

II. GENERIC/DISCIPLINE CENTRIC ELECTIVE **[ECGEO402A]:**

(Credits: Theory-04, Tutorial-01)

Marks: 30 (MSE: 20Th. 1Hr + 5Attd. + 5Assign.) + 70 (ESE: 3Hrs)=100	Pass Marks (MSE:17 + ESE:28)=45
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Instruction to Question Setter:

Mid Semester Examination (MSE):

There will be **two** groups of questions in written examinations of 20 marks. **Group A is compulsory** and will contain five questions of **very short answer type** consisting of 1 mark each. **Group B will contain descriptive type five** questions of five marks each, out of which any three are to be answered.

End Semester Examination (ESE):

There will be **two** groups of questions. **Group A is compulsory** and will contain two questions. **Question No.1 will be very short answer type** consisting of five questions of 1 mark each. **Question No.2 will be short answer type** of 5 marks. **Group B will contain descriptive type six** questions of fifteen marks each, out of which any four are to be answered.

Note: There may be subdivisions in each question asked in Theory Examinations

The Mid Semester Examination shall have three components. (a) Two Semester Internal Assessment Test (SIA) of 20 Marks each, (b) Class Attendance Score (CAS) of 5 marks and (c) Class Performance Score (CPS) of 5 marks. **“Better of Two”** shall be applicable for computation of marks for SIA.

(Attendance Upto 75%, 1mark; 75<Attd.<80, 2 marks; 80<Attd.<85, 3 marks; 85<Attd.<90, 4 marks; 90<Attd, 5 marks).

A. SOIL GEOGRAPHY

Theory: 60 Hours; Tutorial: 15 Hours

Unit 1:

Nature, scope and significance of Soil Geography; its relationship with Pedology, Soil forming factors: parent material, organic, climatic, topographic, Spatio-temporal dimensions, Processes of soil formation and soil development: Physical, Biotic and Chemical. Soil profile.

Unit 2:

Soil organism, macro-animals (earthworms, sowbugs, mites, centipedes, rodents and insects), Micro-animals and plants-Nematodes, Protozoa, Rotifers, Fungi, Bacteria, algae and Actinomyces.

Unit 3:

Physical properties of soils: Morphology, Texture, Structure, Water, Air, Temperature and other properties of soil, Chemical properties of soil and soil reaction, Soil erosion, Degradation and Conservation

Unit 4:

Evaluation of land and soil: Parametric and non-parametric systems, Land capability classification, Soil reclamation and management: soil survey and landforms in environmental management, Sustainable development of soil resources with reference to India.

References:

- Miller, R. W. and Donahue, R. L. (1992): Soils: An Introduction to Soils and Plant Growth, Prentice-Hall of India, New Delhi
- Brady, N. C., and Weil, R. R. (2008): The Nature and Properties of Soils, Prentice Hall, New Jersey
- Pitty, A. F. (1978): Geography and Soil Properties, Methuen and Co., London
- Bridges, E. M. and Davidson, D. A. (1982): Principles and Applications of Soil Geography, Longman Group, London
- Daji, J. A. (1970): A Textbook of Soil Science, Asia Publication House, New York
- Birkeland, P. W (1999): Soils and Geomorphology, Oxford University Press, New York
- Govinda Rajan, S.V. and Gopala Rao, H.G.: Studies on soils of India, Vikas, New Delhi, 1978.
- Raychoudhuri, S.P.: Soils of India, ICAR, New Delhi, 1958.
- Bunting, B.T.: The Geography of Soils, McGraw Hill, New York.
- Clarke, G.R.: Study of the Soil in the Field, Oxford University Press, Oxford, 1957.
- Foth H.D. and Turk, L.M.: Fundamentals of Soil Science, John Wiley, New York, 1972.
- Bennet, B.T.: Soil Conservation, McGraw Hill, New York.

