Total number of printed pages: 2

UG/4th Semester/UCE 401

2024

SURVEYING-II

Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

*(Answer **any five** questions)*

1. a) What is the difference between a theodolite and a tacheometer? Describe the method of determining the constants of a tacheometer from field measurement. (10)

   b) Determine the value of stadia constants for the following observations: (10)

Instrument station	Staff reading on	Distance(m)	Stadia readings	
			Lower	Upper
O	A	150	1.255	2.750
	B	200	1.000	3.000
	C	250	0.750	3.255

2. a) What are the different sources of errors in a tacheometric survey? Explain briefly. (10)

   b) With suitable figure explain the object and theory of anallatic lens. (10)

3. a) Describe how you would set a circular curve by the method of offsets from the long chord with the help of chain and tape. (10)

   b) Two straight lines AC and CB, to be connected by a 3^0 curve, intersect at a chainage of 2760m. The WCB's of AC and CB are $45^0 30'$ and $75^0 30'$ respectively. Calculate all the necessary data for setting out the curve by the method of offsets from the long chord. (10)

4. a) What is Well conditioned triangle? Prove that isosceles triangle is a Well conditioned triangle with the two equal angles of approximately $56^0 14'$. (10)

b) Discuss various geometrical figures used to extend triangulation, drawing sketches for each type. Which figures are best adopted to precise work? (10)

5. a) How do you determine intervisibility of triangulation stations? (10)

b) The following offsets were taken at 15m intervals from a survey line to an irregular boundary line: (5+5=10)

3.50, 4.30, 6.75, 5.25, 7.50, 8.80, 7.90, 6.40, 4.40, 3.25m

Calculate the area enclosed between the survey line, the irregular boundary line, and the first and last offsets, by

(a) The trapezoidal rule

(b) Simpson's rule

6. a) Justify- "Aerial photogrammetry is a part of Remote sensing". (4+6=10)

A camera having a focal length of 20cm is used to take a vertical photograph to a terrain having an average elevation of 1500m. What is the height above mean sea level at which an aircraft must fly in order to get the photograph at a scale of 1:8000.

b) Two triangulation stations A and B are 40 km apart and have elevations of 178m and 175m respectively. Find the minimum height of signal required at B so that the line of sight may not pass nearer the ground than 3m. The intervening ground may be assumed to have a uniform elevation of 150m. (10)

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