

**PG CBCS SYLABUS**  
**PG DEPARTMENT OF GEOGRAPHY**  
**MPC AUTONOMOUS COLLEGE BARIPADA**  
**FIRST SEMESTER**

COURSE CODE	TITEL OF THE PAPER	CREDITS	END SEMESTER MARKS	MID SEMESTER MARKS	TOTAL MARKS
CC-101	GEOMORPHOLOGY	04	80	20	100
CC-102	CLIMATOLOGY	04	80	20	100
CC-103 ✓	OCEANOGRAPHY	04	80	20	100
CC-104 ✓	ENVIRONMENTAL GEOGRAPHY	04	80	20	100
✓ CC-105	STATISTICAL METHOD AND TECHNIQS	06	100		100
	TOTAL	22	420	80	500

**SECOND SEMESTER**

COURSE CODE	TITEL OF THE PAPER	CREDITS	END SEMESTER MARKS	MID SEMESTER MARKS	TOTAL MARKS
CC-201	EVOLUTION OF GEOGRAPHICAL THOUGHT	04	80	20	100
CC-202	HUMAN GEOGRAPHY	04	80	20	100
CC-203	ECONOMIC GEOGRAPHY	04	80	20	100
CC-204	POPULATION GEOGRAPHY	04	80	20	100
✓ CC-205	MODELS AND NETWORK ANALYSIS	06	100		100
	TOTAL	22	420	80	500

**THIRD SEMESTER**

COURSE CODE	TITEL OF THE PAPER	CREDITS	END SEMESTER MARKS	MID SEMESTER MARKS	TOTAL MARKS
CC-301	SETTELMENT GEOGRAPHY	04	80	20	100
CC-302	REGIONAL GEOG.OF INDIA & ODISHA	04	80	20	100
✓ CC-303	MAP PROJECTION & SURVEYING	06	100		100
CC-304	RESEARCH METHODOLOGY	04	80	20	100
OEC 305	GEOGRAPHY OF INDIA & ODISHA	06	100		100
	TOTAL	22	420	80	500

**FOURTH SEMESTER**

COURSE CODE	TITEL OF THE PAPER	CRO4EDITS	END SEMESTER MARKS	MID SEMESTER MARKS	TOTAL MARKS
DEC-401	REGIONAL PLANNING/GIS & RS	04	80	20	100
DEC-402 ✓	URBAN PLANNING GIS & RS	06	80	20	100
✓ DEC-403	<i>Socioeconomic survey</i>	08	100		100
✓ DC-404	DISSERTION COURSE COURSE				200
	TOTAL	22	460	40	500

GRAND TOTAL

88 CREDITS

2000MARKS

**SEMESTER-I**

**PAPER-CC-101  
GEOMORPHOLOGY**

**Full marks: 100  
( Mid-Sem: 20 + End- Sem:80)**

**UNIT: I**

- 1.1 Fundamental Concepts and their Recent Trends.
- 1.2 Morphological Evolutionary Concepts of Davis, Penck and L.C King.
- 1.3 Concept of Continental Drift and its Related Evidence by Wegner.

**UNIT: II**

- 2.1 Sea floor spreading.
- 2.2 Plate Tectonics.
- 2.3 Geosynclines and Mountain Building Process, Theories of Mountain Building: Kober, Holmes.

**UNIT: III**

- 3.1 Weathering: Physical Weathering , Chemical Weathering
- 3.2 Development of slopes and slope processes, Profile analysis
- 3.3 Mass wasting: Creep, Rock falls and Talus, Slides, Flows and Induced Mass wasting

**UNIT: IV**

- 4.1 Morphometric analysis of Drainage basin (Stream Order, Bifurcation Ratio, Stream Length, Drainage Density, Drainage Basin, Development of Slopes)
- 4.2 Coastal Geomorphology
- 4.3 Periglacial Landforms

**Reading List:**

1. Thornbury, W.D. (1960) *Principles Of Geomorphology*, Johnwiley, New York.
2. Dayal, P. (1996): A Text Book Of Geomorphology, Shukla Book Depot, Patna.
3. Singh, S. (2003). *Physical Geography*. Allahabad: Prayag Pustak Bhawan.
4. Dasgupta, A. And Kapoor, A.N. (2001): *Principles Of Physical Geography*, Delhi: S.Chand And Co.
5. Hess, D. (2011): *Physical Geography: A Landscape Appreciation*, New Delhi: Phi Learning.
6. Bryant, H. Richard. (2001). *Physical Geography Made Simple*. New Delhi: Rupa And Company.
7. Bunnett R. B. (2003). (Fourth Gese Edition). *Physical Geography In Diagrams*. Singapore: Pearson Education (Singapore) Private Ltd.
8. Strahler, A. N. And Strahler, A. M. (2006). *Modern Physical Geography*. New Delhi: Cambridge.

