

**2 Year (Four Semester)
Post Graduate Programme**

**Syllabus for M.A. Geography
(Faculty of Social Science)
Under
Choice Based credit System (CBCS)**

(To be effective from 2018-19)

Date: 12 June 2018

SEMESTER – I: MA GEOGRAPHY

COURSE OPTED	COURSE CODE	COURSE NAME	CREDITS
CC – 1 (Core Course)	GEO – M – 101	Geomorphology	05
CC – 2 (Core Course)	GEO – M – 102	Climatology and Oceanography	05
CC – 3 (Core Course)	GEO – M – 103	History of Geographical Thought	05
CC – 4 (Core Course)	GEO – M – 104	Representation and Analysis of Statistical Data (Practical)	05
AECC – 1 (Ability Enhancement Compulsory Course)		Environmental Sustainability	03
		Swachcha Bharat Abhiyan Activities	02

SEMESTER – II: MA GEOGRAPHY

COURSE OPTED	COURSE CODE	COURSE NAME	CREDITS
CC – 5 (Core Course)	GEO – M – 201	Regional Planning and Rural Development	05
CC – 6 (Core Course)	GEO – M – 202	Environment and Disaster Management	05
CC – 7 (Core Course)	GEO – M – 203	Resource and Economic Geography	05
CC – 8 (Core Course)	GEO – M – 204	Geography of India	05
CC – 9 (Core Course)	GEO – M – 205	Cartographic Technique (Practical)	05
AEC – 1 (Ability Enhancement Course)		Ability Enhancement Course	05

SEMESTER – III: MA GEOGRAPHY

COURSE OPTED	COURSE CODE	COURSE NAME	CREDITS
CC – 10 (Core Course)	GEO – M – 301	Quantitative Techniques and Research Methodology	05
CC – 11 (Core Course)	GEO – M – 302	Remote Sensing and Geography Information System	05
CC – 12 (Core Course)	GEO – M – 303	Human and Social Geography	05
CC – 13 (Core Course)	GEO – M – 304	Land Use and Agriculture Geography	05
CC – 14 (Core Course)	GEO – M – 305	Instrumental Surveying, GIS and GPS	05
AECC – 2 (Ability Enhancement Compulsory Course)		Human Values and Professional ethics Gender Sensitization	03 02

SEMESTER – IV: MA GEOGRAPHY

COURSE OPTED	COURSE CODE	COURSE NAME	CREDITS
EC – 1 (Elective Course)	GEO – M – 401	A. Urban Geography/ B. Political Geography/ C. Population Geography/ D. Geology of India/ E. Settlement Geography/ F. Advance Cartography	05
EC – 2 (Elective Course)	GEO – M – 402	Dissertation/Project Work Based on Socio Economic Survey	05
DSC – 1 (Discipline Specific Elective) OR GE – 1 (Generic Elective)		Regional Planning and Rural Development (201 – CC) Or Geography of Bihar	05

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M.A. GEOGRAPHY (SEMESTER – I)

Code – GEO – M 101 (Core Course-01)

Geomorphology (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions - Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I Theories regarding evolution of Earth's Crust
 Isostasy-Concept, Theories and its Application
 Theory of Sea Floor Spreading

Unit II Morphogenic Evolution Models of Davis, Penck and King
 Models of Slope Formation
 Channel Morphology
 Rejuvenation and Multiple Cycle of Erosion

Unit III Classification and Evolution of: Arid Landforms
 Glacial Landforms
 Periglacial landforms

Karst landforms

Unit IV Geomorphic Evolution of:
Chotanagpur Highlands
Peninsular India
Shillong plateau
Kashmir Himalayas

Unit V Meaning and Scope of Applied Geomorphology
Application of Geomorphology in engineering projects and oil exploration
Morphometric Analysis of Drainage basin - Stream Order, Sinuosity Index and
Drainage Density

CIA 30 Marks

Selected Readings:

1. William, D. Thornbury - Principles of Geomorphology
2. Savindra Singh – Geomorphology
3. Enayat Ahmed – Geomorphology
4. P. Dayal – Geomorphology
5. V. K. Sharma - Geomorphology Earth Surfaces
6. Wooldrige and Morgan - An Outline of Geomorphology
7. R. N. Tikka - Physical Geography
8. P. K. Sen and N. Prasad - An Introduction to the Geomorphology of India
9. D. S. Lal - Physical Geography
10. Cotton- Geomorphology
11. Sparks, B. W. Geomorphology
12. Steers, J.A., Unstable Earth.
13. Strahler, A.H. & Strahler, A.H. Elements of Physical Geography
14. Von Engeln, Geomorphology
15. Daly Our Mobile Earth

Code – GEO – M 102 (Core Course-02)
Climatology and Oceanography (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions - Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I Climatology and its Relation with other Sciences
 Composition and Thermal Structure of Atmosphere
 Heat Budget and Heat Balance

Unit II Airmasses: Characteristics, Classification and Distribution
 Fronts, Types of Fronts and associated Weather Conditions
 Techniques of Weather Forecasting
 Cyclones and Anticyclones

Unit III Theories of climatic change
 Global Warming: Causes and Consequences
 El-Nino and La-Nina phenomena in Indian context

Unit IV Oceanography: Relief Features of Ocean Floor
 Bottom Relief of Indian and Atlantic Ocean
 Submarine Canyons

Unit V Theories of Origin of Tides
 Types of Coral Reef and theories of Coral Reef formation
 Ocean Deposits

CIA 30 Marks

Selected Readings:

1. Savindra Singh – Climatology
2. D. S. Lal Climatology
3. A. Miller – Climatology
4. E. Aguado E. and J. E. Bent: Understanding Weather and Climate
5. Alka Gautam - Jalvayu Abum Samudra Vigyan
6. Sharma & Vatal - Oceanography for Geographers
7. Blair, T.A., Climatology-General and Regional.
8. Chorley, R.J. & Barry, R.G., Atmospheric Weather and climate.
9. Donn. W.L., Meteorology.
10. Kendrew, W.G., Climates of the Continents.
11. Mather, J.R., Climatology: Fundamental and Applications, 1974.
12. Rama Sastry, A.A., Weather & Weather forecasting.
13. Rummey, G., Climatology and the world's climate.
14. Stringer, Foundation of Climatology.
15. Stringer, Techniques in Climatology
16. Trewartha, G.T., An Introduction to Climate.
17. Davis. R.J.A. 1986, Oceanography - An Introduction of the Marine Environment, Win C. Brown, Iowa.
18. Murray. S.J., 1913, Ocean, A General account of the Science of the sea, Thorton Butter Worth. London.
19. Siddhartha, K. 1999, Oceanography, A Brief Introduction, Kisalaya Pub. Pvt. Ltd., New Delhi.
20. Stahler, A. N. Stahler A.M., 1997. Geography and man's Environment, John Wiley and Sons. New York.
21. Thurnman, H.V., 1978, Introduction to oceanography, Charles E. Merrill Pub. Co., London.
22. Weyl, P.K. 1970, Oceanography an Introduction of the Marine Environment, John Wiley and Sons Ltd., London

