Periphery Relations. | 05 03 04 03 |
| 5 | Policies & Programmes | Rural Development policies & programmes, Appraisal of Rural Development under Five Year Plans, Priority in Rural Development in India, PURA Implementation of Rural Development Programmes. | 02 03 03 02 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Arora, R.C. (1999): Integrated Rural Development, S. Chand & Company, New Delhi.
2. Bhadauria, B.P.S. (1988): Rural Development Strategy and Perspective, Anmol Publication, Delhi.
3. Chauhan, P.R. (1996): Regional Disparities in the Levels of Development, AMGI, Gorakhpur.
4. Dak, T.M. (1987): Social Inequalities and Rural Development, National Publishing House, New Delhi.
5. Desai, Basant (1988): Rural Development VI Vols., Himalaya Publishing House, Mumbai.
6. Dubey, Bechan (1990): Integrated Rural Development (Hindi), Mishra Trading Company, Varanasi.
7. Mishra, R.P. (1987): Rural Development – Capitalist and Socialist Paths, Concept, New Delhi.
8. Misra, R.P. & Sundaram, K.V. (1988): Rural Area Development: Perspective and Approaches, Sterling Publishers, New Delhi.
9. Sharma, S.K. (1990): Integrated Rural Development: Approaches, Strategy and Perspectives, Abhinav Publication, New Delhi.
10. Singh, Katar (1990) Rural Development : Principles, Policies and Management, Sage Publications, New Delhi.
11. Singh, S.K. (2002): Rural Development Policies & Programmes, Northern Book Centre, New Delhi.
12. Srivastava, V.K., Sharma N. & Chauhan, P.R. (2002): PradeshiK Niyojan Avam Santulit Vikas, Vasundhara Prakashan, Gorakhpur.
13. Dikshit, S.K. (2012): Population and Regional Development, Radha Publication, New Delhi.

Semester III

Paper – I

Code: GEO301

Course: Core

Title of the Paper: Oceanography

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub-topics | Periods |
|---|-------------------------------------|---|-------------|
| 1 | Introduction | Definition, Scope, and Historical development of Oceanography; Major relief features of ocean basins, Relief features of Indian Ocean | 4 4 |
| 2 | Dynamics of Ocean Water | Distribution of temperature, salinity, and density. Circulation and Circulation Patterns in oceans: Surface Waves, Currents, and Tides | 6 9 |
| 3 | Marine Biological Environment | Types of Marine Deposits and its Distribution in the Atlantic, Pacific and Indian Ocean, Biotic, Mineral and Energy resources, Coral Reefs and Atolls: Theories of their Formation. | 5 3 4 |
| 4 | Marine Ecosystem | Coastal, Estuaries, Deltas, Barrier Island, Reefs, Continental-Shelf, Continental - slope and Deep Sea Plain, Pelagic Environment and Ocean Basins, their Economic Importance. | 15 |
| 5 | Political and Economic Significance | Law of the Sea; Exclusive Economic Zone, Geopolitics of Indian Ocean Region, Anthropogenic Pollution, Sea Level Change and Coastal Erosion | 10 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Garrison, T. (1993): Oceanography – An Invitation to Marine Science, Wadsworth
2. Gerald, S. (1985): General Oceanography: An Introduction, New York.
3. Gross, G. M. (1990): Oceanography, Macmillan Publication, New York
4. Joseph, W. S. and Parish, H. I. (1974): Introductory Oceanography, McGraw Hill, Tokyo
5. King, C.A. (1986); Oceanography, C.E. Arnold, London.
6. Lal, D.S. (2003): Oceanography, Sharda Pustak Bhawan, Allahabad.
7. Murrey, A.F. (1980): Applied Oceanography, Longman, London and New Jersey
8. Pinet, P. R. (2009): Invitation to Oceanography, Jones and Bartlett Publishers, Boston Publication Co., California
9. Sharma, R.C. & Vatal, Mira (1995): Oceanography for Geographers, Chaitanya Pub. House, Allahabad.
10. Singh, Savindra (2007): Oceanography, PrayagPustak Bhawan, Allahabad.
11. Stowe, K. S. (1979): Ocean Science, John Wiley and Sons, New York
12. Thurman, H. V. and Trujillo, A. P. (1997): Introductory Oceanography, Prentice Hall,
13. Thurman, H.B. (1983): Introductory Oceanography, Longman, London.
14. Upadhyay, D.P. & Singh, R. (2001): Oceanography (Hindi), Vasundhara Prakashan, Gorakhpur.

Paper – II**Code: GEO302****Course: Core****Title of the Paper: Regional Geography of India**Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub Topics | Periods |
|---|---|--|----------------------|
| 1 | Region and Regionalization | Concept of Region and Regional Geography, Types of Region, Methods of Regionalization | 03 03 04 |
| 2 | Regionalization of India | Bases of Delimitation of Macro, Meso and Micro Regions of India. Attempts of Regionalization with reference to Stamp, Spate, R.L. Singh and C.D. Deshpande, | 02 12 |
| 3 | Regional Analysis of Problematic Regions | Kashmir Himalaya, North Eastern Region Tribal Regions Middle Ganga Plain | 03 03 03 03 |
| 4 | Problems and Prospects of Development- Case Studies | Chhotanagpur Plateau Malabar Coast Punjab Plain, Malwa Plateau, | 03 03 03 03 |
| 5 | Development Programmes of Specific Areas | Drought Prone Areas, Flood Prone Areas Desert Areas Hill Areas | 03 03 03 03 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Bansal, S.C. (1999): Advanced Geography of India, Meenakshi Publication, Meerut.
2. Chauhan P.R. (2001): Bharat Ka VrihatBhoogol, Vasundhara Prakashan, Gorakhpur.
3. Deshpande C.D (1992): India: A Regional Interpretation, Northerrn Book Centre, New Delhi.
4. Gautam, Alka (2001): Geography of India, Sharda Pustak Bhawan, Allahabad.
5. Govt. of India: Economic Survey, Ministry of Finance, New Delhi.
6. Hussain, Majid (2008): Advance Geography of India, Tata Mc Graw Hill, New Delhi.
7. Johnson, B.L.C. (1983): Development in South Asia. Penguin Books, Harmonsworth.
8. Khullar, D.R. (2006) India: A Comprehensive Geography, Kalyani Pub., New Delhi.
9. Krishnan, M. S. (1968): Geology of India and Burma. 4th edition. Higgin Bothams Private. Ltd., Madras.
10. Nag, P. and Gupta S. S. (1992): Geography of India. Concept Publishing. Company, New Delhi.
11. Sharma, T. C. (2003): India: Economic and Commercial Geography. Vikas Publication., New Delhi.
12. Singh, J. (2003): India: A Comprehensive and Systematic Geography. GyanodayaPrakashan, Gorakhpur.
13. Singh, R. L. (ed.) (1971): India. A Regional Geography. National Geographical Society of India, Varanasi.
14. Spate, O.H.K. & Learmonth, A.T.A. (1954) : India & Pakistan, Methuen, London.
15. Tiwari, R. C. (2007): Geography of India, PrayagPustak Bhawan, Allahabad
16. Wadia, D. N. (1959): Geology of India. MacMillan and Company, London and Madras.

