

GANPAT UNIVERSITY

B. Tech. Semester IV (CIVIL,CBCS),

Regular Examination – May/June : 2012

2CI 402: Surveying

Max.Time: 3 Hours

Max. Marks: 70

Exam. No. of the candidate: _____

Supervisor's dated initial: _____

Instructions: - (1) Answer to the two sections must be written in separate answer books.

(2) Figures to the right indicate full marks.

(3) Assume suitable data if required.

Section – I

1 (A) What are three point problems? Describe how it is solved by Bessel's method. (5)

(B) In running fly level from a bench mark of R.L 200.605, the following readings were obtained. (6)

Back Sight: 1.445, 2.595, 1.315, 2.825

Foresight: 0.475, 1.135, 0.495

From the last position of instrument six pegs at 20 meters interval are to be set out on a uniformly rising gradient of 1 in 50, the first peg is to have R.L. of 205.000. Work out staff reading required for setting the tops of pegs on the given gradient.

OR

(A) Which are the various accessories used in plane table survey? Write the functions of all accessories. (5)

(B) The following consecutive reading were taken with a level and 4 m leveling staff ground at common interval of 25 m as (6)

0.625 On A, 0.255, 1.635, 2.40, 3.335, 0.735, 1.220, 1.675, 2.225, 3.150, 0.650, 2.450, and 3.550 on B.

The elevation of point A is 100.00 m. Makeup level book page, apply usual check and calculate the reduced level of points. Also calculate the gradient of line AB.

2 (A) Draw contour for (a) Hill (b) Ridge (c) valley (d) saddle (e) Pond (f) vertical cliff. (6)

(B) The following perpendicular offsets were taken from a chain line to a hedge: (6)

Distance(m)	0	10	20	30	40	50	60
Offset(m)	3.30	1.40	2.20	3.70	4.80	2.50	3.80

Calculate the area enclosed between the chain line and the offsets by

(i) Trapezoidal rule and (ii) Simpson's rule (iii) Avg. ordinate rule.

OR

2 (A) Give comparison of collimation method and rise-fall method. (6)

- (B) The formation level of a road is at a constant RL of 150.00 m. The ground levels along the centre line of the road are as follows: (6)

Chainage (m)	0	40	80	120	160	200	240
Ground level(m)	152.6	151.9	149.0	150.9	151.5	152.45	151.20

Compute the volume of earth work given that the formation width is 8 m and the side slope is 2:1.

- 3 Attempt any Two: (12)

- (A) Write down the uses of contours. Compare direct and indirect methods of contouring.
 (B) Discuss the relation between degree and radius of curve.
 (C) Describe the method of setting a simple circular curve by deflection method.

Section – II

- 4 (A) List out fundamental lines and desired relation between them. (5)
 (B) Describe omitted measurements. (6)

OR

- (A) State the trapezoidal rule. What are the considerations and limitation of this rule?
 (B) What is prismoidal? Derive the prismoidal formula.

- 5 (A) Derive the expression for Simpson's Rule for the measurement of the area between the chain line and curved boundary. (6)
 (B) The following notes referred to the reciprocal levels taken with one level. (6)

Instrument	Staff reading on		Remarks
Near	P	Q	
P	1.155	2.595	Distance PQ=500M RL of P = 525.500
Q	0.985	2.415	

Find (a) The true R.L of Q (b) the combined correction of curvature and refraction. (c) The Collimation error and (d) whether the line of collimation is inclined upwards or downwards.

OR

- 5 (A) The following observations were made for a closed traverse ABCDEA. (6)

Line	Length (m)	Azimuth
AB	?	330 45'
BC	300	860 23'
CD	?	1690 23'
DE	450	2430 54'
EA	268	3170 30'

Work out the missing quantities.

- (B) Define and differentiate between simple, compound, reverse and transition curve. (6)

- 6 Attempt any Two: (12)

- (A) Write short note on DMD method.
 (B) Write short note on Zero Circle.
 (C) Discuss various types of horizontal curves with neat sketches.

“END OF PAPER”