PAPER-CC-102  
CLIMATOLOGY

Full marks: 100  
(Mid-Sem: 20 + End- Sem:80)

**UNIT: I**

- 1.1 Fundamental Principles of Climatology.
- 1.2 Insolation, Heat Budget of the Earth, Inversion of Temperature
- 1.3 Pressure Belt, General circulation of Atmospheres, Hadley cell, Geostrophic wind, Upper air Circulation and Jet Stream

**UNIT: II**

- 2.1 Evaporation and Condensation, diabatic and adiabatic processes, stability and instability, clouds and precipitation.
- 2.2 Atmospheric disturbances: Cyclone ( Tropical ,Extra Tropical), Anti Cyclone, Thunderstorm, Tornado

**UNIT: III**

- 2.1 Air mass-Origin, Characteristics, Source Region and Modifications.
- 2.2 Mechanism of Indian Monsoon

**UNIT:IV**

- 4.1 Koppen's and Thornthwaite's Classification of World Climate.
- 4.2 Climate Change
- 4.3 Applied Climatology; Weather Forecasting.

**Reading List:**

1. Barry, R. G. And Chorley, R. J. (1985) *Atmosphere, Weather And Climate*, London: Methuen
2. Critchfield, H. J. (1966) *General Climatology*, New York: Prentice Hall (Latest Reprint)
3. Khan, Nizamuddin (2001) *An Introduction To Physical Geography*, New Delhi: Concept Publishing Company
4. Mather, J. R. (1974) *Climatology: Fundamental And Applications*, New York: McGraw Hill
5. Monkhouse, F. J. (1975) *Principles Of Physical Geography*, London: Hodder & Stoughton

PAPER-CC-103  
OCEANOGRAPHY

Full marks: 100  
(Mid-sem:20 + End- Sem:80)

**UNIT: I**

- 1.1 Oceanography as a systemic science: definition and scope; Geography and Oceanography.
- 1.2 Theories of the origin of ocean basins – Nebular and Tetrahedral; distribution and extent of oceans and seas.
- 1.3 Configuration of the ocean floor: (Atlantic, Pacific and Indian Oceans).

**UNIT: II**

- 2.1 Salinity and temperature – horizontal and vertical distribution; Ocean Water Density and Distribution (Atlantic, Indian Oceans), T-S Diagram.
- 2.2 Coral Reefs: types (fringing reef, barrier reef and atoll), Theories of Coral formation.

**UNIT: III**

- 3.1 Waves.
- 3.2 Tides.
- 3.3 Ocean Currents.

**UNIT: IV**

- 4.1 Marine Deposits – types and distribution
- 4.2 Marine Resources

**Reading List:**

1. Anikouchine W. A. and Sternberg R. W., 1973: *The World Oceans: An Introduction to Oceanography*, Prentice-Hall.
2. Garrison T., 1998: *Oceanography*, Wordsworth Company, Belmont.
3. Kershaw S., 2000: *Oceanography: An Earth Science Perspective*, Stanley Thornes, UK.
4. Pinet P. R., 2008: *Invitation to Oceanography* (Fifth Edition), Jones and Barlett Publishers, USA, UK and Canada.
5. Sharma R. C. and Vatal M., 1980: *Oceanography for Geographers*, Chaitanya Publishing House, Allahabad.
6. Sverdrup K. A. and Armbrust, E. V., 2008: *An Introduction to the World Ocean*, McGraw Hill, Boston.
7. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Landscape ecology and water management. Proceedings of IGU Rohtak Conference, Volume 2. Advances in Geographical and Environmental Studies, Springer

PAPER: CC-104  
ENVIRONMENTAL GEOGRAPHY

Full marks:100  
(Mid-sem:20 + End- Sem:80)

**UNIT:I**

- 1.1 Environment and Ecology - Meaning, Scope and Concepts.
- 1.2 Environmental Controls: Concept of Tolerance, Components-Light, Temperature, Water, Wind, Topography, Edaphic and Biotic

**UNIT:II**

- 2.1 Ecosystem: Meaning and Concepts, Functions; Classification and Components of Eco-System; Trophic Structure. Ecological Pyramid, Energy Flow.
- 2.2 Air Pollution: Major Air Pollutants-Their Source and Effect, Control and Measures, Water Pollution: Major Categories of Water Pollution and their Effect, Their Control Strategies.
- 3.3 Solid and Hazardous Waste: Problem and Management, Reuse, Recycle, Recover.

**UNIT:III**

- 3.1 Concept of Hazard and Disaster management.
- 3.2 The Concept of Disaster Management Cycle- Prevention, Mitigation, Preparedness, Response, Recovery, Development.