Paper – III**Code: GEO303****Course: Core****Title of the Paper: Population Geography**Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topic | Sub-topics | Periods |
|---|----------------------------------|--|-----------|
| 1 | Conceptual background | Meaning & Scope of Population Geography | 3 |
| | | Approaches - Systematic, Regional, Historical, Behavioural, Welfare, & System, | 3 |
| | | Development of Population Geography, | 2 |
| | | Sources of Population Data; | 3 |
| | | Reliability & Comparability of Secondary Data. | 1 |
| 2 | Population Scenario | Distribution & Density of Population; | 5 |
| | | World Patterns of Population, | 1 |
| | | Population Explosion, | 2 |
| | | Distribution & Growth of India's Population. | 4 |
| 3 | Population Theories | Pre Malthusian Views, | 1 |
| | | Malthusian Theory, | 1 |
| | | Neo Malthusianism, | 1 |
| | | Demographic Transition Theory, | 2 |
| | | Optimum Population Theory, | 2 |
| | | Biological Theories of Population, | 3 |
| | | Social Theories of Population | 2 |
| 4 | Composition of Population | Age and Sex Composition; | 3 |
| | | Social & Economic Composition; | 3 |
| | | Literacy; | 3 |
| | | Urbanization. | 3 |
| 5 | Contemporary Problems & Policies | Types of Migration, Causes and Consequences, | 3 |
| | | Migration Laws, | 5 |
| | | India's Population Policy, | 2 |
| | | Population Planning with special reference to India. | 2 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Agarwal, S. M. (1974): India's Population Problems, McGraw Hill Publishing Co. Ltd., New Delhi.
2. Beaujeu, Garnier (1978): Geography of Population, Longman, London.
3. Berelson, B. (1974): Population Policy in Developed Countries, MacMillan, London
4. Bhende, A. A. and Kanitkar, T. (2011): Principles of Population Studies, Himalaya
5. Chandana, R. C. & Sidhu, M.S (2013): Population Geography, Kalyani Publications, Delhi
6. Desoza, A. A. (1983): Indian Population Problem in Perspective and Social Action, Concept Publications, New Delhi
7. Hazel, B. R. (1994): Population Geography, Singapore Publishers Pvt. Ltd., Singapore
8. Hiralal (2000): JansankhyaBhoogol, Radha Publications, New Delhi.
9. Panda, B.P. (1991): Population Geography (in Hindi), Madhya Pradesh Hindi Granth Academy, Bhopal.
10. Sundaram, K.V. (1985): Population Geography, Heritage Publishers, New Delhi.
11. Trewartha, G.T. (1969): Geography of Population: World Patterns, John Wiley & Sons, New York.
12. Tripathi, R.D. (2008): JansankhyaBhoogolAvamJanakiki, Vasundhara Prakashan, Gorakhpur.

Paper – IV**Code: GEO304****Course: Core****Title of the Paper: Regional Analysis****Credits- 03, Marks- 60**

| Units | Topic | Sub topic | Periods |
|---|--|---|---------|
| 1 | Concepts | Regional Analysis: Concept and Needs, Development: Concepts, Identification of Indicators and Determinants | 13 |
| 2 | Development Sectors | Sectors of Development: Indicators of different Sectors, Methodology used in Measurement of different Sectors, Regional Pattern of Development in India: Agriculture, Education, Health, and Employment | 12 |
| 3 | Approaches to Social & Human Development | Quality of life, Basic needs: Objectives and Subjective needs, Human Development Index, Capability Index, Gender Sensitive Index, HDI | 13 |
| Continuous Internal Assessment | | | 16 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Field Work Dissertation**Credis- 02,****Continuous Internal Assessment-40 Marks**

| Units | Topic | Sub topic | Periods |
|---|-----------------------|--|---------|
| 1 | Field Study Tour | Detailed field observation with sample survey. Preparation of a report using sketches, diagrams & photographs of visited area. | 26 |
| 2 | Socio-Economic Survey | Making questionnaire format; Conducting village and household survey and report writing | 26 |
| Continuous Internal Assessment | | | 20 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Alonso, W. & Friedmann, E. (1970): Regional Development and Planning, Longman, London.
2. Bhat, L.S. (1973): Regional Planning in India, Statistical Publishing Society, Kolkata.
3. Chand, M. and Puri, V. K. (2003): Regional Planning in India, Allied Publishers Pvt. Ltd., New Delhi
4. Chandana, R. C. (2000): Regional Planning: A Comprehensive Text, Kalyani Publishers, Ludhiana
5. Dube, K. N. (1990): Planning and Development in India, Asia Publishing House, New Delhi
6. Dubey, K.K. & Singh. M.B. (1988): PradeshikNiyojan, Tara Publication, Varanasi.
7. Friedmann, J. and Alonso, W. (1967): Regional Development and Planning: A Reader, MIT Press, New York
8. Ginsburg, N.S. (1959): The Regional Concept and Planning, Regional Planning UNO, New York.
9. Glassen, John (1978): An Introduction to Regional Planning, Hutchinson, Educational, London.
10. Glasson, J. and Marshall, T. (2007): Regional Planning, Routledge, New York
11. Glikson, Arther (1985): Regional Planning and Development, London.
12. Govt. of India (1986): Regional Plan 2001: National Capital Region, NCRPB, Ministry of Urban Development, New Delhi
13. India Year Book (2014): Publication Division, New Delhi

14. Isard, W (1963) *Methods of Regional Analysis: an Introduction to Regional Science*, The MIT Press, Cambridge, Massachusetts.
15. Mishra, H. N. (2005): *Regional Planning*, Rawat Publication, Jaipur
16. Mishra, R. P. (2002): *Regional Planning in India- Concept Publication*, New Delhi
17. Mishra, R.P. (1992): *Regional Planning: Concepts, Techniques, Policies and Case Studies*, Concept Pub., New Delhi.
18. Mishra, R.P. et. Al. (1987): *Regional Development Planning in India : A New Strategy*, Vikas Pub., New Delhi.
19. Mishra, R.P. et.al. (1980): *Multi Level Planning*, Heritage Publishers.
20. Ojha, R.N. (1987): *PradeshikNiyojan*, Kitabghar Acharya Nagar, Kanpur.
21. Singh, J. (1981): *Central Places & Integrated Development in a Backward Economy*, Gorakhpur.
22. Smith, David M. (1977): *Human Geography – A Welfare Approach*, Edward Arnold Publishers Ltd., London
23. Srivastava, V.K., Sharma N. & Chauhan, P.R. (2002): *PradeshikNiyojanAvamSantulit Vikas*, Vasundhara Prakashan, Gorakhpur.

