June 12, 2018

To
Additional Secretary
Raj Bhavan Secretariat
Patna, Bihar

Subject: Regarding Implementation of Choice Based Credit System (CBCS) in the
University of Patna

Sir/

This is to inform you that we have
deeply gone through the CBCS syllabus in
geography, and made necessary correction
and modification wherever needed.

Yours,

[Signature]
12. 06. 2018

[U. Mishra]
12. 06. 2018

[Signature]
K/078
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)

Dated: 12 June 2018
### SEMESTER – I : MA GEOGRAPHY

<table>
<thead>
<tr>
<th>COURSE OPTED</th>
<th>COURSE CODE</th>
<th>COURSE NAME</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC – 1 (Core Course)</td>
<td>GEO- M-101</td>
<td>Geomorphology</td>
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<tr>
<td>CC – 2 (Core Course)</td>
<td>GEO- M-102</td>
<td>Climatology and Oceanography</td>
<td>05</td>
</tr>
<tr>
<td>CC – 3 (Core Course)</td>
<td>GEO- M-103</td>
<td>History of Geographical Thought</td>
<td>05</td>
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<td>CC – 4 (Core Course)</td>
<td>GEO- M-104</td>
<td>Representation and Analysis of Statistical Data (Practical)</td>
<td>05</td>
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<tr>
<td>AECC - 1 (Ability Enhancement Compulsory Course)</td>
<td>GEO- M-104</td>
<td>Environmental Sustainability Swachcha Bharat Abhiyan Activities</td>
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### SEMESTER – II : MA GEOGRAPHY

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<th>COURSE CODE</th>
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<tr>
<td>CC – 5 (Core Course)</td>
<td>GEO- M-201</td>
<td>Regional Planning and Rural Development</td>
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<tr>
<td>CC – 6 (Core Course)</td>
<td>GEO- M-202</td>
<td>Environment and Disaster Management</td>
<td>05</td>
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<td>CC – 7 (Core Course)</td>
<td>GEO- M-203</td>
<td>Resource and Economic Geography</td>
<td>05</td>
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<td>CC – 8 (Core Course)</td>
<td>GEO- M-204</td>
<td>Geography of India</td>
<td>05</td>
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<td>CC – 9 (Core Course)</td>
<td>GEO- M-205</td>
<td>Cartographic Techniques (Practical)</td>
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<tr>
<td>AECC – 1 (Ability Enhancement Course)</td>
<td>GEO- M-205</td>
<td>Ability Enhancement Course</td>
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**SEMESTER – III : MA GEOGRAPHY**

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<tr>
<td>CC – 10 (Core Course)</td>
<td>GEO-M-301</td>
<td>Quantitative Techniques and Research Methodology</td>
<td>05</td>
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<tr>
<td>CC – 11 (Core Course)</td>
<td>GEO-M-302</td>
<td>Remote Sensing and Geographical Information System</td>
<td>05</td>
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<tr>
<td>CC – 12 (Core Course)</td>
<td>GEO-M-303</td>
<td>Human and Social Geography</td>
<td>05</td>
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<td>CC – 13 (Core Course)</td>
<td>GEO-M-304</td>
<td>Land Use and Agriculture Geography</td>
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<td>CC – 14 (Core Course)</td>
<td>GEO-M-305</td>
<td>Instrumental Surveying, GIS and GPS</td>
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<td>AECC - 2 (Ability Enhancement Compulsory Course)</td>
<td>GEO-M-305</td>
<td>Human Values and Professional Ethics Gender Sensitization</td>
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**SEMESTER – IV : MA GEOGRAPHY**

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<tr>
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<tr>
<td>EC – 1 (Elective Course)</td>
<td>GEO-M-401</td>
<td>A. Urban Geography/ B. Political Geography/ C. Population Geography/ D. Geology of India/ E. Settlement Geography/ F. Advance Cartography</td>
<td>05</td>
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<tr>
<td>EC – 2 (Elective Course)</td>
<td>GEO-M-402</td>
<td>Dissertation/ Project Work Based on Socio Economic Survey</td>
<td>05</td>
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<tr>
<td>DSE – 1 (Discipline Specific Elective)</td>
<td>GEO-M-402</td>
<td>Regional Planning and Rural Development (201 CC)</td>
<td>05</td>
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<tr>
<td>OR GE – 1 (Generic Elective)</td>
<td>GEO-M-402</td>
<td>Or Geography of Bihar</td>
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</table>
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 x5 = 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 x10 = 30 marks

Unit I
Theories regarding evolution of Earth’s Crust
Isostasy- Concept, Theories and its Application
Continental Drift Theory and Plate Tectonics
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 x5 = 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 x10 = 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
13. Rummey, G., Climatology and the world's climate.
15. Stringer., Techniques in Climatology
16. Trewartha, G. T., An Introduction to Climate
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
Selected Readings:
13. Lalit Raina (2008) Geographical Thought (English)
15. Anuchin, V., Directions in Geography.
18. Davis, V.K., Conceptual Revolution in Geography.

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. (20×3=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
9. डा० जेऊँ पी० शर्मा-प्रयोगात्मक भूगोल की रूपरेखा
10. डा० चतुर्भुज मामोरिया एवं अंधकलाजैन-मानचित्रांकन एवं प्रयोगात्मक भूगोल
11. डा० एम० एम० पी० सिन्हा एवं डा० सीमावाला-उच्चकार्यात्मक
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 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 Primary Health Care and Micro Credit
Selected Readings
11. आवश्यक शर्मा एवं जीवनात्मक नियोजन एवं संसूचित 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 x5 = 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 x10 = 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:
          John Wiley and Sons Ltd., The Open University, U.K.
          Deep Publications, New Delhi.
          Delhi.
        Sons, New York.
        Australian Perspective, Bookwell New Delhi.
        Publications, New Delhi.
        Technology Promotion Council, Ministry of Urban Development, Government of India.
        Delhi.
        Macmillan, Delhi.