Code – GEO - M 103 (Core Course-03)

History of Geographical Thought (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit – I Place of Geography in Sciences and Social Sciences
Contribution by Greek and Roman Scholars with special reference to Eratosthenes, Herodotus, Aristotle, Plato, Strabo. Ptolemy
Contribution by Arab scholars
Development of Geographical ideas in Ancient India

Unit II Development of Geography during 19th century
Concept of Space – Absolute, Relative and Abstract, and Post Modern Space
Development of Modern Indian Geography: Prospects, Problems and Future

Unit III Positivism and Pragmatism in Human Geography
Paradigms in Geography
Quantitative Geography: Revolution, Merits and Demerits.
Models Definition and Types

Unit IV Applied Geography
Behavioural Geography
Radical Geography
Humanistic Geography

Unit V Structuralism
Functionalism
Feminism
Post-Modernism

CIA 30 Marks

Selected Readings:

1. Johnston R. and Sidaway J. (1997) Geography and Geographers
2. Richard Pee (1998) Modern Geographical Thought
3. Milton E. Harvey & Brian P. Holly (ed.) (1989): Themes in Geographical Thought
4. D. Harvey (1969) Explanation in Geography

5. R. Doi (2009) Geographical Thought
6. M. Hussain (2004 rep) Evolution of Geographical Thought
7. S. Adhikari (2009 5th Ed.) Fundamentals of Geographical Thought
8. R. D. Dikshit (2002): Geographical Thought: A Conceptual History of Ideas
9. Jagdish Singh (2000) Bhaugolik Chintan Ka Mool Adhar (Hindi)
10. Kaushik (2009) Bhaugolik Chintan avam Bidhitantra (Hindi)
11. V. K. Srivastava (2002) Bhaugolik Chintan Ka Adhar (Hindi)
12. Bansal (2008) Bhaugolik Chintan (Hindi)
13. Lalit Raina (2008) Geographical Thought (English)
14. Ali, S.M., Arab Geography, AMUL., Press, Aligarh
15. Anuchin, V., Directions in Geography
16. Claval, P., Epistemology and History of Geographical Thought, in progress in Human Geography, Vol- 4.
17. Dickinson, R.E., The Making of Modern Geography.
18. Davis, V.K., Conceptual Revolution in Geography.
19. Freeman, T.A., A Hundred Years of Geography: Introduction to Behavioral Geography.
20. Hartshorne. R., Perspectives on Nature of Geography. Rand MacNally, 1959.
21. Johnston, R.J., The Future of Geography, Methuen, London, 1988.

Code – GEO - M 104 (Practical) (Core Course-04)

Representation and Analysis of Statistical Data (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE 70 Marks

CIA: 30 Marks

In the End Semester Examination questions will be set preferably from each unit out of which candidates are required to answer any three questions.

Each Question will carry 20 marks (20 x 3 = 60 marks)

Practical record and viva voce will comprise 10 marks

Unit I Population Data - Dot Map, Proportionate Circle. Spherical Diagram

Unit II Climatic Data - Wind Rose, Foster,s Climograph

Interpretation of Weather maps

Unit III Economic Data - Band Graph. Ergograph

Density of Population - Choropleth and Isopleth Method

Unit IV Statistical data - Correlation. Regression and Nearest Neighbor Analysis

Unit V Practical Record and Viva-Voce

CIA 30 Marks

Selected Readings:

1. Monkhouse and Wilkinson - Maps and Diagrams
2. Mahmood, Aslam. "Statistical Methods for Geographical Studies"
3. Campbell, J., Introductory Cartography, Prentice Hall, Inc., Englewood Cliff, New Jersey. 1984.
4. Cuff, D.J., & Mattson. M.T., Thematic Maps, their Design and Production, Mathuen, New York, 1982.
5. Robinson, A. H. & others., Elements of Cartography, John Willey and Sons, New York (New edition)
6. Archer, J.E., & Dalton, T.H.. Fieldwork in Geography, London
7. National Atlas and Thematic Maps Organization (NATMO): National Atlas of india Calcutta
8. Monkhouse, F.J., Maps and Diagrams, Methuen & Co. London, 1967
9. डा० जे० पी० शर्मा—प्रयोगात्मक भूगोल की रूपरेखा
10. डा० चतुर्भुज मामोरिया एवं औदामलजैन—मानचित्रांकन एवं प्रायोगिक भूगोल
11. डा० एम० एम० पी० सिन्हा एवं डा० सीमाबाला—उच्चकार्टोग्रुफी
12. Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed. Orient Blackswan Private Ltd.
13. Singh, R.L. Singh, R.P.B. 2008 Elements of Practical Geography, Kalyani Publishers

M. A. GEOGRAPHY (SEMESTER-II)

Code – GEO - M 201 (Core Course-05)

Regional Planning and Rural Development (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions - Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I

Regional Planning: Concept, Merits and Limitation

Planning Process - Sectoral, Temporal and Spatial Dimensions

Concept of Planning Region and Methods for Delineation of Regions

Unit II	Special Purpose Planning Regions in India: River Valley Regions Metropolitan Region Problem Regions - Hilly Regions, Tribal Regions
Unit III	Indicators of Development Regional disparities in India Need for Regional Planning in India Regional Development in India Problems and Prospects
Unit IV	Concept of Multi Level Planning Role of Panchavate Raj Institutions in Rural Development Defining Development and Rural Development; Gandhian approach to rural development
Unit V	Area Based Approach to Rural Development: Drought Prone Area Programme PMGSY Target Group Approach: SJSY, MGNREGA, Jan Dhan Yojana and PURA Provision of Services - Physical and Socio-Economic Access to Elementary Education and Primary Health Care and Micro Credit
CIA 30 marks