Paper – V

Code: GEO305

Course: Elective

Title of the Paper : Agricultural Geography

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub Topics | Periods |
|---|---|--|------------------|
| 1 | Introduction | Definition, Scope and Approaches of Agricultural Geography, Agriculture in Innovations & Diffusion | 4 6 |
| 2 | Land Use Analysis | Land Capability Classification with Special Reference to India Land Use Classification with Special Reference to India. Carrying Capacity of Land; Kostrowicki's Classification of World Agriculture. | 4 4 3 |
| 3 | Measurement of Agricultural Efficiency | Methods of Agricultural Productivity; Measurement – Kendall's Ranking Coefficient Method, Weighted Ranking Coefficient Method; Regional Imbalances in the levels of Agricultural Productivity in India | 2 5 4 |
| 4 | Regionalisation of Agricultural Pattern | Agricultural regions: Concepts and Techniques, Methods of agricultural regionalisation; Cropping Intensity and Diversification; Measurement of Level of Agricultural Development, Models in Agricultural Geography | 8 3 4 |
| 5 | Development & Policies | Concept of Agricultural Development, Impact of Modern Agriculture on Environment; Sustainable Agriculture Agricultural revolutions & Recent Policies | 3 2 2 6 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Giri, H.H. (1975): *Land Utilization in Gonda District*, ShiwalayaPrakashan, Gorakhpur.

2. Grigg, D. (1995): An Introduction to Agricultural Geography, Routledge, London
3. Hussain, Majid (1998): Agricultural Geography, Rawat Publications, Jaipur.
4. Kumar, Pramila & Sharma, S.K. (1990) : Agricultural Geography (Hindi), M.P. Hindi Granth Academy, Bhopal.
5. Misra, R.P. (1968): Diffusion of Agricultural Innovation, Concept Publication, New Delhi.
6. Mohammad Ali (1977) Food and Nutrition in India, K.B. Publications,
7. Mohammad Ali (1978) Studies in Agricultural Geography, Rajesh Publishers, New Delhi
8. Mohammad, Noor (1980): Perspectives in Agricultural Geography (Vol. I–IV), Concept Pub. Co., New Delhi.
9. Negi, B.S. (1980): Agricultural Geography, Kdarnath Ramnath, Meerut.
10. Pandey, J.N. & Kamlesh, S.R. (2003) : Agricultural Geography (in Hindi), Vasundhara Prakashan, Gorakhpur.
11. Singh, B.B. (1979): Agricultural Geography (Hindi), GyanodayaPrakashan, Gorakhpur.
12. Singh, Jasbir& Dillon, S.S. (1984): Agricultural Geography, Tata Mc Graw Hill Pub., New Delhi.
13. Singh, S.N. (1994): Agricultural Development in India, Kaushal Publications, Shillong.
14. Symons, L. (1970): Agricultural Geography, G. Bell and Sons Ltd., London
15. Tiwari, R.C. & Singh, B.N. (1994) : Agricultural Geography (Hindi), PrayagPushtakBhawan, Allahabad.
16. Vaidya, B. C. (1997): Agricultural Land use in India, Manak Publications, New Delhi

Paper – V

Code: GEO306

Course: Elective

Title of the Paper : Industrial Geography

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub Topics | Periods |
|---|--|---|--------------------|
| 1 | Concepts | Meaning and Scope of Industrial Geography; Industrial Revolution and its Consequences; Trends of Industrialization in India | 03 02 04 |
| 2 | Location Theories | Factors of Location of Industries; Theories of Industrial Location – Weber, Hoover, Losch; | 02 06 |
| 3 | Spatial Pattern | Distribution and Spatial Pattern of Iron & Steel, Textile, Sugar & Fertilizer Industry; Industries and Economic Development, Problems and Prospects of Industrial Sprawl. | 08 02 04 |
| 4 | Industrial Regionalization | Centralization and Decentralization of Industries, Linkages of Industries; Major Industrial Regions of World | 02 02 12 |
| 5 | Globalization & Industrial Development | Impact of Globalization on Industrial Development, Industrial Policies and their Implications in Industrialization in India, Sustainable Industrial Development. | 04 05 04 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Alexanderson, C. (1967): Geography of Manufacturing, Prentice Hall, India.
2. Chaudhary, M.R (1970): Indian Industries – Development & Location, Oxford & IBH Company.
3. Kuchhal, S.C. (1997): Industrial Economics of India, Chaitanya Publication, Allahabad.
4. Kumar, Pramila & Sharma, S.K. (1985): Industrial Geography (Hindi), M.P.HindiGranthAcademy, Bhopal.
5. Miller, A. (1962): Geography of Manufacturing, Prentice Hall, New Jersey. Publishing Co. Ltd., New Delhi
6. Seth, V.K. (1987) Industrialization in India: Spatial Perspective, DelhiCommonwealth Publication.

7. Sharma, V.N. (2001): Spatial Pattern of Industrial Development in M.P., Radha Publication, New Delhi.
8. Singh, J. and Dhillon, S. S. (1994): Agricultural Geography, Tata McGraw Hill
9. Sinha, B.N. (1987): Industrial Geography of India, Oxford Book House, New Delhi.
10. Smith, D.M.(1982) Industrial Location : An Economic Geographic Analysis, John Wiley & Sons, New York.
11. Symons, L. (1970): Agricultural Geography, G. Bell and Sons Ltd., London
12. Vaidya, B. C. (1997): Agricultural Land use in India, Manak Publications, New Delhi
13. Weber, Alfred (1957): Theory of Location of Industries, Chicago University Press.