OR**GENERIC/DISCIPLINE CENTRIC ELECTIVE****[ECGEO402B]:**

(Credits: Theory-04, Tutorial-01)

Marks: 30 (MSE: 20Th. 1Hr + 5Attd. + 5Assign.) + 70 (ESE: 3Hrs)=100**Pass Marks (MSE:17 + ESE:28)=45*****Instruction to Question Setter:******Mid Semester Examination (MSE):***

There will be **two** groups of questions in written examinations of 20 marks. **Group A is compulsory** and will contain five questions of **very short answer type** consisting of 1 mark each. **Group B will contain descriptive type five** questions of five marks each, out of which any three are to be answered.

End Semester Examination (ESE):

There will be **two** groups of questions. **Group A is compulsory** and will contain two questions. **Question No.1 will be very short answer type** consisting of five questions of 1 mark each. **Question No.2 will be short answer type** of 5 marks. **Group B will contain descriptive type six** questions of fifteen marks each, out of which any four are to be answered.

Note: There may be subdivisions in each question asked in Theory Examinations

The Mid Semester Examination shall have three components. (a) Two Semester Internal Assessment Test (SIA) of 20 Marks each, (b) Class Attendance Score (CAS) of 5 marks and (c) Class Performance Score (CPS) of 5 marks. "**Better of Two**" shall be applicable for computation of marks for SIA.

(Attendance Upto 75%, 1 mark; 75 < Attd. < 80, 2 marks; 80 < Attd. < 85, 3 marks; 85 < Attd. < 90, 4 marks; 90 < Attd, 5 marks).

B. URBAN GEOGRAPHY**Theory: 60 Hours; Tutorial: 15 Hours****Unit 1:**

Nature and scope of Urban Geography-Definition of Urban Settlements (Towns, Cities and Metro etc.), Attributes of urban places during ancient, medieval and modern period, Classification of urban settlements on the basis of size and function, Urban growth and theories, Central Place theory of Christaller and Losch, Contribution of Indian scholars to the studies of urban settlements.

Unit 2:

Urban Population Density and Land Value Curves- Urban Land Use – Vertical and Horizontal Growth of Cities, Concentric, Zonal and Multiple Nuclei Theories of Urban Structure.

Unit 3:

Urban Functions- Basic and Non-Basic- Urban Hierarchy- Rank-Size Rule – Central Place Theory – Functional Classification of Towns by C.D. Harris and H.J. Nelson. Urban Issues & Challenges: Water supply, traffic congestion, solid waste, smog, sewage and drainage system.

Unit 4:

Concept of City, Region and Urban Hinterland – Urban Sprawl- Urban Slums – Urban Crimes and their Trends with reference to India- Concept and Issues of Peri-Urbanization. Elements of Urban Planning – Urban Renewal – Policies of Urban Development in India – Master Plans of Ranchi City.

References:

- ☐ Beanjen-Garnier J&G. Chabot (1967) Urban Geography, Jhonwiley, New York.
- ☐ Northham Ray M. (1975) Urban Geography, Jhon Wiley & Sons, Inc. New York
- ☐ Ranan Paddison (2001) Hand Book or Urban Studies, University of Glasgow, U.K., Sage Publications, N. Delhi.
- ☐ Peter Roberts (2000) Urban Regeneration, University of Dundee, U.K., Sage Publication, New Delhi.
- ☐ Saskia Sassen (2000) Cities in a World Economy, University of Chicago, USA, Sage Publications, New Delhi.
- ☐ Stephen Ward (2004) Planning and Urban Change, Sage Publications, New Delhi
- ☐ Karen Stromme Christensen (1999) Cities and Complexity, University of California, Berkely USA, Sage Publication, New Delhi.
- ☐ Mayer H.M. & Kohn CF (1967) Urban Geography, Central Depot, Allahabad, India
- ☐ King Leslie J. & Regionald G. Golledge (1978) Cities, Space and Behaviour 0 The Elements of Urban Geography, Pentice-Hall, Inc. Englewood Cliffs, New Jersey, USA.
- ☐ Mandal R.B. (2002) Urban Geography – A Text Book, Concept Publishing Company, New Delhi.
- ☐ Siddartha K & S. Mukherjee (1996). Cities, Urbanization and Urban Systems, Transworld Media and Communication Pvt. Ltd. New Delhi