Selected Readings

1. Bhatt, L.S.. 1973, Regional Planning in India, Statistical Publishing Society, Calcutta.
2. Chandana, R.C., 2000. Regional Planning. Kalyani Publishers Ludhiana.
3. Chand, M., Puri, & V.K., 1983, Regional Planning in India, Allied Publishers, New Delhi.
4. Friedman. & Alonso, W. 1967 Regional Development and Planning-A Reader MIT Press, Cambridge Hars.
5. Glasson, 1980, Regional Planning, Hutchinson. London.
6. Glikson, A., 1955, Regional and Development, Netherlands, Universities Foundation of International Corp. London.
7. Mishra, R. P. 1969, Regional Planning Concepts, Techniques and Policies, University of Mysore, Mysore.
8. Mishra R.P. et.al., 1974, Development and Planning in India, Institute of Development Studies. Mysore.
9. Rao, V.L.B... 1960, Regional Planning, Asia Publishing House New Delhi
10. Kant Surya et al (ed.): Reinventing Regional Development, Rawat Publication, Jaipur and N. Delhi.
11. श्रीवास्तव शर्मा एवं चौहान-प्रादेशिक नियोजन एवं संतुलित विकास
12. Singh, K., Rural Development, SAGE

Code – GEO - M 202 (Core Course-06)

Environment and Disaster Management (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I Meaning and Scope of Environmental Geography, Environmentalism
 Ecology and Dynamics of Ecosystem
 Types of Ecosystem - Marine and Terrestrial

Unit II Environmental Degradation: Causes and Effects
 Pollution - Air Pollution
 Water Pollution
 Soil Pollution

Unit III Global Warming - Causes and effects
 Sea-level changes
 Ozone depletion
 Climatic changes

Unit IV Environmental Hazards and Disasters: Flood and Droughts in India:
International Environmental Treaties: The Stockholm Conference, Earth Summit,
Kyoto Conference
National Action Plan on Climate Change in India

Unit V Disaster - Man-made disasters, their types - Technological and Industrial Disasters.
Man-made disasters - Examples from India
Mapping the Disasters

CIA 30 Marks

Selected Readings:

1. Gaur, S., and Chandrashekhar, T. 2006 Global Environmental Crisis. Book Enclave, Jaipur.
2. Chandna, R.C., 1998. Environmental Awareness, Kalyani Publishers, New Delhi.
3. Gupta, P.D., 2003, Environmental Issues for the 21 Century Mittal Publications, New Delhi.
4. Morris. D., Freeland. J. Hinchliff, S. Smith, S. (ed), 2003, Changing Environments, Pd. John Wiley and Sons Ltd., The Open University. U.K.
5. Park. C.C., 1980, Ecology and Environmental Management, Butterworths, London.
6. Radha. S., and Sankhyan, A.S., (ed.). 2004, Environmental Challenges of the 21st Century, Deep Publications, New Delhi.
7. Rasure, K.A., 2007, Environment and Sustainable Development. Serials Publications, New Delhi
8. Saxena, H.M., 2006, Environmental Studies, Rawat Publications, Jaipur.
9. Singh, S., 1991, Environmental Geography, Prayag Publication. Allahabad.
10. Strahler. A.N., and Strahler. A.M., 1997, Geography and Man's Environment, John Wiley and Sons, New York
11. Taj, B., Murphy P. and Rana, P.S. 2007, Environmental Impact Assessment, An indo Australian Perspective: Bookwell New Delhi
12. Verma, S. B and Shiva, K.S. (ed). 2005, Environmental Protection and Development, Deep Publications. New Delhi
13. Government of India, (1997) Vulnerability Atlas of India, New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
14. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters. Sage Pub, Delhi. New Delhi.
15. Modh. S. (2010) Managing Natural Disaster: Hydrological. Marine and Geological Disasters, Macmillan, Delhi.
16. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi.
17. Singh, R. B. (ed.). (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation. Rawat Publications, New Delhi.
18. Sinha, A. (2001), Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
19. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.
20. Singh Jagbir (2007) "Disaster Management Future Challenges and Oppurtunities", 2007, Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India.

Resource and Economic Geography (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I Meaning and Scope of Economic Geography.

Conservation and Management of Resources with special reference to:

(a) Water Resources

(b) Biotic Resources

Conventional Energy Resources Coal. Petroleum, their Distribution Production and Conservation

Non-Conventional Energy Resources and their Management

Unit II Weber's Model and Smith's Model of Industrial location

Iron and Steel Industry of the World with special reference to China and India

Petro-Chemical Complexes with Reference to India

Unit III Distribution and production of some minerals in the World: Iron Ore. Copper ore and Atomic minerals

Industrial regions of USA and Japan

The questions for End Semester Examination Comprises of three parts as mentioned below**Part-A**

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I India Relief and Structure: Peninsular and Himalayan Drainage

Origin and Mechanism of Indian Monsoon

Soils of India: Their types. Soil Erosion and Conservation

Unit II Forest Resources in India

Sources of Power Coal. Petroleum and Hydro-electricity,

Non Conventional Sources of Energy

Unit III Industrial Regions of India

Industrial Policy of India: Concentration and Dispersal

Agricultural Revolutions in India - Green, Blue, Yellow and White

Unit IV Human Resources and Social well being: Social well-being and its indicators

Human Development Index (HDI)

Cultural Regions of India

Unit V Spatial distribution of Tribes. Major Linguistic Groups and Ethnicity, Social and

Gender inequality in India

CIA 30 Marks

Selected Readings:

1. Spate O. H. K. & Learmont-Geography of India & Pakistan
2. Ramamoorthy & Gopalkrishnam - Geography of India
3. Singh, Gopal - Geography of India
4. Singh, Jagdish - INDIA: A Comprehensive Systematic Geography
5. Puri, G.S., Indian forest Ecology. New Delhi.
6. Ray Chaudhary, S.P. Land and soil. New Delhi
7. Krishnan. M.S., Geology of India and Burma
8. Das, P.K., The Monsoon, New Delhi
9. Wadia, D.N., Geology of India. London.
10. चतुर्भुज ममोरिया – भारत का भूगोल
11. चौहान बी० एम० एवं गौतमअलका – भारत: A Geography of India
12. सिंह ए गोपाल – भारत का भूगोल

Code – GEO - M 205 (Practical) (Core Course-09)

Cartographic Techniques (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

In the End Semester Examination questions will be set preferably from each unit out of which candidates are required to answer any three questions.

