

M.A./M.Sc. Geography
Fourth Semester
Paper – V (P) (443645 A) Survey and Leveling

Unit – I

- a) Surveying as an art and science, Principles of surveying
- b) General errors and inaccuracies in surveying
- c) Precautions in using survey instruments
- d) Trigonometrical methods of solution of triangles and computation of lengths

Unit – II

Plane table

- a) Use of Plane table in composite surveys and related methods, methods of resectioning
- b) General planning of large area plane surveys
- c) A composite survey of college campus or village/neighbourhood
- d) Drawing of control points and surveyed plan

Unit – III

Theodolite and Tacheometer:

- a) Theodolite as an instrument of surveying and leveling, adjustment of Theodolite
- b) Computation of Theodolite bearings
- c) Computation of length of triangles and plotting of control points
- d) Telemetry: stadia and tangential

Unit – IV

Clinometer

- a) Use of Clinometer as instrument of leveling
- b) Measuring spot heights
- c) Contouring and interpolation of contours
- d) Drawing of profiles

Unit – V

Dumpy level:

- a) Use of Dumpy level as an instrument of leveling and adjustment of the dumpy level
- b) Principles: Calculation of difference of level, series leveling, back sights, foresights, intermediate sights
- c) Level book and computation of reduced level: Rise and fall and collimation method
- d) Plotting of profiles

Note:

1. Candidates will submit following exercise as record work:

- i. Resectioning: 3 exercises of geographical methods of Llano's, Bessel's and trial and error
 - ii. Profiles: 2 exercises based on leveling measurements obtained with dumpy level
 - iii. Contouring: 1 exercise based on leveling measurements obtained with dumpy level
 - iv. Contouring: 1 exercise based on leveling measurements obtained with clinometers
 - v. Measuring and plotting reduced levels using tacheometer: 2 exercises
 - vi. Triangulation survey based on a minimum of 15 control points using theodolite: 2 exercises including one related to composite survey
 - vii. Plan of un-surveyed campus/neighbourhood/village area based on composite survey: 1 exercise (10 day's camp)
 - viii. Thematic maps showing characteristics of the surveyed area: form of built-up area, and building material: 6 exercises
2. All exercises will be based on surveying and leveling work done by the candidates themselves for areas hitherto un-surveyed

References:

1. Clark, D., Plane and Geodetic Surveying, Constable
2. Davis, R. E. and F. S. Foot, Surveying: Theory and Practice, McGraw Hill
3. Hinks, H.R., Map and Survey, Cambridge
4. Kanetkar, T. P., Surveying and leveling, Volume I & II, A. U. Grah Prakashan
5. Kiley, P. T., Surveying and leveling, Volume I & II, A. U. Grah Prakashan
6. Survey Manual, Volume I-VIII, Survey of India
7. Williamson, J. T., Surveying and Field Work, Constable