B.A./B.Sc Part III

PAPER - I

REMOTE SENSING AND GIS

Max. Marks: 50

(Paper Code-0248)

Unit I Basics of Remote Sensing: definition, history, and Scope; Electro-magnetic Radiation: Characteristics, Spectral regions and Bands; Interaction with earth surface features and atmosphere; Spectral Signature.

Unit II Types of Remote Sensing: Air borne and Space borne; Aerial photos: Types and Characteristics; Remote Sensing satellites: Platforms and sensors: active and passive, sensor characteristics: spatial resolution, spectral resolution, radiometric resolution, temporal resolution. Product.

Unit III Visual and Digital image processing techniques; Remote Sensing application in resource mapping and environmental monitoring, remote sensing in India: development and Growth. Indian Satellites, Space Organizations and data products.

Unit IV Introduction of GIS: Definition of Geoinformatics, Scope and Importance of Geoinformatics, History of GIS, Components of GIS, Functions of GIS,GIS tasks-Input, Manipulation, Management, Query analysis, Visualization, Toposheets, Surveying, Aerial photographs ,Satellite data and images, Data types-Spatial and Non spatial.

Unit V Data model and data analysis: Raster data and their characteristics, Vector data and their characteristics, Raster data analysis- grid cells or Pixels. Vector data analysis- Spatial data, Generation in Vector Format, Spatial and Non –Spatial data Management. Spatial information Technology

Books Recommended:

1. Bhatta, B. (2010): Remote Sensing and GIS, Oxford University Press, New Delhi.
2. Campbell, J.B. (2002): Introduction to Remote Sensing. 5th edition, Taylor and Francis, London
3. Curran, P.J. (1985): Principles of Remote Sensing, Longman, London
4. Kang-tsung Chang (2003) Geographic Information Systems, Tata McGraw Hill, New Delhi
5. Lillesand, T.M. and Kiefer, R.W. (2000): Remote Sensing and Image Interpretation. 4th edition. John Wiley and Sons, New York
6. Lo Albert, C.P., and Young, K.W (2003) Concepts and Techniques of Geographical Information Systems, Prentice Hall of India Pvt. Ltd., New Delhi.
7. Nag Prithvish and Kudrat M. (1998): Digital Remote Sensing, Concept Publishing Company, New Delhi
8. Star J, and J. Estes, (1994), Geographic Information Systems: An Introduction, Prentice Hall, New Jersy.
9. Williams J. (1995): Geographic information from space, John Wiley and Sons, England,

B.A./B.Sc Part III

PAPER - II

GEOGRAPHY OF CHHATTISGARH

Max. Marks: 50

(Paper Code-0249)

Unit I Physical Features : Geological Structure, Relief and Physiographic Regions, Drainage, Climate.

Unit II Natural Resources : Soils – Types, characteristics and their Distribution. Water Resources (Major Irrigation and Hydel Power Projects), Forests-types, Distribution, Conservation of Forest. Mineral Resources-iron-ore, Coal, Dolomite Lime stone, Bauxite, etc. Power Resources of Chhattisgarh.

Unit III Agriculture and Populations – Agriculture: Cereals, Pulses and other crops. Population: Growth, Distribution, and Density; Tribal Populations; and Urban and Rural Population.

Unit IV Industries - Iron and Steel, Cement, Sugar, Aluminum; Industrial Regions of Chhattisgarh.

Unit V Trade and Transport, Tourism, Socio-Economic Development of Chhattisgarh.

Books Recommended:

1. Jha, Vibhash Kumar and Saumya Naiyyar (2013) Chhattisgarh Samagra, Chhattisgarh Rajya Hindi Granth Akadmi, Raipur
2. Kumar, Pramila (2003): Chhattisgarh Ek Bhugolik Addhyayan. Madhya Pradesh Hindi Granth Akadmi, Bhopal
3. Nagesh Jitendra and at all (2014): Chhattisgarh Sandarbh 2014 Jansanmpark Vibhag, C.G. Govt., Raipur
4. Tiwari, Vijay Kumar ( ): Geography of Chhattisgarh, Himalya Publishing House, Pvt. Ltd
5. Tripathi, Kaushlendra and Pursottam Chandrakar (2001): Geography of Chhattisgarh, Shardaprakashan, Aazad Nagar , Bilaspur.
6. Verma ,L.N. (2017): Geography of Chhattisgarh, Madhya Pradesh Hindi Granth Akadmi, Bhopal

PAPER - III

PRACTICAL GEOGRAPHY

Max. Marks: 50

SECTION A

MAP READINGS AND INTERPRETATION (M.M. 20)

Unit I Graphical Representation: Band graph, Climograph, Square root, Cube-root.