Each Question will carry 20 marks. (20 x 3 = 60 marks)

Practical record and viva voce will comprise 10 marks

Unit I Cartograms: Hypsographic, Climographic and Altimetric Frequency Curve

Unit II Relief Profiles Serial, Superimposed, Composite and Projected

Slope Analysis by: Smith. Hears and Wentworth Methods

Unit III Map Projections: Mercator's, Sinusoidal, Gall's and International Projection

Unit IV Interpretations of Aerial Photographs, Satellite Imagery

Geological section and Interpretation of Geological Maps

Unit V Practical Record and Viva-Voce

CIA 30 Marks

Selected Readings:

1. Monkhouse and Wilkinson - Maps and Diagrams
2. Mahmood. Aslam, "Statistical Methods for Geographical Studies"
3. Campbell, J., Introductory Cartography, Prentice Hall, Inc., Englewood Cliff, New Jersey, 1984.

4. Cuff, D.J., & Mattson, M.T., Thematic Maps, their Design and Production, Mathuen, New York., 1982.
5. Robinson, A.H. & others., Elements of Cartography, John Willey and Sons, New York (New edition).
6. Ather L.E. & Dalton, T. H., Fieldwork in Geography, London
7. National Atlas and Thematic Maps Organization (NATMO): National Atlas of India, Calcutta
8. Monkhouse. F.J., Maps and Diagrams, Methuen & Co. London. 1967
9. Singh and Singh - Practical Geography
10. Spurs S.H, Photogrammetry & Photo Interpretation New Delhi, 1960
11. Stersheew, A., Aerial Photography.
12. Tomar, M.A & Maslakar, A.R., Aerial Photographs in Landuse & Forest Survey, Dehra Dun,
13. Thomas, E.A., Interpretation of Aerial Photographs, Minnesota.
14. Usill, G.W (Revised by Hearn, G.S.G.) Pract Surveying, London, 1960
15. White, LP, Aerial Photography & Remote Sensing for Soil Survey
16. Campbell, James, B., Introduction to Remote Sensing - 2nd Edi. Taylor & Francis, London
17. Platt and Charliner- Simple Geological Structures
18. डा० जे० पी० शर्मा—प्रयोगात्मक भूगोल की रूपरेखा
19. डा० पी० आर० चौहान—प्रयोगात्मक भूगोल
20. डा० चतुर्भुजमामोरिया एवं षोढमलजैन—मानचित्रांकन एवं प्रायोगिक भूगोल
21. डा० हीरालाल—प्रयोगात्मक भूगोल
22. डा० एम० एम० पी० सिन्हा एवं डा० सीमाबाला—उच्चकार्टोग्राफी
23. थ्संह जगदीस और बी० पी० राव – भौमिकीय मानचित्रों की रूपरेखा

M. A. GEOGRAPHY (SEMESTER - III)

Code – GEO – M 301 (Core Course-10)

Quantitative Techniques and Research Methodology (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I Quantitative Methods in Geography: Merits and limitations. Research types and Methodology, Research Problems and Research Design, Review of Literature

Unit II Data collection and classification, Questionnaire and Schedules.
Sampling Types Random, Stratified and Purposive.

Unit III Hypothesis: Concept and Types, Procedure for Hypothesis Testing. Chi-Square Test, Student's 't' Test

Unit IV Correlation Coefficient Techniques-Pearson and Spearman, Simple Linear Regression Analysis, Analysis of Variance (ANOVA), Multivariate Analysis-Importance and its Application

Unit V Models and Analogue, Types of Model. Gravity Potential Model, Population Potential Model

CIA 30 Marks

Note: Use of MS-EXCEL shall be promoted during the classroom teaching

Selected Readings:

1. Mahmood. Aslam. "Statistical Methods for Geographical Studies"
2. Koshari. K. C., "Research Methodology in Social Sciences"
3. Suleman, M., Research Techniques and Methods in Social Sciences
4. Adhikari, S. (2005): Fundamentals of Geographical Thought, Allahabad
5. Chorley, R. J. & Haggett, P. (ed.) (1967): Models in Geography, London
6. Hartshorne, R. (1994 Indian Print): The Nature of Geography, Jaipur, Rawat Publication
7. Harvey: Explanation in Geography
8. Kaushik D., S. D. (2001) Bhugolik chintan aur Vidhitantra (Hindi)
9. Hammond / Mc Cullah., Quantitative Techniques in Geography, Oxford, 1974
10. Gregory S., Statistical Method for Geography, Longman, 1975
11. Berry, B.J.L. & Marble, D.F., Spatial Analysis: A Reader in Statistical Geography, New 1968
12. Cole, J.P., & King, C.A.M., Quantitative Methods in Geography, New York, 1968.
13. King. L.J., Statistical Analysis in Geography, New Jersey.
14. Johnson, R.J., Multivariate Statistical Analysis in Geography, 1978.
15. Elhance, D.N., Elementary Statistics.
16. Pal. S.K., Statistical Methods in Geography.
17. Alvi. Zamiruddin., Statistical Geography.

Remote Sensing and Geographical Information System (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I Meaning and Definition of Remote Sensing, Historical Development. Significance and Utility of Remote Sensing in Geography.

Unit II Remote Sensing Platforms, Geo-Stationary and Sun-Synchronous Satellites: LANDSAT, IRS, and QUICK- BIRD Series.

Unit III Sensors and Resolution, Interpretation of Aerial Photographs and Satellite Imagery. Digital Elevation Model (DEM)

Unit IV Concept and Principles of GIS, Elements of GIS, Nature and Source of Data. Projection and Georeferencing, Digital cartography

Unit V Raster Vs. Vector Data structure, G.P.S.-Concept and Applications, Application of Remote Sensing and GIS Land Information System. Urban Management and Disaster Management.

