

M.A. / M.Sc. (Final) Geography
Practical - I : Surveying & Leveling

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) Trigonometrically 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 neighborhood 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.

Unit - IV

- 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.
- d) Level of Economic Development
- e) Current Regional Problem (e.g –Water Problem, Traffice Problem)

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:

Candidates will submit following exercises as record work:

Resectioning: 3 exercises of graphical methods of Lano's, Bessel's and trial and error.

Profiles: 2 exercises based on levelling measurements obtained with dumpy level.

Contouring: 1 exercise based on levelling measurements obtained with dumpy level.

Contouring: 1 exercise based on levelling measurements obtained with Clinometer.

Measuring and plotting reduced levels using tacheometer: 2 exercises.

Triangulation survey based on a minimum of 15 control points using theodolity: 2

exercises including one related to composite survey.

Plan of any **unsurveyed** campus/neighbourhood area based on composite survey: 1 exercise.

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.

All exercises will be based on surveying and levelling work done by the candidates themselves for areas hitherto unsurveyed.

Distribution of Marks**Total Marks 100**

A Part –Practical paper of three hours duration will be held along with main theory paper examination. (40 marks)

- Section – A Objective type 5 marks. Asked 10 questions, attempt all questions.
- Section – B Short Answers – 20 marks, Asked 10 questions, one question from each unit and attempt five questions.
- Section-C Descriptive type-15 marks ,Asked 5 questions, one question from each unit and attempt two questions

Practical – Assessed by Exnternal Examiner

B Part- Surveying –Practical Exam

(60 marks)

Surveying – 60 marks

- A - Test paper Survey exercise – 30 marks, Working on each instruments with following distribution of marks:

Instrument	Exercise	Marks	Time (minute)
A. Plane Table	Resectioning	10	35
B. Theodolite	Measurement of angle between two points	5	10
C. Dumpy Level	Measuring level difference between two distant points	5	10
D. Clinometer	Measuring heights of and level difference between two distant points	5	10
E. Tacheometer	Measuring distance of any distant point	5	10

B - Record work – 20 marks

C - Viva-voce – 10 marks

Suggested Readings:

1. Clark, D., Plane and Geodetic Sureying, 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, Vol. I - VIII, Survey of India.
7. Williamson, J.T., Surveying and Field Work, Constable.