**UNIT:IV**

- 4.1 Role of Man in Environment Management, Environmental Policies and Programme
- 4.2 EIA and SIA
- 4.3 Sustainable development

Reading List:

1. Chandana, R.C : Environmental Awareness, Kalyani Publisher, New Delhi, 1997.
2. Hagget, P. : Geography-A Modern Synthesis, Harper& Row Publication, New York, 1975.
3. Singh, Savindra: Environment Geography, Prayag Publication, Allahabad, 1991.
4. Miller,G.T. :Living In The Environment
5. Odum,E.P. :Fundamentals Of Environmental Science, Prentice Hall, Newyork, 1996.

PAPER-CC-105

STATISTICAL METHOD AND TECHNIQUES

Full marks 100

- UNIT:I** Data- Defination and Classification, Frequency Distribution – Histograms, Frequency curve, Polygone, Ogive.
- UNIT:II** Measures Of Central Tendency-Mean, Meadian, Mode (Graphical and Mathematical).
- UNIT:III** Measures Of Dispersion- Mean Deviation, Standard Deviation.
- UNIT:IV** Correlation and Regrassion Analysis.
- UNIT:V** Practical Record and Viva. (20% Marks)

**Reading List:**

1. Bhagwathi, V. And Pillai, R.S.N. (2003). *Practical Statistics*. New Delhi: Sultan Chand And Company.
2. Ebdon, D. (1977). *Statistics In Geography: A Practical Approach*. Massachusetts: Blackwell Publishers Inc.
3. Gupta, S.P. (1998). *Advanced Practical Statistics*. New Delhi: Sultan Chand And Company.
4. Hammond P. And Mccullagh P. S., 1978: *Quantitative Techniques In Geography: An Introduction*, Oxford University Press.
5. Ishtiaq, A. (2002). *Statistical Geography: Methods And Applications*, Jaipur : Rawat Publications.
6. Mahmood, A. (1986). *Statistical Methods In Geographical Studies*, New Delhi: Rajesh Publications.
7. King L. S., (1969) *Statistical Analysis In Geography*, Prentice-Hall.
8. Zamir, A. (2002). *Statistical Geography: Methods And Applications*, Jaipur : Rawat Publications.

**SEMESTER:II**

**PAPER-CC-201  
EVOLUTION OF GEOGRAPHICAL THOUGHT**

**Full marks: 100  
(Mid-sem: 20 + End- Sem:80)**

**UNIT:I**

- 1.1 Evolution geographical Ideas:Contribution of Greek, Roman and Ancient Geography.
- 1.2 Dark Age.
- 1.3 Renaissance Period.

**UNIT:II**

- 2.1 German and French school of Thought.
- 2.2 British and American school of thought.
- 2.3 Dichotomy in Geography- Systematic Vs Regional, Physical Vs Human.

**UNIT: III**

- 3.1 Models in geography: Types and Significance
- 3.2 Morden themes in geographical thought- Functionalism, Idealism .Humanism

**UNIT:IV**

- 4.1 Quantitative and Theoretical Revolution in Geography.
- 4.2 Paradigms, Hypothesis and Model building in Geography.

**Reading list**

1. Dickinson, R.E and Howerth- The Makers Of Morden Geography, London
2. Hartshorne- Geography in the 20<sup>th</sup> Century, London
3. Chorly and Hagget Models in Geography, London
4. Negi, B.S- Geographical thought Delhi
5. Hussain Majhid- Geographical Thought
6. Adhikari S- Geographic Thought, Allahabad 1992

PAPER-CC-202  
HUMAN GEOGRAPHY

Full Marks 100  
(Mid-sem: 20 + End- Sem: 80)

**UNIT:I**

- 1.1 Defination, Scope and Major Sub-field of Human Geography.
- 1.2 Development of Human Geography.
- 1.3 Environmental determinism and Possibilisim.

**UNIT:II**

- 2.1 Evolution and Races of Mankind
- 2.2 Cultural Diversities of the World- Language and Religion
- 2.3 Cultural realms of the World

**UNIT:III**

- 3.1 Approaches to the study of Human geography: Environmental approach, Regional approach, Systematic approach, Radial approach
- 3.2 Man Environment relationship: Man as a geographic element

**UNIT:IV**

- 4.1 Gravity Model
- 4.2 Potential Model
- 4.3 Central Place Model

**Reading List:**

1. Ahmed, Aijazuddin (1999) *Social Geography*, New Delhi: Rawat Publications
2. Blij, Harm De (1992) *Human and Economic Geography*, New York: MacMillan Publishing Company
3. Chandna, R. C. (2012) *Geography of Population- Concepts, Determinants and Patterns*, New Delhi: Kalyani Publishers
4. Ghurye, G. S. (1969) *Caste and Race in India*, Bombay: Popular Prakashan
5. Hussain, Majid (2002) *Human Geography*, New Delhi: Rawat Publications
6. Khanna, K. K. and V. K. Gupta (2001) *Economic and Commercial Geography*, New Delhi: Sultan Chand & Sons
7. Rubenstein, J. M. (1992) *An Introduction to Human Geography*, New York: MacMillan Publishing Company *Political Geography of India*, New Delhi: Sterling Publishers