Paper – V

Code: GEO307

Course: Elective

Title of the Paper : Remote Sensing

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub-topics | Periods |
|---|---------------------------------|--|---------|
| 1 | Overview of Remote Sensing | Definitions, Scope, and Historical Development (With Special Reference to India), Stages of Remote Sensing, Platforms and Sensors, Types of Remote Sensing | 8 |
| 2 | Aerial Photo and Photogrammetry | Introduction to Elements of Photographic System: Camera System, Film. Basic Geometry & Characteristics of Aerial Photograph, Scale, Concept of Relief Displacement, Image Parallax, Ortho Photo. | 4 8 |
| 3 | Satellite Remote Sensing | Principle of EMR and Electromagnetic Spectrum, Interaction of EMR With Atmosphere and Earth Surface, LANDSAT And IRS Satellite System: Sensors, Characteristics, and Uses, High Resolution Satellites: IKONOS, Quickbird | 15 |
| 4 | Image Processing | Fundamentals of Visual Image Interpretation, Digital Image Processing: Concept of Image Rectification, Image Enhancement, Image Classification-Supervised & Unsupervised, | 2 8 |
| 5 | Applications & Recent advances | Applications In Disaster Management, Land Use/ Land Cover Change, Forestry, Water Resource and Urban and Regional Planning, Thermal, Microwave and Hyper Spectral Images: Characteristics and Applications | 15 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. American Society of Photogrammetry (1983): Manual of Remote Sensing, Falls Church, VA.
2. Avery, T. E. and Berlin, G.L. (1992): Fundamentals of Remote Sensing and Air photo Interpretation, Mc Millan, N. York.
3. Barrett, E.C.& Curtis, L.F. (1992): Introduction to Environmental Remote Sensing, Chapman & Hall, New York.
4. Campbell, J. B. (2002): Introduction to Remote Sensing, 5th edition. Taylor and Francis, London.
5. Chaunial, D.D. (2001): Remote Sensing and G.I.S. (in Hindi), Sharda Pustak Bhawan, Allahabad.
6. Cracknell, A.P. and Hayes, L.W.B. (1993): Introduction to Remote Sensing, Taylor & Francis, London.
7. Curran, P.J. (1985): Principles of Remote Sensing, Longman, London.
8. Floyd, F. and Sabins, Jr. (1986): Remote Sensing: Principles and Interpretation, W.H. Freeman, New York.
9. George Joseph (2005): Fundamentals of Remote Sensing, New Delhi.
10. Guham, P. K. (2003): Remote Sensing for Beginners. Affiliated East-West Press Private Ltd., New Delhi.
11. Harry, C.A. (ed.) (1978): Digital Image Processing, IEEE Computer Society, California
12. Hord, R.M. (1982): Digital Image Processing of Remotely Sensed Data, Academic Press, New York.

13. Jensen, J.R. (2000): Remote Sensing of the Environment, Dorling Kundersley Publishing Inc. John Wiley and Sons, Singapore
14. Leuder, D.R. (1959): Aerial Photographic Interpretation: Principles and Application. McGraw Hill, New York.
15. Lillesand, T.M. and Kiefer, R.W. (2000): Remote Sensing and Image Interpretation. 4th edition. John Wiley and Sons, New York.
16. Nag, P. (ed.) 1992: Thematic Cartography and Remote Sensing, Concept Publishing. Company, New Delhi.
17. Sabins, F. F. (1996): Remote Sensing: Principles and Interpretation, W.H Freeman, New York
18. Sharma, H.S. (2003): Remote Sensing for Resource Survey, Concept Publication, New Delhi.
19. Spurr, R. (1960): Photogrammetry and Photo Interpretation, The Roland Press Company, London.
20. Survey of India, (1973): Photogrammetry, Survey of India, Dehradun.
21. Tyagi, N and Rana, N.K (2015): Geospatial technology: Applications in Natural Resource Appraisal & Management, R. K. Books, Dariya Ganj, Delhi.

Paper – V

Code: GEO308

Course: Elective

Title of the Paper : Transport Geography

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topic | Sub-topic | Periods |
|---|--------------------------------|--|-------------|
| 1 | Introduction | Definition, Scope & Relevance to the study of Transport Geography, Historical Development of Transport System, Relative Importance of Different Modes of Transport. | 5 3 3 |
| 2 | Spatial Interaction | Concept of Spatial Interaction , Bases of Spatial Interaction –Complementarity, Intervening Opportunity and Transferability. | 3 5 |
| 3 | Structure of Transport Network | Evolution of Transport network with special reference to Taffee , Morrill and Gould 's Model. Network analysis- Concept of accessibility and connectivity Measures of connectivity-Graph theoretic measures – Cyclomatic, Alpha, Beta ,Gama & Detour Index | 5 15 |
| 4 | Modes of Transport | State of Modes and Means of Transport in India – Rail, Road, Waterways and Air | 10 |
| 5 | Policy and Planning | Transport policy in India , Transport planning , Role of Transport in Regional development. | 4 3 4 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Houle. B.S. (1973): Transport and Development, Mc Millan, London.
2. Hurst, Elliot (1973): Transport Geography – Readings and Comments, Mc Graw Hill Book Co. New York.
3. Jain, J.K. (1997): Transport Economics, Chaitanya Pub. House, Allahabad.
4. Kansky, J. (1963): Structure of Transport Network, University of Chicago, Deptt. of Geography.
5. Raza, M. & Agrawal, Y. (1986): Transport Geography of India, Concept Pub., New Delhi.
6. Robinson, H. & Banford, C. (1978): Geography of Transport, Mc Donald & Evans, London.
7. Singh, J. (1969): Transport Geography of South Bihar, N.G.S.I., B.H.U.
8. Singh, K.N. (1990): Transport Network in Rural Development in Eastern U.P., I.R.E.D., Gorakhpur.
9. Singh, K.N. (2005): ParivahanBhoogol, GyanodayaPrakashan, Gorakhpur.
10. Taffee, E.J. & Gauthier, H.L. (1973): Geography of Transportation, Prentice Hall.
11. White, H.P. & Senior, M.L. (1983): Transport Geography, Longman, London.

