

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2022**

SURVEYING-II

[Maximum Marks: 100]

[Time: 3 Hours]

PART-A

I. (Answer **all** questions in one or two sentences. Each question carries 2 marks)

1. What are the temporary adjustments of a Theodolite?
2. Define closing error.
3. List down the different methods of Tacheometric measurement.
4. Write any four application of photogrammetry.
5. List down different parts of total station. (5 x 2 = 10)

PART-B

II. (Answer **any five** of the following questions. Each question carries 6 marks)

1. Explain any one method for prolonging a line using Theodolite.
2. Explain the permanent adjustment of a Theodolite.
3. List and explain the different methods of traversing using Theodolite.
4. Define independent and consecutive coordinate systems.
5. Explain the principle of stadia Tacheometry.
6. What is an analytic lens? What are the advantages and disadvantages of an analytic lens?
7. Write any six applications of GIS. (5 x 6 = 30)

PART-C

(Answer **one** full question from each Unit. Each full question carries 15 marks)

UNIT – I

III. (a) Explain the procedure of measurement of horizontal angle by repetition method.

What are the errors eliminated by this method? (8)

(b) What are the fundamental lines of a Theodolite? Explain the relationship between them. (7)

OR

IV. (a) Explain the following terms;

i) Vertical circle ii) Index frame iii) Transiting iv) Swinging (8)

(b) Define deflection angle. How to calculate the deflection angle using Theodolite. (7)

UNIT – II

V. (a) Find the corrected latitudes and departures of the given traverse using transit rule.

side	Length (m)	Consecutive coordinates	
		latitudes	departures
PQ	235.1	218.5	-86.8
RS	317.4	42.16	314.59
TU	215	-209.49	48.36
VP	281.6	-50.51	-277.03

(10)

(b) What is balancing of a traverse? What are the general methods used to balance a traverse. (5)

OR

VI. (a) For the following traverse, compute the length CD so that A, D and E may be in one straight line.

Line	Length	Bearing
AB	110	83°12'
BC	165	30°42'
CD	??	346°6'
DE	212	16°18'

(10)

(b) What is Gale's traverse table? Explain in detail. (5)

UNIT- III

VII. (a) An instrument was setup at P and angle of elevation of a vane 4m above the foot of the staff held at Q was 9°30'. The horizontal distance between p and Q was note to be 2000 m. Determine RL of staff station Q. Given that the reduced level of instrument axis was 2700 m. (7)

- (b) Derive an expression for the horizontal distance D of a vertical staff from the Tacheometer, if the line of sight is inclined in stadia Tacheometry. (8)

OR

- VIII. (a) Explain the principle of subtense method of Tacheometry. (5)
- (b) Determine the gradient from a point A to a point B from the following observations made with a Tacheometer fitted with an anallactic lens. The constant of the instrument was 100 and the staff was held vertically.

Inst. station	Staff point	Bearing	Vertical angle	Staff readings
P	A	134	+10°32'	1.360, 1.915, 2.470
P	B	224	+5°6'	1.065, 1.885, 2.705

(10)

UNIT - IV

- IX. (a) Write down the procedure for setting out of curve using ordinates from long chord method. (7)
- (b) What is remote sensing? What are the applications in Civil Engineering field? (8)

OR

- X. (a) What are the components of a GPS receiver? (5)
- (b) Calculate the necessary data for setout a right handed simple circular curve of 250 m radius connecting two straights having a point of intersection at the chainage 3450 m by Rankine's method. Deflection angle between the two straights are 50°; peg interval 20 m and least count of theodolite is 20". (10)