PAPER-CC-203

ECONOMIC GEOGRAPHY

Full marks 100  
(Mid-sem: 20 + End- Sem:80)

**UNIT:I**

- 1.1 The Definition, Scope, Concept And Methods of Economic Geography.
- 1.2 Concept of Economy and Economic Development.
- 1.3 Approaches and recent development in Economic geography

**UNIT: II**

- 2.1 Resource- Definition, Concept
- 2.2 Resource and population
- 2.3 Dynamic of Resource Base- Resource Scarcity Hypothesis.

**UNIT:III**

- 3.1 Location of Primary Activities-Agricultural Location Theory of Von Thunen , Problems and prospects of agriculture.
- 3.2 Location of Secondary Activities- Industrial Location, Contributions of Weber and Hoover.
- 3.3 Location of Market Centers, Contributions of Walter Christaller and August Losch.

**UNIT:IV**

- 4.1 Principles of Areal Functional Organization.
- 4.2 Agricultural Regions of the World.
- 4.3 Industrial Regions of the World.

**Reading List**

1. Alexander J. W.(1963) Economic Geography, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
2. Bagchi-Sen, Saharmistha And Smith, Helen Lawton. (2006). Economic Geography: Past Present And Future, Oxon (United Kingdom): Routledge.
3. Clark, Gordon L., Feldman, Maryann P., Gertler, Meric S. (2003). (Eds.). The Oxford Handbook Of Economic Geography. Oxford: Oxford University Press.
4. Hanink, D. M. (1997). Principles And Applications Of Economic Geography: Economy Policy, Environment. New York: John Wiley And Sons, Inc.
5. Hartshorne, T.A. And J.W. Alexander (1988) –Economic Geography, Prentice Hall
6. Knowles, R. And Wareing, J. (2000). Economic And Social Geography Made Simple. New Delhi: Rupa And Company.
7. Leong, G. C. And Morgan, G. C. (1982). Human And Economic Geography. Singapore: Oxford University Press.

PAPER-CC-204

POPULATION GEOGRAPHY

Full marks: 100  
(Mid-sem:20 + End- Sem:80)

**UNIT: I**

- 1.1 Definition, nature and Scope of Population geography.
- 1.2 Relation Between Population Geography and demography
- 1.3 Sources of population data

**UNIT: II**

- 2.1 Population-Growth
- 2.2 Distribution and density

**UNIT: III**

- 3.1 Components of Population Change- Fertility, Mortality and Migration
- 3.2 Population composition and Characteristics

**UNIT: IV**

- 4.1 Population Theories-Malthusian and Demographic transition theory
- 4.2 Population policy with special reference to India
- 4.3 Population Projection

**Reading List**

1. Bhende A. and Kanitkar T., 2000: *Principles of Population Studies*, Himalaya Publishing House.
2. Chandna, R. C. (2014). *Geography of Population*. New Delhi: Kalyani Publishers.
3. Clarke J. L., 1965: *Population Geography*, Pergamon Press, Oxford.
4. Garnier, B. J. (1993). (3rd edition). *Geography of Population*. London: Longman.
5. Hassan, M.I. (2005). *Population Geography*, Rawat Publications
6. Trewartha, G. T. (1985). *Geography of Population: World Patterns*. New York: John Wiley and Sons.

**PAPER-CC-205**  
**MODELS AND NETWORK ANALYSIS**

**Full marks 100**

- UNIT:I** Morphometric Analysis of Fluvial Landscape: Stream Order, Length, Area, Sinuosity Index of Stream Pattern
- UNIT:II** Population projection, Agricultural efficiency by Bhatia and Kandel.
- UNIT:III** Transport network- Alfa, Beta, Gama, Idices.
- UNIT:IV** Study of Rural and Urban Settlement Pattern: Nearest Neighbour Technique and Chi-square test, Rank size rule. Weber's Industrial Location Model, Market area analysis of Hoover
- UNIT:V** Practical Record ,Viva

(20%Marks)

**Reading List**

1. Peter Hagget, Andrew Cliff and Allan Frey, Location Analysis in Human Geography, Edward Arnold
2. P. Hagget and R.J Chorly- Network Analysis in Geography
3. M.H Yeates- An Introduction to Quantitative analysis in Economics Geography McGraw Hill
4. C.P. Cole and C.A.M. King – Quantitative Geography Jhon Willy and Sons Ltd., London
5. R.J Chorelyband Peter Hagget Models in Georgraphy Methuen and C.O Ltd

SEMESTER-III  
PAPER-CC-301  
SETTLEMENT GEOGRAPHY

Full marks 100  
(Mid-sem 20+End-sem 80)

**UNIT: I**

- 1.1 Nature and scope of Settlement Geography; Factor affecting the origin and growth of rural settlements .
- 1.2 Types and Pattern of rural settlements, Size, Spacing and internal morphology of rural settlement.