- ☐ Johnson James H (1966) Urban Geography – An Introductory Analysis, Pergamon Press Oxford, London.
- ☐ Bansal, S.C. (2011): Nagariya Bhogol. Meenakshi Publication, Meeruth.
- ☐ www.geography.about.com/cs/cities/urbanl/geo/
- ☐ www.brixworth.demon.co.uk/leeds/

OR**GENERIC/ DISCIPLINE CENTRIC ELECTIVE****[ECGEO402C]:**

(Credits: Theory-04, Tutorial-01)

Marks: 30 (MSE: 20Th. 1Hr + 5Attd. + 5Assign.) + 70 (ESE: 3Hrs)=100**Pass Marks (MSE:17 + ESE:28)=45****Instruction to Question Setter:****Mid Semester Examination (MSE):**

There will be **two** groups of questions in written examinations of 20 marks. **Group A is compulsory** and will contain five questions of **very short answer type** consisting of 1 mark each. **Group B will contain descriptive type five** questions of five marks each, out of which any three are to be answered.

End Semester Examination (ESE):

There will be **two** groups of questions. **Group A is compulsory** and will contain two questions. **Question No.1 will be very short answer type** consisting of five questions of 1 mark each. **Question No.2 will be short answer type** of 5 marks. **Group B will contain descriptive type six** questions of fifteen marks each, out of which any four are to be answered.

Note: There may be subdivisions in each question asked in Theory Examinations

The Mid Semester Examination shall have three components. (a) Two Semester Internal Assessment Test (SIA) of 20 Marks each, (b) Class Attendance Score (CAS) of 5 marks and (c) Class Performance Score (CPS) of 5 marks. "**Better of Two**" shall be applicable for computation of marks for SIA.

(Attendance Upto 75%, 1 mark; 75 < Attd. < 80, 2 marks; 80 < Attd. < 85, 3 marks; 85 < Attd. < 90, 4 marks; 90 < Attd, 5 marks).

C. REMOTE SENSING & GIS/GPS**Theory: 60 Hours; Tutorial: 15 Hours****Unit 1:**

Stages in remote sensing data acquisition; physics of remote sensing; electro magnetic spectrum (ems); emr and its interaction with atmosphere and earth surface features.

Unit 2:

Remote sensing - platforms: types and their orbital characteristics; sensors types: active and passive; sensors systems: whiskbroom and push broom; satellite series: irs, spot, ikonos and quick bird.

Unit 3:

Digital image processing: digital data formats; image restoration: geometric radiometric corrections and filtering. Image enhancement: linear and non linear contrast stretch; band combinations; image classifications: supervised and unsupervised.

Unit 4:

Geographic information system and global positioning system:

Components of GIS; Data Structures; Data Base Management System (DBMS); Data Models; spatial data analysis and applications; Fundamentals of GPS; Segments of GPS; GPS Applications.

References:

- ☐ Lillesand T.M and Keifer R.W. 2008(6th edition). Remote Sensing and Image Interpretation. John Wiley and Sons, New York.
- ☐ Joseph George. 2005(2nd edition), Fundamentals of Remote Sensing. University Press. Hyderabad
- ☐ Sabins, F.F. 1986. Remote Sensing: Principles and Interpretation. Freeman, New York
- ☐ Rashid S.M. and Mazhar A.K. 1993. Dictionary of Remote Sensing. Manak Publishing House, Delhi
- ☐ Lo, C.P. and Yeung AKW. 2006(2nd edition). Concepts and Techniques of GIS, Prentice – Hall of India, New Delhi.
- ☐ Masood, A.S . 2006. Introduction to GIS, Allahabad.
- ☐ Fazal S. and Rahman A. 2007. GIS Terminology. New Age International Publishings, New Delhi
- ☐ Leick. A. 2003(2nd edition). GPS Satellite Surveying. John Wiley and Sons, New York.
- ☐ N.K. Agarwal. 2004. Essentials of GPS, Spatial Network Pvt. Ltd.