Semester IV

Paper – I

Code: GEO401

Course: Core

Title of the Paper: Climatology

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topic | Sub-topics | Periods |
|---|-------------------------------|---|-----------|
| 1 | Introduction | Definition and Scope of Climatology, Weather & Climate, Development of Modern Climatology | 3 |
| | | Atmosphere: Evolution, Composition and Structure of the Atmosphere | 2 |
| | | Insolation, Electromagnetic Spectrum and Heat Balance of the Earth | 3 |
| | | Vertical and Horizontal Distribution of Temperature (Lapse rate & inversion of temperature) | 2 |
| 2 | Climate | Mechanism of Monsoon – Recent Concepts, | 2 |
| | | Criteria for Climatic Regionalisation, | 2 |
| | | Climatic Classifications: Koppen, Thornthwaite, and Trewartha, | 6 |
| | | Factors Affecting Air Pressure and Winds, Geostrophic Wind and Gradient Wind, | 2 |
| | | Models for General Circulation of the Atmosphere | 3 |
| 3 | Circulation of the Atmosphere | Air masses and Fronts – Concept, Classification and Properties, | 4 |
| | | Tropical and Temperate Cyclones, | 3 |
| | | Humidity – Basic Concepts, Factors Affecting Condensation & Evaporation, | 3 |
| | | Types of Precipitation. | 1 |
| 4 | Human Impact | Role of Climate in Human Life | 3 |
| | | Human Impact of Human Activities on Climate – Green House Effect, Ozone Depletion. | 3 |
| | | Atmospheric Pollution and Global Warming & Climate Change | 6 |
| 5 | Applied Climatology | Climate and Landforms, Climate and Natural Vegetation & Animals, | 3 |
| | | Climate and Agriculture, Climate and House Types & Settlement | 2 |
| | | Regional Climatology – Macro, Meso & Micro Level, | 3 |
| | | Urban Climatology - Heat Islands, Weather Forecasting. | 4 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Banerji, R.C. & Upadhyay, D.S. (1999): Mausam Vigyan, Rajasthan Hindi Granth Academy, Jaipur.
2. Critchfield, H.J. (2002): General Climatology, Prentice Hall of India, New Delhi.
3. Hobbs, J.E. (1983): Applied Climatology, Butterworths, London.
4. Kendrew, W.G. (1972): Climatology, Oxford Uni. Press.
5. Lal, D.S.(2001): Climatology, Chaitanya Pub. House, Allahabad.
6. Lockwood, J.G. (1974): World Climatology and Environmental Approach, Edward Arnold, London.
7. Mathur, J.R. (1974): Climatology: Fundamentals and Applications, Mc Hill Book Company, New York.
8. Negi, B.S. (1999): Climatology and Oceanography (in Hindi), Kedarnath Ramnath, Meerut.
9. Rob Van Den Berg (2009) Evaluating Climate Change and Development. Prentice Hall, Englewood Cliffs, New Jersey 0762, 1998
10. Sidhartha, K. (2002): Atmosphere, Weather and Climate, Kislay Pub. Pvt. Ltd., New Delhi.
11. Singh, Savindra (2005): Climatology, PrayagPustak Bhawan, Allahabad.

12. Subrahmaniam, V.P. (1992): Contribution to Indian Geography Part – III – General Climatology, Heritage Publication, New Delhi.
13. Trewartha, G.T. (1954): An Introduction to Climate, Mc Graw Hill Series in Geography. New York
14. Upadhyay, D.P. & Singh, R. (2003): Climatology and Hydrology (in Hindi), Vasundhara Prakashan, Gorakhpur.

Paper – II

Code: GEO402

Course: Core

Title of the Paper: Research Methodology

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub-topics | Periods |
|------|--|--|---------|
| 1 | Scientific Research in Geography | Concept, Meaning and Objectives of Research, Types of Research, Overview of Research Process | 8 |
| 2 | Methods and Models | Methods of Explanation in Geography: Systems and Models. | 5 5 |
| 3 | Methods and Sources of Data collection | Techniques of Data Collection: Questionnaire and Interview Schedule, Interview, Observation, Case Study; Preparation of Questionnaire, Sampling Design, Selection of Respondents. Sources of Data: (A) Secondary Data: Census, NSS, CSO, Aerial Photographs and Satellite Imageries, Web Portal(B) Primary Data: Observational Method, Questionnaires and Interviews; Sampling Methods. | 8 7 |
| 4 | Research Process | Defining Research Problem: Identification of Problems, Specification of Objectives, Review of Literature, and Conceptualization of Research Problem, Research Questions and Hypotheses. Research Plan. | 12 |
| 5 | Report writing | Tabulation and Compilation of Data, Content Analysis, Citation, References, Bibliography, Review of Literature, Formatting of Research Reports | 15 |

Continuous Internal Assessment

30

Assignment/ Presentation/Exercises/Field Work

Reference Books:

1. Davis, P.C. (1985): Data Description and Presentation, Oxford, London.
2. Flowerdew, R. et.al. (1997): Methods in Human Geography: A Guide for Students Doing a Research Project, Longman, Harlow.
3. Goudie, A. (Ed) (2004): Encyclopaedia of Geomorphology, Routledge, London,
4. Gregory, D., Johnston, R., Pratt, G., Watts, M. and Whatmore, S. (2009): The Dictionary of Human Geography, Wiley-Blackwell, Singapore
5. Kothari, C.R. (1982): Research Methodology in Social Sciences, Inter India Pub., New Delhi.
6. Mishra, H.N. & Singh, V.P. (2002): Research Methodology in Geography, Rawat Publications, Jaipur.
7. Misra, R.P. & Ramesh, A. (1999): Fundamentals of Cartography, Concept Pub. Co., New Delhi.
8. Misra, R.P. (1985): Research Methodology, Concept Publishing Co., New Delhi.
9. Stoddart, R.H. (1982): Field, Techniques and Research Methods in Geography, Kendall Hunt, Dubuque.
10. Tandon, B.C. (1997): Research Methodology in Social Sciences, Chaitanya Pub., Allahabad.
11. Warf, B. (Ed)(2006): Encyclopedia of Human Geography, SAGE Publications, London.

Paper – III**Code: GEO403****Course: Core****Title of the Paper: Environmental Hazards and Disaster Risk Reduction**Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub-topics | Periods |
|---|--|---|-----------------------|
| 1 | Introduction | Concepts and Definition of Environmental Hazards, Disaster, Risk, and Resilience | 4 |
| 2 | Understanding Environmental Hazards | Bases of Classification and Types of Hazards, Characteristics, spatio-temporal distribution, impacts and risk reduction measures of- (A) Major geological hazards: Volcanic eruption, Earthquakes, Tsunami and Landslides (B) Major hydro-meteorological hazards: Floods, Drought, Cyclones, Cloud burst | 1 8 8 |
| 3 | Disaster risk reduction | Paradigm and approaches in disaster management, Concepts of Disaster Risk Reduction, Disaster Management Cycle, Pre disaster stage-preparedness, prevention, mitigation; On disaster stage-response, Post disaster stage-Relief, Recovery, Rehabilitation | 2 2 6 |
| 4 | Techniques and methods | Process of hazard identification and mapping Indicators and factors of vulnerability Risk assessment process | 3 4 3 |
| 5 | International and National initiatives | UN and its programmes: International Decade of Natural Disaster Reduction (IDNDR), International Strategy for Disaster Risk Reduction (ISDR), Hyogo Frame work for Action (HFA) – 2005, Major hazards profile of India: Flood, drought, earthquake, tsunami, cyclones; Institutions: National Disaster Management Authority (NDMA), National Institute of Disaster Management (NIDM), Policy: Disaster management act 2005, Disaster management system in India | 5 8 2 2 2 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

- Alexander, D. (1993): Natural Disasters, Springer, Berlin
- Bolt, B.A. et.al. (ed.) (1950): Geological Hazards, Springer, Verlay, New York.
- Burton, I. et.al. (1978) Environment as Hazards, O.P.O., New York.
- Goudie, A. (1990): Geomorphological Techniques, Unwin Hyman, London
- Hart, M. G. (1986): Geomorphology: Pure and Applied, George Allen and Unwin, London
- Kusky, T. (2012): Encyclopedia of the Hazardous Earth, Viva Books, New Delhi
- Petack, W.J. and Atkinson, A.D. (1982): Natural Hazards Risk Assessment and Public Policy, Sprinager, Verlay, New York.
- Roy, P.S. et.al. (2000): Natural Disaster and their Mitigation, ITC Publication.
- Valdiya, K. S. (1987): Environmental Geology, Tata McGraw Hill, New Delhi
- White, G.F. (ed) (1974): Natural Hazards, Local, National and Global, Oxford University Press, London.