**UNIT: II**

- 2.1 Urban settlements: Factors affecting the origin and growth.
- 2.2 Classification of towns: Functional and Empirical.

**UNIT: III**

- 3.1 Urban systems; Primate city, the Rank size rule, Urban hierarchy
- 3.2 Central Place theory: Christaller and August Losch

**UNIT: IV**

- 4.1 City-Region: Umland, hinterland, urban field. Models of city structure- Concentric zone theory, Sector theory and multiple nucleic theories.
- 4.2 Delimitation of CBD and determination of centrality of a region, Rural – Urban fringe, Urban slum, Jawaharlal Nehru National Renewal Mission.

**Reading List:**

1. Carter H. (1972) *the Study of Urban Geography*. London: Edward Arnold publication
2. Chisholm, M. (1970) *Rural Settlement and Land Use*. London: Hutchinson.
3. Daniel, P. (2002). *Geography of Settlement*, New Delhi: Rawat Publs, Jaipur.
4. Dickinson, R.E.(1947). *City, Region and Regionalism*. London: Kegan Paul, Trench, Trubner & Co.
5. Doxiadis, C.A. Ekistics. (1968). an introduction to science of human settlements.
6. Johnson, J.H. (1967) *Urban Geography: An Introductory Analysis*, London: Pergamon Press.
7. Kaplan D. H., Wheeler J. O. and Holloway S. R.,(2008). *Urban Geography*, John Wiley.

PAPER-CC-302  
REGIONAL GEOGRAPHY OF INDIA AND ODISHA

Full marks: 100  
(Mid-sem 20+End-sem 80)

**UNIT: I**

- 1.1 Relief and Drainage.
- 1.2 Climate: Mechanism of Indian monsoon, Climatic regions.
- 1.3 Major soil types and Natural Vegetation.

**UNIT: II**

- 2.1 Indian Agriculture: Problems and Prospects
- 2.2 Irrigation: Sources of Irrigation, Multipurpose river valley projects
- 2.3 Land use pattern, Agricultural efficiency and productivity, Cropping pattern  
– Crop combination and Diversification
- 2.4 Factors of Location of Industries, Mineral based industries: Iron and steel, Aluminium, Agro based industries-Cotton and Sugar.

**UNIT: III**

- 3.1 Demographic Characteristics: Population composition, Growth, Distribution, Age- Sex ratio, Literacy and Occupation structure
- 3.2 Urbanization –Determinants, Trend, Spatial pattern, Salient features, Major issues in urbanization.
- 3.3 Concept of Social differentiation, Evolution of socio-cultural regions of India; role of caste, ethnicity, religion and languages system; social transformation in India and Unity in Diversity in India.

**UNIT: IV**

- 4.1 Relief, Drainage, Climate and Vegetation
- 4.2 Agriculture, Irrigation and Power, Minerals
- 4.3 Industries, Transport and communication
- 4.4 Population, Rural and Urban settlements

**Reading List:**

1. Hussain M., 1992: *Geography of India*, Tata McGraw Hill Education.
2. Khullar, D.R. (2010). *India: A Comprehensive Geography*, New Delhi: Kalyani Publishers.
3. Nag P. and Sengupta S., 1992: *Geography of India*, Concept Publishing.
4. Pichamuthu C. S., 1967: *Physical Geography of India*, National Book Trust.
7. Singh, Gopal, 1976: *A Geography of India*, Atma Ram.
8. Sinha, B.N. : *Geography of Orissa*, National Book Trust, New Delhi.
10. Tiwari, R.C. (2007). *Geography of India*, Allahabad: Prayag Pustak Bhawan
11. India on the move NCERT Publication
12. General Geography of India NCERT Publication
13. INDIA -2015 Monorama Year Book

**PAPER-CC-303**  
**MAP PROJECTION AND SURVEYING**

**Full marks: 100**

**UNIT: I**

- 1.1 Shape, Size and dimension of the earth, the coordinate plane, rectangular and spherical.
- 1.2 The fundamentals of map projection, the classification of projection, the basic attributes of projection, the choice of map projection.