Unit II Topographical Sheets: Classification and numbering system (National and International), Interpretation of Topographical Sheets with respect to cultural and physical features.

Unit III Satellite Imageries: Describing the Marginal Information, Image interpretation: Visual Methods –Landuse /Landcover Mapping. Use and Application of GPS.

SECTION B

SURVEYING AND FIELD REPORT (M.M.20)

Unit IV Surveying: Plane Table Survey, Basic Principles of plane table surveying, Plane table survey including intersection and resection.

Unit V Field work and field report: physical, social and economic survey of a micro-region.

PRACTICAL RECORD AND VIVA VOCE (M.M.10)

Books Recommended:

1. Archer, J.E. and Dalton, T.H. (1968): *Field Work in Geography*. William Clowes and Sons Ltd. London and Beccles.
2. Bolton, T. and Newbury, P.A. (1968): *Geography through Fieldwork*. Blandford Press, London.
3. Campell, J. B. (2003): Introduction to Remote Sensing. 4th edition. Taylor and Francis, London.
4. Chaunial, D. D. (2004): Remote Sensing and Geographical Information System(in Hindi), Sharda Pustak Bhawan, Allahabad
5. Cracknell, A. and Ladson, H. (1990): Remote Sensing Year Book. Taylor and Francis, London.
6. Curran, P.J. (1985): Principles of Remote Sensing. Longman, London.
7. Davis, R.E. and Foote, F.S. (1953): Surveying, 4th edition, McGraw Hill Publication, New York
8. `
9. Deekshatulu, B.L. and Rajan, Y.S. (ed.) (1984): Remote Sensing. Indian Academy of Science, Bangalore.
10. Floyd, F. and Sabins, Jr. (1986): Remote Sensing: Principles and Interpretation. W.H. Freeman, New York.

11. Gautam, N.C. and Raghavswamy, V. (2004). Land Use/ Land Cover and Management Practices in India. B.S. Publication., Hyderabad.
12. Jensen, J.R. (2004): Remote Sensing of the Environment: An Earth Resource Perspective. Prentice-Hall, Englewood Cliffs, New Jersey. Indian reprint available.
13. Jones, P.A.(1968): Fieldwork in Geography, Longmans, Green and Company Ltd., First Publication, London
14. Kanetker, T.P. and Kulkarni, S.V.(1967): Surveying and Levelling, Vol I and II V.G. Prakashan, Poona.
15. Lillesand, T.M. and Kiefer, R.W. (2000): Remote Sensing and Image Interpretation. John Wiley and Sons, New York.
16. Monkhouse, F. J. (1985): Maps and Diagrams. Methuen, London.
17. Nag, P. (ed.) (1992): Thematic Cartography and Remote Sensing. Concept Publishing Company, New Delhi.
18. Natrajan, V. (1976): Advanced Surveying, B.I. Publications., Mumbai.
19. Rampal, K.K. (1999): Handbook of Aerial Photography and Interpretation. Concept Publishing. Company, New Delhi.
20. Raisz, E. (1962): Principles of Cartography, McGraw Hill, New York.
21. Robinson, A. H., Sale. R. D., Morrison, J. L. and Muehrcke, P. C. (1984): Elements of Cartography. 5th edition, John Wiley and Sons, Inc. New York.
22. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata
23. Sharma, J. P. (2001): *Prayogik Bhugol.*, Rastogi Publication, Meerut 3rd. edition.
24. Singh, R.L. and Singh Rana P.B. (1993): *Elements of Practical Geography.* (Hindi and English editions). Kalyani Publishers, New Delhi.
25. Stoddard, Robert H. (1982): *Field Techniques and Research Methods in Geography.* Kendall/Hunt Pub. Dubuque IO.