Paper – IV**Code: GEO404****Course: Core****Title of the Paper: Geospatial Technologies**Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Units | Topic | Sub topic | Periods |
|---|----------------------|--|-----------|
| Unit-1 | Aerial Photograph | Concepts, Photogrammetry – Stereovision Test | 4 |
| | | Determination of scale of aerial photographs | 3 |
| | | Concept of height on aerial photographs | 2 |
| | | Visual Interpretation of single vertical & stereo pair of aerial photographs and Preparation of Land Use Map | 8 |
| Unit-2 | Remote Sensing | Concept & Evolution of remote sensing | 2 |
| | | Introduction to reference system of IRS satellites, data products and formats | 4 |
| | | Visual Interpretation of satellite images | 5 |
| | | Calculation of the Area on the Remotely Sensed Data | 2 |
| Unit-3 | Computers, GIS & GPS | Introduction to Computers: Exercise on Microsoft word, excel, & power point | 4 |
| | | GIS Concepts, Data Models | 6 |
| | | Introduction to GIS software (open source) | 4 |
| | | Database creation | 4 |
| | | GPS systems | 6 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Brown, L.A. (1949) : Maps and Map Makers, Batsford, London.
2. Bygott, J. (1967) : An Introduction to Map Work and Practical Geography, University Tutorial, London
3. Chauhan P,R. (2014) PrayogatmakBhoogol, Vasundhara Publicaiions, Gorakhpur
4. Debenham, F. (1936) : Map Making, M.S. Mill & Co. New York
5. Dickinson, G.C. (1969) : Maps and Air Photographs, Edward Arnold, London
6. Lawrence, G.R.P. (1971) : Cartographic Method, Methuen, London
7. Monkhouse, F.J. and Wilkinson, H.R. (1966) : Maps and Diagrams, Methuen, London.
8. Raise, E. (1946) : General Cartography, Mc Graw Hill, New York.
9. Robision A., et.al (1978) : Elements of Cartography, John Wiley and Sons, New York.
10. Singh, R.L., Singh, R.P.B. (1991) : Elements of Practical Geography, Kalyani Pub., New Delhi.
11. Yadav, H.L. (2001) : PrayogatmakBhoogol, Radha Pub., New Delhi.

Paper – V**Code: GEO405****Course: Elective****Title of the Paper: Political Geography**Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub-topics | Periods |
|------|----------------------|--|------------------|
| 1 | Introduction | Nature & Scope, Evolution & Development of Political Geography Contribution of German, British & American Scholars | 2 2 5 |
| 2 | Approaches | Approaches to the Study of Political Geography in reference to Functional and Unified Field Theory | 10 |
| 3 | Nation and State | The Concept of Nation and State; Spatial Factors and Anatomy of State: Core Areas and Capitals; Frontiers and Boundaries. Evolution of Federalism, Origin and Success of Federalism in India | 2 4 2 3 |
| 4 | Strategic Views | Global Strategic Views with particular emphasis on the ideas of Mahan, Mackinder, Spykman and Deseveresky, Geopolitical Setting of India, Significance of Indian Ocean; | 10 2 3 |
| 5 | Spatial Organisation | Elements of Electoral Geography; Geopolitical Problems of India in Relation to its Neighbours; Contemporary Problems of India; Regional Co-operations – SAARC, ASEAN, European Union. | 3 6 6 |

Continuous Internal Assessment**30**

Assignment/ Presentation/Exercises/Field Work

Reference Books:

1. Adhikari, S. (2005): Political Geography of India, Sharada Pustak Bhawan, Allahabad
2. Busted, M.A. (1980): Developments in Political Geography, London.
3. Carlson, L. (1971): Geography and World Politics, Prentice Hall, New Jersey.
4. Chauhan, P.R. (1996): RajnitikBhoogol, Vasundhara Prakashan, Gorakhpur.
5. Cox, K. (2002): Political Geography: Territory, State and Society, Wiley-Blackwell
6. Dikshit, R.D. (1989): Political Geography: A Contemporary Perspective, Tata Mc Graw Hill, New Delhi.
7. Dikshit, S.K. (2007): RajnitikBhoogolAvamBhurajnit, Vishwavidyalaya Prakashan, Varanasi.
8. Dwivedi, R.L. (1980): Political Geography, Chaitanya Publishing House, Allahabad.
9. Glassner, M.L. & Blij, H.J.de (1968): Systematic Political Geography, John Wiley, New York.
12. John, R. S. (2002): An introduction to Political Geography, Taylor & Francis.
10. Johnston, R.J. (1982): Geography and the State, Mac Millan, London.
11. Kasperson, R.E. & Minghi, J.V. (1971): Structure of Political Geography, London.
12. Pounds, N. J.G. (1977): Political Geography, Mc Graw Hill, New York.
13. Sinha, Manorama (1995): Political Geography, Horizon Publication, Allahabad.
14. Sukhwal, B.L. (1985): Modern Political Geography of India, Sterling Publication, New Delhi.
15. Taylor, P. (1985): Political Geography, Longman, London, 1985.