**UNIT: II**

- 2.1 Cylindrical :Cylindrical Equal Area, Gall's and Mercator Projection.
- 2.2 Simple-Conical With two standard parallel, Bonnes modified and Polyconic projection
- 2.3 Zenithal – Gnomonic, Stereographic, Orthographic, equidistance and Equal Area
- 2.4 Conventional –Sinusoidal and Mollweide's Projection

**UNIT: III**

- 4.1 Introduction, scope and purpose of physical chain and tape survey.  
Open traverse, triangulation. Plane table surveys with different methods, Radiation, intersection, traversing and resection.
- 4.2 Prismatic compass: open and close traverse. Elimination of error

**UNIT: IV**

- 5.1 Dumpy level: Traverse survey contour preparation.
- 5.2 Theodolite – horizontal and Vertical measurement.

**Reading List:**

1. Kar Kennet-Surveying and levelling
- Monkhouse, F.J. and H.R. Wilkinson (1980), Maps and Diagrams, B. I. Publications, Bombay.
- Singh, R.L. (1979), Elements of Practical Geography, Kalyani Publishers, New Delhi.
- Singh, R.L. & Dutt, P.K. (1968). Elements of Practical Geography, Allahabad: Learners Friends.
- Singh, L.R. & Singh, R. (1973). Map Work and Practical Geography, Allahabad: Central Book Depot.
6. Sarkar, A. (2008): Practical Geography: A Systemic Approach, Kolkata: Orient BlackSwan

PAPER-CC-304  
RESEARCH METHODOLOGY

Full marks: 100  
(Mid sem20+ End 80)

**UNIT: I**

- 1.1 Methods of geographical studies
- 1.2 Research definition and classification
- 1.3 Routes of explanation-Inductive and Deductive

**UNIT:II**

- 2.1 Hypothesis, Theories, Laws and models
- 2.2 Research question Objective and Significance
- 2.3 Research Designs , Data collection and analysis

**UNIT:III**

- 3.1 Recent trends in geographical research –Physical geography, Human Geography
- 3.2 Presentation of research findings-report writing and presentation
- 3.2 Scientific journals ,Impact ,Factor and citation

**UNIT: IV**

- 4.1 Ethics in Scientific research
- 4.2 Literature review
- 4.3 Planning for research project

**Reading List:**

1. Research Methodology Practice – P. Philominathan – Shri A.V.V.M. Pushpam College – Poondi –Thanjavur
2. Research Methodology – Methods & Techniques
3. Kothari C. R. – Vishwa Prakashan – New Delhi 1990.
4. An Introduction to Research Procedure in Social Sciences – Gopal M. A. – Asia Publishing House - Bombay
5. Darlington, Richard B., Sharon Weinberg, and Herbert Walberg (1973). Canonical variate analysis and related techniques. Review of Educational Research, 453-454.
6. Gorsuch, Richard L. (1983) Factor Analysis. Hillsdale, NJ: Erlbaum
7. Morrison, Donald F. (1990) Multivariate Statistical Methods. New York: McGraw-Hill.
8. Rubenstein, Amy S. (1986). An item-level analysis of questionnaire type measures of intellectual curiosity. Cornell University Ph. D. thesis. BOOKS:

PAPER - DEC - 305  
PG DEPARTMENT GEOGRAPHY  
GEOGRAPHY  
PG- (OPEN ELECTIVE COURSE)

Full marks-100

**GEOGRAPHY OF INDIA AND ODISHA**

**UNIT-1:** Physical Setting: Physiography, Drainage System, Climate, Soils and Natural Vegetation Of India.

**UNIT-2:** Population distribution and growth; Age and Sex Structure, Literacy in India, Economy: Agriculture – major crops (rice, wheat, cotton); Mineral and Power Resources –Iron Ore, Bauxite and Coal

**UNIT-3:** Industries – Iron and Steel, Cotton Textiles; Transportation Modes: Roadways, Railways, and Air-Routes of India.

**UNIT-4:** Odisha: Physiography, Drainage, Climate, Soils and Natural vegetation; Population distribution; rice cultivation.

**READING LIST**

1. Hussain M., 1992: *Geography of India*, Tata McGraw Hill Education.
2. Khullar, D.R. (2010). *India: A Comprehensive Geography*, New Delhi: Kalyani Publishers.
3. Nag P. and Sengupta S., 1992: *Geography of India*, Concept Publishing.
4. Pichamuthu C. S., 1967: *Physical Geography of India*, National Book Trust.
7. Singh, Gopal, 1976: *A Geography of India*, Atma Ram.
8. Sinha, B.N. : *Geography of Orissa*, National Book Trust, New Delhi.
10. Tiwari, R.C. (2007). *Geography of India*, Allahabad: Prayag Pustak Bhawan
11. India on the move NCERT Publication
12. General Geography of India NCERT Publication
13. INDIA -2015 Monorama Year Book

SEMESTER-IV

PAPER- DEC-401-A  
REGIONAL DEVELOPMENT AND PLANNING (SPECIAL PAPER)

Full Marks:100  
(Mid-sem 20+end sem80)

**UNIT: I**

- 1.1 Conceptual and Theoretical Framework: Regional concept in Geography and its application to planning
- 1.2 Types of regions, regionalization and delineation of region, Regional hierarchy.

