

SL-240

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Seat No.	
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S.E. (Civil) (Part-II) (Semester-IV) (Revised)

Examination, April - 2017

SURVEYING-II

Sub. Code : 63345

Day and Date : Thursday, 27-04-2017

Total Marks : 100

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :
- 1) Answer any three questions from each section.
 - 2) Figures to the right indicates full marks.
 - 3) Assume suitable data if necessary and state them clearly.
 - 4) Answer shall be supported by adequate sketches.

SECTION-I

Q1) Attempt any three questions.

- a) Derive an expression for horizontal distance, vertical distance and reduced level of staff station for both angles are angles of elevation and both angles are angle of depression in tangential system of tacheometry. [9]
- b) The tacheometer was set up at a station P and following readings were obtained on a staff vertically held. [8]

Inst. Station	Staff Station	Vertical angle	Staff Reading	Remark
P	BM	$-6^{\circ}20'$	1.65, 1.95, 2.75	RL of BM=760.5m
P	Q	$+9^{\circ}12'$	1.75, 1.90, 3.25	

Calculate the horizontal distance PQ and RL of Q. Constants of instrument are 100 and 0.15.

- Q2) a) Describe briefly the term intervisibility of height of stations. [7]
- b) From an eccentric station E angles were measured to three triangulation stations A, B and C were recorded as follows.

$\hat{A}EC = 70^{\circ}14'2''$ $\hat{A}EB = 79^{\circ}29'42''$ Distance EB=21.7m

The station C and E were on opposite sides of the line AB. The approximate length of AB and BC were 4973.05 and 5990.55m. Determine the angle \hat{ABC} . [10]

P.T.O.

- Q3) a)** Define the terms. [6]
- i) Celestial horizon
 - ii) Observers meridian
 - iii) Parallel of latitude
- b) How would you locate polaris in clear sky? Describe the procedure. [5]
- c) What is spherical triangle? Discuss its properties. [5]
- Q4) What short note on any four:** [16]
- a) Principle of EDM.
 - b) Hammer fennel auto reduction tacheometer.
 - c) Classification of triangulation figures.
 - d) Phase of signals.
 - e) Astronomical triangle.

SECTION-II

- Q5) a)** Define the terms Backward tangent, Intersection angle, Point of reverse curvature. [6]
- b) Derive a relationship between radius and degree of a simple circular horizontal curve from first principles. [4]
- c) Two tangents BA and AC are intersected by a line EF. The angles \widehat{BEF} and \widehat{EFC} are 140° and 145° respectively. The radius of the first arc is 600m and that of the second arc is 400m. If the chainage of intersection point A is 3030m, find the chainages of tangent points and the point of compound curvature. [7]
- Q6) a)** Derive an expression for focal length of camera lens of a phototheodolite. [6]
- b) Explain the principle of photo-interpretation. [4]
- c) Calculate the number of aerial photographs required to cover an area of 160sq.km. of ground area if scale of photograph is 1/10,000, format size is 230mm×230mm, longitudinal overlap is 55% and side-lap is 33%. [7]

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- Q7)** a) Discuss the uses of Remote sensing in Agriculture and in Environmental applications. [8]
b) Describe applications and uses of G.P.S. [6]
c) How data acquisition is done in G.I.S. [3]
- Q8)** Write short notes on. [16]
a) Elements of simple circular horizontal curve
b) Length of vertical curve
c) Ground control in photogrammetry
d) Scale of vertical photographs

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