Paper – V**Code: GEO406****Course: Elective****Title of the Paper: Geography of Tourism**Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topic | Sub-topic | Periods |
|---|------------------|--|------------------|
| 1 | Introduction | Concept, Nature, Scope & Approaches; Elements of Tourism; Evolution of Tourism Studies; Multiplier Effect of Tourism. | 4 2 2 4 |
| 2 | Types & Impact | Types of Tourism – Cultural, Adventure, National & International. Cultural, Environmental, Socio-cultural & Economic Impact of Tourism. | 4 4 |
| 3 | Infrastructure | Role of Infrastructure in Promotion of Tourism – Transport & Communication, and Markets; Information Technology; Travel Agents & Tour Operators. | 5 4 |
| 4 | Tourist Circuits | Major Tourist Circuits of the World; Evolution & Growth of Tourism in India; Trend of Tourism in India, Major Tourist Circuits (India) & their Salient Features | 4 3 4 8 |
| 5 | Organisations | Tourist Organizations: Domestic and International; Problems & Prospects of Tourism in India; Planning & Management of Tourism. | 4 3 5 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Bhatia, A. K. (1991): International Tourism - Fundamentals and Practices, Sterling Publisher, New Delhi
2. Bhatia, A. K. (1996): Tourism Development: Principles and Practices, Sterling Publisher Ltd., New Delhi
3. C.Huster and H.Green: Tourism and the Environment: A Sustainable Relationship,Routledge,London,1995.
4. C.M.Hall and S.J.Page: The Geography of Tourism and Recreation, Environment, Place and Space, Routledge,London,1999.
5. D.Milton: Geography of World Tourism, Prentice Hall ,New York,1993.
6. D.S.Bhardwaj and M.Chaudhary (1997): Contemporary Issues in Tourism, Himalaya Mumbai.
7. Das, M. (1999): India: A Tourist Paradise, Sterling Publishers, New Delhi.
8. E.Inskeep: Tourism Planning: An Integrated and Sustainable Development Approach, Van Nostrand and Rein hold, New York,1991.
9. G.Shaw and A.M.Williams: Critical Issues in Tourism: A Geographical Perspective, Blackwell,Oxford,1994.
10. H.Robinson: A Geography of Tourism, Macdonald and Evans, London, 1976.
11. J. Lee: Tourism and Development in the Third World, Routledge, London, 1988.
12. N.K.Garg (1996): Tourism and Economic Development, Avishkan, Jaipur.
13. P.C.Sinha: International Encyclopaedia of Tourism Management, Vol.1-12,Anmol, New Delhi
14. Pearce, D. G. (1987): Tourism Today: A Geographical Analysis, Longman, Harlow.
15. R.K.Kaul: Dynamics of Tourism and Recreation, Inter India, New Delhi, 1985.
16. Ryan Cris (1991): Recreational Tourism: A Social Science Perspective, Routledge, London.
17. Smith, L. J. S. (2010): Tourism Analysis: A Handbook, Halstead Press, Sydney.

Paper – V**Code: GEO407****Course: Elective****Title of the Paper: Geographical Information System**Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topics | Sub Topics | Periods |
|---|----------------------|---|----------------------|
| 1 | Introduction | Definitions & Scope, Objectives and Development Component of GIS, Functional Elements of GIS. | 04 02 04 |
| 2 | Data Handling in GIS | GIS Hardware & Software, The Basis of GIS Mapping: Geographical Data: Types and Characteristics; Map Projections, Datum, Spherical and Plane Coordinate Systems, Geometric Rectification. Data Inputs: Scanning, Digitization & Editing, Topology Creation, Errors in GIS, | 04 06 07 02 |
| 3 | Data Structure | Data Structure-Raster & Vector, Spatial Data Analysis – Raster – Vector Based, Data Visualization: Types of Visualization, Map Layout Design and Symbology Integration of Remote Sensing and GIS; | 07 02 |
| 4 | Database Structure | Database Structure – Hierarchical, Network, Relational & Object Oriented, DBMS, RDBMS. GIS Database Management Systems; | 09 |
| 5 | Applications | Digital Elevation Model (DEM): Characteristics & its Applications. Concept of GPS & its Application, GIS Applications, GIS & Disaster Management. Recent Trends In GIS, | 03 04 04 02 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Bhatia, J.B. (2008) Remote Sensing & GIS, Oxford.
2. Bonham, Carter G.F. (1995): Information Systems for Geoscientists – Modelling with GIS. Pergamon, Oxford.
3. Bruce E. Davis (1996) GIS : A Visual Approach, Onward Press.
4. Burrough, P.A. (1986) Principles of GIS for Land Resource Assessment, Oxford.
5. Burrough, P.A. and McDonnell, R. (1998): Principles of Geographic Information Systems. Oxford University Press, Oxford. London
6. Chang, K.T. (2003): Introduction to Geographic Information Systems. Tata McGraw Hill Publications Company, New Delhi.
7. Chauniyal, D. D. (2004): Remote Sensing and Geographic Information Systems. (in Hindi). Sharda Pustak Bhawan, Allahabad.
8. ESRI (1993): Understanding GIS. Redlands, USA
9. Fraser Taylor, D.R. (1991): Geographic Information Systems. Pergamon Press, Oxford.
10. George, J. (2003): Fundamentals of Remote Sensing. Universities Press Private Ltd, Hyderabad.

11. Girard, M. C. and Girard, C. M. (2003): Processing of Remote Sensing Data. Oxford and IBH, New Delhi.
12. Glen, E. M. and Harold, C. S. (1993): GIS Data Conversion Handbook. Fort Collins, Colorado, GIS Word Inc.
13. Goodchild, M.F.; Park, B. O. and Steyaert, L. T. (eds.) (1993): Environmental Modelling with GIS. Oxford University Press, Oxford.
14. Guptill, S.C., and Morrison, J.L. (1995): Elements of Spatial Data Quality. Elsevier/ Pergamon, Oxford.
15. Heywood, I. (2003): An Introduction to Geographical Information Systems. 2nd edition, Pearson Publishing Company, Singapore.
16. Lillesand, T. M., Kiefer, R. W. and Chipman, J. W. (2004): Remote Sensing and Image Interpretation, Wiley, New York
17. Lo, C.P. and Yeung, A. K. W. (2002): Concepts and Techniques of Geographic Information Systems. Prentice Hall of India, New Delhi.
18. Longley, P. and Batty, M. (eds.) (1996): Spatial Analysis: Modelling in a GIS Environment. GeoInformation International, Cambridge.
19. Longley, P., Goodchild, M.F., Maguire, D. and Rhind, D. (1999): Geographic Information Systems. Principles, Techniques, Management, Applications. John Wiley and Sons, New York.
20. Maguirre, D. J.; Michael F. G. and David W. R. (1999): Geographical Information Systems: Principles and Application. Geo Information International, Vol.2, Longman Publication., New York.
21. Michael F. G. and Karan K. K. (ed.) (1990): Introduction to GIS. NCGIA, Santa Barbara, California. Prentice Hall, Englewood Cliffs
22. Tomlin, C. D. (1990): Geographic Information Systems and Cartographic Modeling, Englewood Cliffs, NJ-Printice Hall