**Code - GEO – M 203 (Core Course-07)**

**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 x5 = 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 x10 = 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  
Inter-regional and intra-regional trade
Unit IV
Agricultural Regions of the World
Von Thunen's Model of Agricultural Location
Food Production, Problems and Food Security

Unit V
World Trade Theories and Pattern
Impact of Globalization on World Economy
Role of WTO in World Trade
Concept of Export Processing Zone and SEZ (Special Economic Zone)

CIA .......................................................... 30 marks

Selected Readings:
2. HussainMajid, Economic Geography
   Resources
8. Chisholm, M., Geography and Economics.
17. Von Royen, W., Fundamentals of Economic Geography.
21. Majid Hussain, Economic Geography

Code - GEO – M 204 (Core Course-08)
Geography 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

11
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 x5 = 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 x10 = 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
6. Ray Chaudhary, S.P. Land and soil, New Delhi
7. Krishnan, M.S., Geology of India and Burma
10. तुलुनियासमिति - भारतकाभूगोल
11. चोल्लकोल 180 एवं गौतमालकाल - भारत : A Geography of India
12. सिंह ए गोपाल- भारतकाभूगोल
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. (20×3=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, Henry 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
9. Singh and Singh - Practical Geography
12. Tomar, M.A. & Maslakar, A.R., Aerial Photographs in Landuse & Forest Survey, Dehra- Dun,
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 x5 = 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 x10 = 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
7. Harvey: Explanation in Geography

Code - GEO – M 302 (Core Course-11)
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 x5 = 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 x10 = 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)


CIA  ............................................................................................................................................ 30 marks

Selected Readings:
2. Dury, G. M. (1952): Map Interpretation
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 x5 = 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 x10 = 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

17
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
12. Social Geography of India – Ashok Kumar, Anmol Publications, New Delhi
13. सांस्कृतिक भूगोल – श्रीकान्त प्रभाकर, एवं राजशेखर त्रिपाठी, वसुदेव प्रकाशन, गोरखपुर
14. सामाजिक भूगोल – डॉ एसो डॉ मीर्च
15. सांस्कृतिक भूगोल – दीनदयाल सिंह, एवं रसिम्हारा ललितकंत, दिल्ली
16. सांस्कृतिक 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, Jonasson
- 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 – Krishi Bhugol
4. Sharma, B. L. – Krishi Bhugol
5. Wrigley – Tropical Agriculture
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
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. (20×3=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 QGIS

Selected Readings:
1. M. M. P. Sinha & Seema Bala– Advanced Cartography (mPdVksZxzQh)

20
4. J. P. Sharma – प्रयोगात्मक भूगोल की रूपरेखा
5. Punmia, B.C., Surveying and Leveling, Vol I.
6. Alvi, Zamiruddin, A Text Book of Surveying
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 x5 = 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 x10 = 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

22
Selected Readings:
2. Geddes, P. (1968) Cities in Evolution, Benn Publisher.
5. Mayer & Kohn (1959) Readings in Urban Geography, Chicago Area
7. Sinha M. M. P. & Seema Bala: Nagariya Bhoogol (Hindi)
8. Bansal: Nagariya Bhoogol (Hindi)

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 x5 = 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 x10 = 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

23
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

Selected Readings:
1. John R. Stuart (1982) - An Introduction to 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
15. Hari Mohan Saxsena (2009) - Political Geography
16. S. Adhikari and Ratan Kumar (2010) -Political Geography

Code - GEO – M 401 C (Elective Course-01)
Population Geography (5 Credits)

Time: 3 Hours (ESE)

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) $10 \times 2 = 20$ 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) $4 \times 5 = 20$ 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) $3 \times 10 = 30$ 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 determinants: 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  

Unit V  
Growth and distribution of population in India Population composition of India Internal migration in India Trends of urbanization Urban problems

CIA  
........................................................................................................ - 30

Selected Readings:

1. Chandana, R. C. – A Study in Population Geography
2. Ghosh, B. N. – Population Geography
3. Hiralal – Jansankhya Bhoogol
5. Singh, R. L. – Practical Geography
6. Sharma J. P. Prayogic Bhoogol Ki Rooprekha (Hindi)

**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 x5 = 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

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 – भौगोलिक गाणितिक भूवैज्ञानिकीय भूगोल

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 x5 = 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 x10 = 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

CIA

.............................................................. 30 Marks

Selected Readings:
5. Misra, R. P. & K. Misra (Ed.) Million Cities of India, Nice Publisher

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
4. Punmia, B. C. – Surveying Part II & III
11. Venkatramaih, C. -Textbook of Surveying, Universities Press, Hyderabad

GEO-M- 402, Elective Course – 02
Dissertation /Project Work (5 Credits)

Full marks-100
ESE- 70
CIA- 30

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 settlements 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

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 x5 = 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 x10 = 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 Primary Health Care and Micro Credit

CIA
........................................................................................................................................ 30 marks

Selected Readings
23. श्रीवास्तव शार्मा एवं चौहान-प्रादेशिक नियोजन एवं संतुलित विकास
24. 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) \[10 \times 2 = 20 \text{ marks}\]

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) \[4 \times 5 = 20 \text{ marks}\]

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) \[3 \times 10 = 30 \text{ marks}\]

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 Seasons, Food Crop, Cash Crop, Development and Prospect of Horticulture, Aquaculture, 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

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)