

**M. A. / M. Sc. (Final) Geography  
Practical – II (B): Surveying**

**Unit – I**

- a. Surveying as an art and science.
- b. Principles of surveying.
- c. General errors and inaccuracies in surveying.
- d. Precautions in using survey instruments
- e. 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.
- b. Methods of resectioning.
- c. General planning of large area plane surveys.
- d. A composite survey of college campus or any neighbourhood area on scale 1: 100 to 1:1000.
- e. Drawing of control points and surveyed plan.

**Unit – III**

Theodolite and tacheometer:

- a. Theodolite as an instrument of surveying and levelling.
- b. Adjustments of theodolite.
- c. Computation of theodolite bearings.
- d. Computation of lengths of triangles and plotting of control points.
- e. Telemetry: stadia and tangential.

- a) Concepts of social well-being and physical quality of life.
- b) Human development: concept, components, indices and measurement.
- c) Rural-urban deprivation with respect to shelter, health and education.

**Unit – V**

Dumpy level:

- a. Use of dumpy level as an instrument of levelling.
- b. Adjustment of the dumpy level
- c. Principles: Calculation of difference of level, series levelling, backsights, foresights, intermediate sights,
- d. Level book and computation of reduced levels: Rise and fall and collimation methods.
- e. Plotting of profiles.

**Note:**

1. Candidates will submit following exercises as record work:
  - i. Resectioning: 3 exercises of graphical methods of Llano's, Bessel's and trial and error.
  - ii. Profiles: 2 exercises based on levelling measurements obtained with dumpy level.
  - iii. Contouring: 1 exercise based on levelling measurements obtained with dumpy level.
  - iv. Contouring: 1 exercise based on levelling measurements obtained with Clinometer.
  - 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 any **unsurveyed** campus/neighbourhood area based on composite survey: 1 exercise
  - viii. Thematic maps showing socio-economic characteristics of the surveyed area: form of built-up area, building material, functional use, social composition, availability of sanitary, water, electricity, telephone amenities, assets and income: 6 exercises
2. All exercises will be based on surveying and levelling work done by the candidates themselves for areas hitherto unsurveyed.

**Suggested Readings:**

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