CC - VI: Statistical Methods in Geography

Unit - I: Use of Data in Geography: Spatial and attribute data, Geographical Data Matrix, Types and Sources of Data (Discrete and grouped, primary and secondary), Scales of Measurement of data (Nominal, Ordinal, Interval, Ratio).Distribution of Data: Normal andBi-nomial

Unit - II: Descriptive Statistics: Frequency distribution (grouped and ungrouped data), measures ofCentral Tendency (Mean, Median and Mode), Types of Sampling-Random, stratified, systematic and purposive

Unit - III: Measures of Dispersion (Variance, Mean Deviation, Standard Deviation and Coefficientof Variation. Chi-square test

Unit - IV: Measures of Association:, Product moment correlation, Rank correlation , test ofsignificance, coefficient of determination and linear regression.,

Practical

1. Drawing of histogram, frequency curve and ogive in grouped and discrete data
2. Calculation & Drawing of graphs showing mean, median, mode in grouped & discrete data
3. Calculation of mean deviation, standard deviation, coefficient of variation,
4. Practical records and viva -voce

Text Book:
1. Mahmood A., 1977: *Statistical Methods in Geographical Studies,* Concept.
2. Sarkar, A. (2013) Quantitative geography: techniques and presentations. Orient Black Swan PrivateLtd., New Delhi

Reference Book:
- Hammond P. and McCullagh P. S., 1978: *Quantitative Techniques in Geography: An Introduction,*
  Oxford University Press.
- Yeates M., 1974: *An Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, NY
- Silk J., 1979: *Statistical Concepts in Geography*, Allen and Unwin, London
- King L. S., 1969: *Statistical Analysis in Geography*, Prentice-Hall
- Pal S. K., 1998: *Statistics for Geoscientists*, Tata McGraw Hill, New Delhi
- Ebdon D., 1977: *Statistics in Geography: A Practical Approach.*

CC - XII: Remote Sensing and GIS

Unit - I: Remote Sensing: Definition and Components, EMS and EMR, Wave and Particle theory of EMR, Types of platforms and sensors, Advantages and limitation of Remote Sensing, Energy interaction with Atmosphere and Earth Surface features (Water, soil and vegetation)

Unit - II: Aerial Photography, Principles of stereo vision, Geometry of Aerial Photographs, Image elements and visual interpretation of satellite images.

Unit - III: GIS: definition and components, Types of GIS Data (Spatial and attribute), Raster and Vector Data models, Special functions of GIS, GPS elements and its uses..

Unit - IV: Application of RS & GIS in land use and land cover mapping, Application in cartography and map making, Mapping of water resources and Natural Vegetation

Practical

1. Stereoscopic vision using stereo cards and identification of objects from cards
2. Feature identification from aerial photographs using Pocket stereoscope/Mirror stereoscope
3. Feature identification from satellite imageries using visual interpretation
4. Identification and mapping of water bodies from satellite imageries
5. Digitization of Odisha state/block /district map and drawing of few point, line and polygon features

Text Book

1. Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: *Remote Sensing and Image Interpretation*,Wiley. (Wiley Student Edition).

Reference Book:

1.Bhatta, B. (2008) Remote Sensing and GIS, Oxford

University Press, New Delhi.2.Campbell J. B., 2007:

Introduction to Remote Sensing, Guildford Press

3.Chauniyal, D. (2010) Sudur Samvedana Avam Bhaugolik Suchna Pranali, Sharda Pustak Bhawan,Allahabad.

4.Jensen, J. R. (2005) Introductory Digital Image Processing: A Remote Sensing Perspective, PearsonPrentice-Hall.

5.Joseph, G. 2005: *Fundamentals of Remote Sensing* United Press India.