Selected Readings:

1. Avery, T. E. (1962): Interpretation of aerial photograph. Minneapolis.
2. Dury, G. M. (1952): Map Interpretation
3. Cunan, R. J. (1985): Principles of Remote Sensing.
4. Lillesand, T. M. & Kiefer. R. W. (1979): Remote Sensing and Image Interpretation. New York.
5. Sabins, F. F. (1997): Remote Sensing and Interpretation. New York.
6. Campbell. J. B., Introduction to Remote Sensing. London.
7. Fraser Taylor, D. R. (1991): Geographical Information System. London.
8. Devidatt Chauniyal, Sudoor Samvedanevam Bhaugolik Soochna Pranali.
9. Siddiqui, An Introduction to Geographical Information System.
10. American Society of Photogrammetry: Manual of Photographic Interpretation. Banta Pub. Co. Wisconsin. 1960.
11. Barrett, E.C. & Curtis, L.F., Introduction of Environ, Remote Sensing, 1976.
12. Hord. R. M., Remote Sensing Methods and Applications, NY 1986
13. Lender. D.R. Aerial Photographic, Mc Graw Hill, N.Y., 1960
14. Luder, D., Aerial Photography Interpretation: Princ. and Appl., McGraw Hill, New York., 1959.
15. Lilles & Kiefer, Remote Sensing & Image Interpretation.
16. Reeves, R.G. (Ed.) Manual of Remote Sensing (Vol.2). Virginia, 1975.
17. Smith, H.T.V., Aerial Photographs & their Applications, New York, 1943.
18. Spurs S.H., Photogrammetry & Photo Interpretation. New Delhi., 1960)
19. Stersheew, A.1., Aerial Photography.
20. Tomar, M. A. & Maslakar. A.R., Aerial Photographs in Landuse & Forest Survey. Dehra- Dun.
21. Thomas. E.A., Interpretation of Aerial Photographs. Minnesota.
22. Usill, G.W. (Revised by Hearn, G.S.G) Pract. Surveying, London, 1960.
23. White, LP. Aerial Photography & Remote Sensing for Soil Survey.

Code – GEO - M 303 (Core Course-12)

Human and Social Geography (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit)

4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit)

3 x 10 = 30 marks

Unit I Meaning, Definition and Scope of Human Geography
Approaches to Human Geography, Critical Human Geography
Growth, Distribution and Density of World's Population
Migration: Causes and Consequences

Unit II Human Settlement: Types and Patterns of Rural Settlements.
Processes and Pattern of Urbanization in the World. (Urbanization and Related problems)
Age and Sex Composition of the World Population
Occupational Structure of the World Population

Unit III Meaning and Scope of Social Geography
Cultural Evolution of Man
Major Human Races in the World- Negroid, Mongoloid, Caucasoid
Major World Religions: Their Origin, Diffusion and Spatial Distribution
Major World Languages: Their Origin, Diffusion and Spatial Distribution

Unit IV Concept of Social Justice and Social Well-being
Social Structure, Process and Social Pattern.
Components of Quality of Life and its Spatial Pattern
Globalization and Social Transformation.

Unit V Recent Changes in Urban and Rural Social Life in India.
Panchayati Raj Institution and Social Transformation in India.
Social Ecology and Social Media in India

CIA 30 Marks

Selected Readings:

1. An Introduction to Social Geography, Emery Jones and John Eyles
2. Cultural Geography - Mike Crang
3. Sociology and Social Anthropology M. S. Goal
4. Social Geography A, Ahmad
5. Social Geography - Majid Husain
6. Social Geography - Ruth Panelli
7. Rural Sociology in India - A. R. Desai
8. Readings in Social Geography - Emery Jones
9. Human Geography - Paul. L. Knox. S. A. Marston
10. International Encyclopedia of Geography, Vol. VIII (Social Geography) - Subhash Mehtani, Amarjit Sinha, Common Wealth Publication Pvt. Ltd., New Delhi
11. Cultural Geography: Form & Process - Neelam Grover and Kashi Nath Singh, Concept Publishing Company, Delhi
12. Social Geography of India - Ashok Kumar, Anmol Publications, New Delhi
13. सांस्कृतिक भूगोल – श्री कान्तदीक्षित एवं रामदेव त्रिपाठी, वसुन्धरा प्रकाशन, गोरखपुर
14. सामाजिक भूगोल – डा० एस० डी० मौर्य
15. सांस्कृतिक भूगोल – इन्दिरा सिंह, युनिवर्सिटीपब्लिकेशन, नयी दिल्ली
16. सांस्कृति भूगोल – गायत्री प्रसाद

Code – GEO - M 304 (Core Course-13)

Land use and Agriculture Geography (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I Meaning and Scope of Landuse and Agricultural Geography

History of Landuse survey
Model of Landuse: Von Thunen, Jonassan
Major Land Reforms in India

Unit II Landuse classification: U, K. and India
Landuse pattern in India.
Land capability classification
Planning of Landuse in India

Unit III Fundamental concept of Agriculture Geography
History of Agriculture Geography
Factors influencing Agricultural Pattern
Agricultural Systems of the world

Unit IV Concept and Techniques of delimitation of agricultural regions
Measurement of Agricultural productivity and efficiency
Crop-combination and diversification
Cropping pattern in India

Unit V New Agricultural Technology
Green Revolution and White Revolution in India
Agro-climatic regions of India Agricultural problems and policies

CIA 30 Marks

Selected Readings:

1. Hussain, Majid - Agriculture Geography
2. Singh J. & Dhillon, S. S.- Agriculture Geography
3. B. S. Negi – KrishiBhugol
4. Sharma, B. L. – Krishi Bhugol
5. Wrigley - Tropical Agriculture
6. Ali Mohammad - Studies in Agriculture Geography
7. Krishna, D. - The New Agricultural Strategy
8. Dutta and Sundaram - Indian Economy
9. Kumar, Pramila and Sharma, S.K.: Krishi Bhoogol
10. Smith, T.P. Bayliss: The Ecology of Agricultural Systems
11. Morgan, W.B. and Norton J.C.: Agricultural Geography
12. Singh, B.B.: Krishi Bhoogol
13. Symons. L: Agricultural Geography

14. Shafi, M: Agricultural Geography
15. Tiwari, R.C. and Singh, B.N.: Krishi Bhoogol

Code – GEO - M 305 (Practical) (Core Course-14)
Instrumental Surveying, GIS and GPS (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE 70 Marks

CIA 30 Marks

In the End Semester Examination questions will be set preferably from each unit out of which candidates are required to answer any three questions.