Paper – V

Code: GEO408

Course: Elective

Title of the Paper: Regional Planning

Credits- **05**, Marks- 70

Continuous Internal Assessment-30

| Unit | Topic | Sub-topics | Periods |
|------|----------------------------------|--|-------------|
| 1 | Concept | Concept and Scope of Regional Planning, Approaches to regional Planning | 2 3 |
| 2 | Theories & Models | Economic Base Theory, Central Place Theory, Concept of Growth Centres; Growth Centre Strategy for Regional Planning; Core – Periphery Relation. | 4 6 3 |
| 3 | Planning Regions | Concept and Delimitation of Planning Regions; Planning Regions of India: Attempts of their delimitation , Hierarchy of Planning Regions, Regional Planning for Rural Development with Special Reference to Eastern U.P. | 2 5 4 |
| 4 | Infrastructure and their Role in | Meaning and Types of Infrastructure and their Role in Regional Development – Irrigation, Power, Transport, | 16 |

| | | | |
|---|--|--|-------------|
| | Regional Development | Marketing and Institutional factors | |
| 5 | Regional Planning as a Strategy of Development | Formulation and purpose of Five Year plans in India, Priorities and achievements of Five Year plans, Rural Development Programmes in Five Year plans | 4 3 8 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Alonso, W. & Friedmann, E. (1970): Regional Development and Planning, Longman, London.
2. Bhat, L.S. (1973): Regional Planning in India, Statistical Publishing Society, Kolkata.
3. Chand, M. and Puri, V. K. (2003): Regional Planning in India, Allied Publishers Pvt. Ltd., New Delhi
4. Chandana, R. C. (2000): Regional Planning: A Comprehensive Text, Kalyani Publishers, Ludhiana
5. Dube, K. N. (1990): Planning and Development in India, Asia Publishing House, New Delhi
6. Dubey, K.K. & Singh. M.B. (1988): PradeshikNiyojan, Tara Publication, Varanasi.
7. Friedmann, J. and Alonso, W. (1967): Regional Development and Planning: A Reader, MIT Press, New York
8. Ginsburg, N.S. (1959): The Regional Concept and Planning, Regional Planning UNO, New York.
9. Glassen, John (1978) : An Introduction to Regional Planning, Hutchinson, Educational, London.
10. Glasson, J. and Marshall, T. (2007): Regional Planning, Routledge, New York
11. Glikson, Arther (1985): Regional Planning and Development, London.
12. Govt. of India (1986): Regional Plan 2001: National Capital Region, NCRPB, Ministry of Urban Development, New Delhi
13. India Year Book (2014): Publication Division, New Delhi
14. Mishra, H. N. (2005): Regional Planning, Rawat Publication, Jaipur
15. Mishra, R. P. (2002): Regional Planning in India- Concept Publication, New Delh
16. Mishra, R.P. (1992): Regional Planning: Concepts, Techniques, Policies and Case Studies, Concept Pub., New Delhi.
17. Mishra, R.P. et. Al. (1987): Regional Development Planning in India : A New Strategy Vikas Pub., New Delhi.
18. Mishra, R.P. et.al. (1980): Multi Level Planning, Heritage Publishers
19. Ojha, R.N. (1987): PradeshikNiyojan, Kitabghar Acharya Nagar, Kanpur.
20. Sharma, N. (2012): PradeshikNiyojan Geography, DrishtikonPrakashan, New Delhi.
21. Singh, J. (1981): Central Places & Integrated Development in a Backward Economy, Gorakhpur.
22. Srivastava, V.K., Sharma N. & Chauhan, P.R. (2002): PradeshikNiyojanAvamSantulit Vikas, Vasundhara Prakashan, Gorakhpur.

Code: GEO409

Course: Elective

Title of the Paper: Urban Geography

Credits- 05, Marks- 70

Continuous Internal Assessment-30

| Unit | Topic | Sub-topics | Periods |
|---|---------------------------|--|---------|
| 1 | Introduction | Meaning & Scope; Development of Urban Geography in India | 3 |
| | | Urban Growth in Ancient, Medieval, and Modern Period | 3 |
| | | Modern Urban Settlements: Origin & Location | 4 |
| | | Urban Growth Models: Concentric Zone, Sectoral, and Multi-nuclei Model, | 3 |
| | | Megalopolis & Conurbation, Trends of Urbanisation in India. | 2 |
| 2 | Influence Area | Umland: Meaning & Nomenclature, Delimitation with reference to India, Urban Fringe: Concept & Characteristics; Causes of Development & Delimitation with reference to India | 5 5 |
| 3 | Size, Shape & Functions | Functional Classification of Urban Centres, Methods of Functional Classification | 4 |
| | | Urban Hierarchy: Concept, and Method of Determination; Concept of Rank Size Rule. | 3 4 |
| 4 | Morphology | Definition, Factors Affecting on Urban Morphology, Types of Urban Morphology, Morphology of Indian cities; | 5 |
| | | Urban Amenities; Demographic Structure & Characteristics of Urban Population in India; Qualitative trends of Urban Population. | 5 5 |
| | | | |
| 5 | Urban Policies & Planning | Problems of cities | 2 |
| | | Concept of Town Planning: Aims & Principles of Town Planning, Problems and Prospects of Town Planning, Town Planning in India | 5 |
| | | Urban Policies & Smart Cities | 2 |
| Continuous Internal Assessment | | | 30 |
| Assignment/ Presentation/Exercises/Field Work | | | |

Reference Books:

1. Alam, S.M. (1965) Hyderabad-Secundrabad : A Study in Urban Geography, Allied Publishers, Mumbai.
2. Bansal, S.C. (2008) Urban Geography (in Hindi), Meenakshi Prakashan, Meerut.
3. Bose, A. (1980): India's Urbanisation, Tata McGraw Hill, New Delhi.
4. Carter, H. (1979): The Study of Urban Geography, Arnold Heinemann, London.
5. Gibbs, J. P. (Ed.), (1961): Urban Research Methods, Princeton.
6. Hall, T. (2006): Urban Geography, Routledge, London.
7. Karan, M.P. (1991) Urban Geography (in Hindi), Kitab Ghar Acharya Nagar, Kanpur.
8. Mandal, R.B. (2000) Urban Geography: A Textbook, Concept Publishing Company, New Delhi.
9. Mayer, H.M. & Kohn, C.F. (1967): Reading in Urban Geography, Central Book Depot, Allahabad.
10. Pacione, M. (2009): Urban Geography, Routledge, New York Press, New Delhi.
11. Ramchandran, R. (1997): Urbanization and Urban Systems in India, Oxford University.
12. Rao, B.P. and Sharma, N. (2000) Urban Geography (in Hindi), Vasundhara Prakashan, Gorakhpur.
13. Siddharth, K. and Mukherjee, S. (2013): Cities, Urbanization and Urban System, Kisalaya Prakashan,
14. Singh, O.P. (1979) Urban Geography (in Hindi), Tara Publication, Varanasi.
15. Singh, R.L. (1955) Banaras: A Study in Urban Geography, Nand Kishore & Sons, Varanasi.
16. Singh, Ujagir (1974) Urban Geography (in Hindi), Uttar Pradesh Hindi Granth Academy, Lucknow.
17. Tayler, G. (1964) Urban Geography, Methuen, London.
18. Yadav, C.S. (1992) Urban Planning and Policies, Concept Publishing Company, New Delhi.