**UNIT: II**

- 2.1 Regional Growth Theories: Economic Base Theory; Input and Output Model, Friedman's Core-Periphery Theory; Polarization and Trickle-down Theory of Hirschman, Growth Pole Theory of Perroux.
- 2.2 Regional Development; Concept and Indicators of Development, Planning Process: Types of Planning, Regional Planning and its rationale, principles and objectives; Approaches of Regional Planning; National vs. Regional Planning.

**UNIT:III**

- 3.1 Planning Region: Need and Characteristics of Planning Regions, City-Concept (Globalization and Regional structure)
- 3.2 Planning regions of India: Agro climatic regions, River valley regions Metropolitan regions, Hilly and Tribal regions

**UNIT: IV**

- 3.1 Regional planning in India: Regional Imbalances/Disparities; Causes and Consequences; Measurements of Regional Disparities; Planning Policies for Regional Development, Five year plans in India
- 3.2 Multi Level Planning, IRDP, Panchayat Raj.

**Reading List:**

1. Bhatt, L.S. (1972) Regional Planning in India, Statistical Publishing Society, Calcutta.
2. Bhatt, L.S. et. al. (eds) (1982) Regional Inequalities in India, Society for the study Regional Disparities, New Delhi.
3. Blunder, J. et. al. (1973) Regional Analysis and Development, Harper & Row, London.
4. Chand, M and V.K. Puri (1985) Regional Planning in India, Allied Pub. Pvt. Ltd. New Delhi.
5. Coates, B.R. and R.J. Johnston (1977) Geography and Inequality, Oxford University Press, Oxford.
6. Friedmann, J and William Alonso (1967) Regional Development and Planning: a Reader, MIT Press, Cambridge Massachusetts.
7. Kuklinski, A.R. (ed) (1972) Growth Poles and Growth Centres in Regional Planning, Monton, The Hague.
8. Misra R.P. et. al. (eds.) (1974) Regional Development Planning in India, Vikas, New Delhi.
9. Raza, Moonis (1988) Regional Development, Heritage, New Delhi.

PAPER-DEC-401-B  
ADVANCED GIS AND RS

Full Marks:100  
(Mid-sem 20+end sem80)

**UNIT:I**

- 1.1 Definition, types and application of remote sensing; Stages in remote sensing data acquisition; Electromagnetic radiation and electromagnetic spectrum, Interaction of EMR with atmosphere and Earth's surface features.
- 1.2 Remote sensing platforms; Types and characteristics of sensors; IRS, LANDSAT, SPOT, IKONOS, Quick Bird; remote sensing data Products.

**UNIT:II**

- 2.1 Thermal Remote Sensing; Thermal properties of materials: emissivity of materials; thermal inertia of Earth surface features; Thermal data sets: LANDSAT, and ASTER; Concept and Principles of microwave remote sensing.

**UNIT:III**

- 3.1 Microwave data sets SLAR, LIDAR and SAR , Image interpretation: Factors affecting image interpretations; Image characteristics and preparation of image interpretation keys.
- 3.2 Elements of Image interpretation; methods and techniques of image interpretation; Multi-concepts in image interpretation.

**UNIT:IV**

- 4.1 Introduction to Global Positioning System; GPS satellites constellations; GPS segments: Space, Control, User, GPS antennas, signals and codes; GPS receivers.
- 4.2 Application of GPS

**Reading list :**

1. American Society of Photogrammetry, 1993, Manual of Remote Sensing, Falls Church, Virginia
2. American Society of Photogrammetry, 1968, Manual of Color, Photogrammetry, Falls Church, Virginia
3. Curran, P. J. 1985, Principles of Remote Sensing, Longman, London
4. Ekstrom, M. P. 1984, Digital Image Processing Techniques, Academic Press, New York
5. Eastes, J.E. and L. W. Senger, 1974, Remote Sensing techniques for environmental Analysis, Hamilton Santa Barbara, California

PAPER-DEC-402- A  
URBAN PLANNING

Full Marks:100  
(Mid-sem 20+end sem80)

**UNIT:I**

- 1.1 Conceptual and Theoretical Framework: Origin and Growth of Cities, System of cities, Stages of Urban Development.
- 1.2 Criteria of Urban areas and nature of Urbanisation, Evolution of Planning, Objects of Urban Planning, Necessity, principles and economic justification for Urban Planning.

**UNIT:II**

- 2.1 The Pioneers of Urban Planning: E. Howard; C. Perry; Patrick Geddes; Le Corbusier Edwin Lutyeris.
- 2.2 Process of planning: Delhi Master Plan, Bhubaneswar.