Each Question will carry 20 marks. ($20 \times 3 = 60$ marks)

Practical record and viva voce will comprise 10 marks

Unit I Survey by Levelling instrument
 Finding out Rise and Fall
 Plotting of Longitudinal Profile

Unit II Theodolite Survey: Formation and Calculation of Triangles
 Preparation of Ground plan and Ground Profiles
 Measurement of Base line and its extension
 Formation of Polygon

Unit III Georeferencing using GIS
 Map Registration using GIS

Unit IV Digitisation and Map Preparation using GIS
 Surveying through hand held GPS

Unit V Practical Record and Viva-Voce

CIA 30 Marks

Note: Departments are requested to introduce open source software like Q GIS

Selected Readings:

1. M. M. P. Sinha & Seema Bala - Advanced Cartography (mPpdkVksZxzkQh)
2. Kanetkar - Surveying and leveling Vol. I & II
3. Punamia- Surveying Vol. I, II & III
4. 4. J. P. Sharma – प्रयोग भूगोल की रूपरेखा

5. Punmia, B.C., Surveying and Leveling, Vol I.
6. Alvi, Zamiruddin, A Text Book of Surveying
7. Basak, N.N. 2017. Surveying and Levelling, 2nd ed, McGraw Hill Education.
8. Bolton. T. 2009 (reprint). Geological Maps: Their Solution and Interpretation, Cambridge Univ. Press.
9. Kanetkar, T.P., Kulkatni, S.V. 1988. Surveying and Levelling, Part I, Pune Vidyarthi Griha Prakashan.
10. Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams
11. Robinson, A.H., Morrison, J.L, Phillip, C.M., Kimerling, A.J., Guphill, S.C. 1995 Elements of Cartography, 6th ed, Wiley.
12. Sarkar, A, 2015 Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Private Ltd.
13. Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.
14. Siddiqui, An Introduction to Geographical Information System.
15. Tomlin, C.D, GIS and Cartographic Modelling. Prentice Hall

M. A. GEOGRAPHY (SEMESTER - IV)

Code – GEO - M 401 A (Elective Course-01)

Urban Geography (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit-I

Definition and Scope of urban geography, Development of urban geography in India

Urban ecology and Urban System

Basis of urban functions and functional classification of towns

Unit II Rank-Size Rule and Primate City
Urban hierarchy
Million Cities and Mega Cities
Concept of Megalopolis and Metropolitan regions

Unit III Concept of urban morphology
Theories of urban landuse – Burgess, Hoyt, Harris and Ullman
Concept and characteristic of CBD
Conurbation, Urban Agglomeration in context of India

Unit IV Trend of Urbanization in India and the World
Concept of City region
Concept of Umland
Rural urban fringe

Unit V Urban problems with reference to slums
Urban poverty
Urban planning policies in India
Smart city concept

CIA 30 Marks

Selected Readings:

1. Carter, H. (1972), The Study of Urban Geography. Arnold Heinemann
2. Geddes, P. (1968) Cities in Evolution, Benn Publisher.
3. Hall, P. (1992) Urban & Regional Planning, Routledge, London
4. Johnson. J. (1972) Urban Geography: An introductory Analysis. Germ Area
5. Mayer & Kohn (1959) Readings in Urban Geography. Chicago Area
6. Scott. J A. (2001) Global city Region, Oxford University area. U.K.
7. Sinha M. M. P. & Seema Bala: Nagariya Bhoogol (Hindi)
8. Bansal: Nagariya Bhoogol (Hindi)
9. Alam, S.M., Hyderabad-Secundarabad Twin Cities, Asia Publishing House, Bombay
10. Berry, B.J.L and Horton, F.F., Geographic perspectives on Urban Systems, Prentice Hall, Englewood Cliff, New Jersey, 1970.
11. Beaujeu Garnier, J, Chabot, G., Urban Geography, London, 1969
12. Dickinson, R.E., 1964, City and Region, Routledge, London.
13. Gibbs, J.P., Urban Research Methods, New Jersey, 1961

Code – GEO – M 401 B (Elective Course-01)

Political Geography (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions - Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit-I

Meaning and scope of Political Geography:

Approaches to Political Geography; Functional and Unified Field Theory Approaches

Geopolitics: Classical Geopolitics and Critical Geopolitics

Unit-II

Geopolitical World Order: Origin and Cessation of cold war;

Global Strategic Views: H. J. Mackinder, N G Spykman,

Geopolitics of Asia-Pacific

Unit-III

Concept of Nation and State

Land-Locked States

Frontiers and Boundaries

Maritime Boundaries

Unit-IV

Changing Political map of India: State re-organization

Geographical Bases of Indian Federalism

River water Disputes - International and National

Unit- V Sino-Indian Border Dispute
Kashmir Problem
Geopolitics of Indian Ocean: Sino Indian Rivalry
Regionalism in India
Geopolitical codes of India

CIA 30 marks

Selected Readings:

1. John R. Stuart (1982) - An Introduction to Political Geography
2. Richard Muir (1995) - Modern Political Geography
3. Bergman K. Edward (1975) - Modern Political Geography
4. Lucie Carlson (1971) - Geography and World Politic
5. S. B. Cohen (1968) - Geography and Politics in a Divided world
6. N. J. G. Pounds (1972) - Political Geography
7. I. M- Alexander (1963) - World Political Systems
8. P. J. Taylor & C. Flint: (2004 India. Ed) - Political Geography
9. R. D. Dikshit (1982) - Political Geography
10. S. Adhikari (1997) - Political Geography
11. B. L. Sukhwal (1985) - Modern Political Geography of India
12. S. Adhikari (2008) - Political Geography of India: A contemporary Perspective.
13. G. Parkar (1998) - Geopolitics Past, Present and Future
14. S. K. Dikshit (2006) - Political Geography and Geo- politics
15. Hari Mohan Saxsena (2009) - Political Geography
16. Adhikari and Ratan Kumar (2010) - Political Geography

Code – GEO – M 401 C (Elective Course-01)

Population Geography (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I Nature and Scope of Population Geography.

Historical development of Population Geography, Relationship with Demography,

Sources of Population Data: The Census, vital registration and other sources.

Unit II Population distribution, growth and determinant: Pre-historic, ancient, medieval and modern period;

Theories of Population Growth: - Malthus, Marx and Demographic Transition

Unit III Population Dynamics: Fertility-measurement; Mortality measurement, determinants and distribution; Migration: Brief history, trends and pattern of international migration, migration in India, Indian Diaspora.

Unit IV Population Regions: Typology of population regions, Ackerman scheme of population resource region.

Human security – economic, food and health.

Unit V Growth and distribution of population in India

Population composition of India

Internal migration in India

Trends of urbanization

Urban problems

CIA 30 marks

Selected Readings:

1. Chandana, R. C.- A Study in Population Geography
2. Ghosh, B. N. - Population Geography
3. Hiralal - Jansankhya Bhoogol
4. Bhende and Kantkar - Population Studies
5. Singh, R. L - Practical Geography

6. Sharma J. P. Prayogic Bhoogol Ki Rooprekha (Hindi)
7. Bhende, A.A. & Kanitkar, (2014), Principles of Population Studies, Himalayan Pub. H., Mumbai,
8. Bogue, D. J., Principles of Demography, New York, 1969.
9. Chandna. R.C., Geography of Population: Concepts Determinants and Pattern, Kalyan Pub. Ludhiana. 2014.
10. Clarke. J.I. Population Geography, Oxford, 1981.
11. Hassan M.I., Population Geography, Rawat Pub. Jaipur, 2008.
12. Jhingan M.L. Bhatt B.K. and Desai. J.N. Demography, Vrid Pub. Delhi, 2006
13. Khullar D.R.. India: A comparative Geography, Kalyan Pub. Ludhiana, 2014.
14. Mandal. R.B. Uyanga J and, Prasad H., Introductory Methods in Population geography, Concept Pub. Co. New Delhi-2007.
15. Maurya S.D., Population Geography. Pravalika Pub, Allahabad. 2014
16. Newbold, K.B.- Population Geography: Tools and Issues, Rawat Pub Jaipur, 2012
17. Palmore: J. A. and Gardner R.W. Measuring, Mortality, Fertility and Migration: A Self Teaching Guide Elementary Measures. The Last-West Centre Honolulu 1987
18. Poston, Jr D.L. and Bouvier L.F., Population and society: An Introduction to Demography. Cambridge Uni. Press. New York, 2010.
19. Premi M.K. and Das D.N., Population of India 2011. B.R. Pub, Delhi, 2012.
20. Srinivas, K. Basic Demographic Techniques and Applications, Sage Pub, New Delhi, 1998.
21. Trewartha, G.T., A Geography of Population: World Patterns, NY. 1969

Code – GEO – M 401 D (Elective Course-01)

Geology of India (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I	Definition, scope and function of Geology, Principles of correlation, Standard Stratigraphic scale, Indian Stratigraphic scale.
Unit II	Origin, geographical distribution and lithological characteristics of Dharwar system, Vindhyan system, Gondwana system and Deccan Lava system.
Unit III	Classification, mode of occurrence and distribution of the following minerals with special reference to India - Iron ore, Mica, Bauxite and Copper
Unit IV	Classification mode of occurrence and distribution of energy resources in India: Coal Petroleum, Uranium and Thorium
Unit V	Rocks and mineral association, form, structure and classification of igneous rocks Origin and types of sedimentary rocks, Process of metamorphism, Types and characteristics of metamorphic rocks
CIA 30 marks

Selected Readings:

1. Wadia, D. N. - Geology of India
2. Mukharjee, P. K. - Physical Geology
3. D. P. Singh – भारत का भूवैज्ञानिक परिचय
4. Mehar D. N. Wadia - -Minerals of India
5. Gokhale and Rao - Minerals of India
6. Platt and Charliner - Simple Geological Structures
7. Karna, N.N – सरल भूवैज्ञानिक संरचनाएँ
8. Singh, Jagdish & B. P. Rao – भौमिकीय मानचित्रों की रूपरेखा

Code – GEO - M 401 E (Elective Course-01)

Settlement Geography (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions - Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I Meaning and Scope of Settlement Geography
Development of Settlement Geography in India
Evolution of Settlement in the Middle Ganga Valley
Types of Rural settlement in India

Unit II Old Sites of Settlements and Nomenclature
Development of Different forms of Rural settlements
Morphological features of Rural Settlements
Problems of rural settlements

Unit III Rural house types in different geographical environment in India
Rural - Urban continuum
Rural Service centres
Hierarchy of settlements

Unit IV Locational and functional features of urban settlements
Morphological features of Indian cities
Problems of Indian urban centres
Problems of slums in India

Unit V Planning of Rural settlements
Planning of urban settlements
Metropolitan region
Planned urban centres of India

Selected Readings:

1. Hopkinson, D. (1989) Geography of Settlement, Oliver & Boyd
2. Hudson, F. S. (1970) Geography of Settlement, Mackold & Erau
3. Singh, R. L (Ed.) Rural Settlements in Monsoon Asia
4. Carter, H. (1972) The Study of Urban Geography, Arnold Heinemann
5. Misra, R. P. & K. Misra (Ed.) Million Cities of India, Nice Publisher
6. Singh, R. Y.: An Introduction of settlement Geography
7. Ghosh, S.: Settlement Geography
8. Sinha, V.N.P., Verma U., & Sahay A.- Introduction to Settlement Geography

Code – GEO – M 401 F (Elective Course-01)

Advance Cartography (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions - Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit-I

Brief history of cartography and its present status;
Fundamentals of computer based cartography and its application;
Thematic maps-types and their use.

Unit-II

Mathematical construction and characteristics of the following map projections –

Conical Equal- Area with one standard parallel (Lambert's V): Gnomonic projection (Equatorial Case); Stereographic projection (Equatorial Case); Cassini's Projection

Unit III Principles of triangulation Survey: Measurement of base-line in triangulation survey.
Definition and characteristics of the following astronomical terms-Azimuth, Right Ascension, Hour Angle, Star at elongation, Altitude, Declination

Unit IV Brief history and basic principle of Photogrammetry:
Types and scales of aerial photographs.
Interpretation of aerial photographs.

Unit V Brief history of satellite remote sensing;
Concept of remote sensing;
Development of remote sensing in India;
Elements of the interpretation of satellite imageries

CIA 30 Marks

Selected Readings:

1. F. J. Monkhouse - Maps & Diagrams & H. R. Wilkinson
2. Sinha, M. M. P. & Bala, Seema - Advanced Cartography, Sharda Publication. Allahabad
3. Kanetkar - Surveying and leveling Vol- II
4. Punmia. B. C. - Surveying Part II & III
5. Sarkar, A.- Practical Geography: A Systematic Approach. Orient Blackswan Private Ltd.
6. Singh, R.L. and Singh, R.P.B. - Elements of Practical Geography, Kalyani Publishers, New Delhi
7. Maltiar, K.K. and Maltiar. S.R.- Concept of Cartography. Remote Sensing and G.I.S.- Rajesh Publication. New Delhi
8. Devis, R.E., Foote. F.S. and Kelly, J.W. - Surveying: Theory and Practice
9. Misra. R. P. Singh. R. B., Misra, Brijesh and Pandey, Anupam - Fundamentals of Cartography, Concept Publishing Company Pvt. Ltd., New Delhi
10. Narayan, L.R.A. - Remote Sensing and its Application, Universities Press, Hyderabad
11. Venkatramaiah, C. - Textbook of Surveying, Universities Press, Hyderabad
12. Joseph, George - Fundamentals of Remote Sensing, Universities Press, Hyderabad
13. Fazal, S. - Remote Sensing Basics, Kalyani Publishers, Ludhiana
14. Lillesand, T. M., Kiefer, R.W. and Chipman, J.W. - Remote Sensing and Image Interpretation, Wiley India Pet. Ltd., New Delhi

GEO – M – 402, Elective Course - 02

Dissertation / Project Work (5 Credits)

Full marks-100

Students have to prepare a Dissertation / Project work based on Socio-Economic survey.