**UNIT :III**

- 3.1 Urban Morphology
- 3.2 Models of City Structure (Concentric Zone theory, Sector Theory, Multinucleic theory)

**UNIT:IV**

- 4.1 Contemporary Urban Issues in India: Metro and mega cities- Problem & Issues, Urban land use and zoning; Housing; light
- 4.2 Urban Redevelopment Policies & Programmes with reference to India, Heritage conservation, Participation/ Governance.

**Reading list:**

1. Bala, Raj (1986), Urbanisation in India, Rawat Publishers, Jaipur.
2. Bansal, S.C. (2008), Urban Geography (Hindi Edition), Meenakshi Prakashan, Meerut.
3. Bansal, S.C. (2010), Urban Geography, Meenakshi Prakashan, Meerut.
4. Cadwallader, Martin (1986), Urban Geography, Prentice Hall, New Jersey.
5. Carter, Harold (1995), The Study of Urban Geography (4th Edition), Arnold, London.
6. Dickinson, R.E. (1964), City and Region, Routledge, London.
7. Kundu, A (1992), Urban Development and Urban Research in India, Khanna Publication, New Delhi.
8. Mayer H.M. and Kohn, C.F. (eds.) (1958), Readings in Urban Geography, University of Chicago Press, Chicago.
9. Pacione, Michael (2001), Urban Geography-A Global Perspective, Routledge, London.
10. Ramachandran, R. (1989), Urbanisation and Urban Systems in India, Oxford, New Delhi.
11. Rao, B.P. and Sharma, N. (2000-01), Urban Geography (Hindi Edition), Vasundhara Prakashan, Gorkhpur.
12. Singh, K. and Steinberg, F. (eds.) (1987), Urban India in Crisis, New Age International,

**PAPER-DEC-402 B**  
**ADVANCED GIS AND RS (SPECIAL PAPER II)**

**Full Marks:100**  
**(Mid-sem 20+end sem80)**

**UNIT:I**

- 1.1 Definition and scope of GIS; Functional requirements of GIS; GIS components
- 1.2 Cartography ,GIS interface; Recent trends and applications of GIS; Open source GIS.

**UNIT:II**

- 2.1 Geographic data: Spatial and non-spatial; Data models: Raster and vector Database Management System (DBMS)
- 2.2 Data Structures: Relational, hierarchical and network; Data input: Digitizing of maps and imageries; Coordinate Transformation; Attribute data generation.

**UNIT:III**

- 3.1 Geographic Objects: point, line and area; Analog and digital maps; Nature of geographic data: Spatial and Attribute Data, Concept of vector and raster based models.
- 3.2 GIS data creation and Analysis: Georeferencing and Projection, Digitization and manipulation of GIS data bases; Spatial Data Visualisation

**UNIT:IV**

- 4.1 Principles of Remote Sensing: Electromagnetic Energy; Interaction mechanism with atmosphere and earth surfaces; Spectral signatures of earth surface features.
- 4.2 Concept of resolution: Spatial, Spectral and Radiometric; Visual interpretation of satellite images; Stereoscopic vision Digital Image Classification: Supervised and unsupervised classification

**Reading list**

1. Burrough P. A. and McDonnell R. A., 2000: Principles of Geographical Information Systems– Spatial Information Systems and Geostatistics, Oxford University Press.
2. Chang K.-T., 2009: Introduction to Geographic Information Systems, McGraw-Hill.
3. Jensen J. R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.
4. Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.
5. Kumar, K. : Remote Sensing, NCERT
6. Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: Remote Sensing and Image Interpretation, Wiley.

Socio-economic survey report on GUS & R

PAPER-XVII-403 DEC 403  
DISASTER MANAGEMENT

Full marks: 100

**UNIT:I**

- 1.1 Hazards and Disaster: Meaning and Concept, Occurrence and characteristics of Natural Hazards and Disaster
- 1.2. Types, occurrence, Characteristics and Management: Flood, Earthquake, Drought, Cyclone, Tsunami, Landslide.

**UNIT:II**

- 2.2. Component of Disaster preparedness plans: Contingency planning, National Plan, Warning system, Community Participation.
- 2.2. Impact and mitigation strategies for specific disaster (Cyclone and Flood)

**UNIT:III**

- 3.1. The Concept of disaster management Cycle: Post Disaster review, Prevention, Mitigation, Preparedness, Impact, Recovery and Development.

**UNIT:IV**

- 4.1. Plan and Policies: International, National and State policies, Role of Gov. and NGOs in Management programmes in India

**Reading List:**

1. Meriman P.A. and C.W.A. Browit (eds)-1993-Natural disasters, Protecting Vulnerable communities, Thomas Teford, London
2. Carter, W.Nick, (1991) - Disaster Mitigation: A Disaster Managers Handbook, Asian Development Bank, Manila.

PAPER: DEC 404

DISSERTATION ON SPECIAL PAPER

Full marks 200