The topic will be approved by departmental council.

ESE will consist of total of 70 marks, out of which, 45 marks will be on a written test and 25 marks for Viva Voce on dissertation. CIA will comprise of written test, Presentation and brief summary of report.

Students have to submit one copy of dissertation / Project work report prior to the commencement of the semester examination

Unit I Procurement of a topographic map of 1:50.000 to 1:25.000 scale to study the settlement selected in its regional setting

Unit II Collection of demographic, social & economic data of the village / town from Census Reports to study the temporal changes in the profile of such characteristics

Unit III Selection of sampling site, defining sampling size, and conducting socio-economic survey at households level with a self- structured questionnaire and supplementing the information by personal observations and perceptions.

Unit IV Based on results of the land-use and socio-economic survey of the households, preparation of a critical field-survey report. Photographs and sketches, in addition to maps and diagrams, may supplement the report.

CIA 30 Marks

Selected Readings

1. Gregory, S. 1980, Statistical methods and the Geographer. Longman, London
2. Mahmood, A. 2008, Statistical Methods in Geographical Studies, Rajesh Pub, New Delhi
3. Ibrahim, R. 1992, Socio-Economic Profile of Mewat, Radha Publishers, New Delh
4. Robinson, A.H., et al. 1995 (6th edition), Elements of Cartography, John Wiley, New York
5. Raisz, E. 1962, Principles of Cartography, Me Graw Hill, New York.

Code - Discipline Specific Elective - DSE-01 (201-CC)

Regional Planning and Rural Development (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I Regional Planning: Concept, Merits and Limitation
 Planning Process – Sectoral, Temporal and Spatial Dimensions
 Concept of Planning Region and Methods for Delineation of Regions

Unit II Special Purpose Planning Regions in India:
 River Valley Regions
 Metropolitan Region
 Problem Regions - Hilly Regions, Tribal Regions

Unit III Indicators of Development
 Regional disparities in India
 Need for Regional Planning in India
 Regional Development in India - Problems and Prospects.

Unit IV Concept of Multi Level Planning
 Role of Panchayati Raj Institutions in Rural Development
 Defining Development and Rural Development; Gandhian approach to rural development

Unit V Area Based Approach to Rural Development: Drought Prone Area Programme;
 PMGSY
 Target Group Approach: SJSY, MGNREGA, Jan Dhan Yojana and PURA

Provision of Services Physical and Socio-Economic Access to Elementary Education
and Primark Health Care and Micro credit

CIA 30 marks

Selected Readings

1. Bhatt, L.S., 1973, Regional Planning in India, Statistical Publishing Society, Calcutta.
2. Chandana, R.C., 2000, Regional Planning, Kalyani Publishers Ludhiana.
3. Chand, M., Puri. & V.K., 1983, Regional Planning in India, Allied Publishers, New Delhi.
4. Friedman., J., & Alonso, W, 1967 Regional Development and Planning-A Reader, MIT Press, Cambridge Hars.
5. Glasson, 1980, Regional Planning, Hutchinson, London.
6. Glikson, A., 1955, Regional and Development, Netherlands, Universities Foundation of International Corp. London.
7. Mishra, R.P. 1969, Regional Planning Concepts, Techniques and Policies, University of Mysore, Mysore.
8. Mishra R.P. et.al., 1974, Regional Development and Planning in India, Institute of Development Studies, Mysore.
9. Rao, V.L.B., 1960, Regional Planning, Asia Publishing House, New Delhi
10. Kant Surya et. al (eds).: Reinventing Regional Development, Rawat Publication, Jaipur and N. Delhi.
11. श्रीवास्तव शर्मा एवं चौहान-प्रादेशिक नियोजन एवं संतुलित विकास
12. Singh, K. Rural Development SAGE

Code - Generic Course - GE-01

Geography of Bihar (5 Credits)

Time: 3 Hours (ESE)

Full Marks: 100

ESE: 70 Marks

CIA: 30 Marks

The questions for End Semester Examination Comprises of three parts as mentioned below

Part-A

Ten objective type Questions - All questions to be answered (Questions shall be selected from the whole syllabus preferably two questions from each unit) 10 x 2 = 20 marks

Part-B

Five short Answer Questions - Four questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 4 x 5 = 20 marks

Part-C

Five long answer Questions -Three questions to be answered (Questions shall be selected from the whole syllabus preferably one question from each unit) 3 x 10 = 30 marks

Unit I Historical Account of Bihar as a State,
Geological Formation and Landforms, Physiographic Divisions, Drainage, Soils,
River Valley Projects: Gandak, Kosi and Sone

Unit II Climate: Regional Variation in Rainfall and Temperature, Seasonal Variation of
Rainfall and Temperature
Flood and Drought Prone Areas, Wet Land Areas

Unit III Landuse and Agriculture; Landuse Pattern, Agricultural Infrastructure, Agricultural
Season, Food Crop, Cash Crop, Development and Prospect of Horticulture Aqua-
culture, Floriculture, Herbal Plants, Pisciculture, Agricultural Regions

Unit IV Industries: Agro Based Industries, Small and Cottage Industries,
Prospects of Food and Fruit Processing Industries,
Industrial Regions

Unit V Population and Settlement: Population Attributes – Growth, Distribution, Occupation,
Age and Sex Ratio,
Evolution of Settlement: Types and Pattern,
Morphological Features, Rural Dwellers

CIA 30 marks

Selected Readings:

1. M.S. Pandey - Historical Geography and Topography of Bihar
2. Ahmed, E. - Bihar – Physical, Economic and Regional Geography
3. Sinha, VNP and Nazim Md. – Bihar: Land and People
4. Sharma, N. - Bihar Ka Bhugol (Hindi)