Student Exam No: _____

GANPAT UNIVERSITY

B. Tech. Semester 4th Sem (CIVIL)

Regular Examination -- April - June : 2015

2CI- 402: Surveying

Time: 3 Hours   **Total Marks: 70**

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

Q-1 **(A)** Define the following Term: (04)

Datum surface, level surface, Reduced level, Intermediate sight Reading.

(B) The following notes referred to the reciprocal levels taken with one level.   (08)

Instrument	Staff reading on		Remarks
Near	P	Q	Distance PQ=800M
P	1.155	2.595	RL of P = 625.500
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

Q-1 **(A)** In running fly level from a bench mark of R.L 139.605, the following   (08)
readings were obtained.

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 143.000. Work out staff reading required for setting the tops of pegs on the given gradient.

(B) Enlist Different types of leveling. And explain Cross-section leveling and fly   (04)
leveling.

Q-2 **(A)** Define curve. Give classification of curve and discuss each in shortly.   (05)

(B) Explain the procedure of temporary Adjustment of level machine.   (06)

OR

Q-2 **(A)** Enlist the elements of the curve and derive the equation for it.   (06)

(B) Describe the dumpy level with neat sketch.   (05)

Q-3 **Attempt the following questions:**   (12)

(A) What is hydrographic survey? Explain the control and use of it.

(B) Explain shortly shore line survey.

(C) If the designation of the curve is 3° (chord base) and deflection angle is 30°. than Calculate the (1) Length of the curve (2) Apex distance (3) Mid ordinate (4) Tangent length of the curve.

Section – II

Q-4 (A) Describe following methods of measuring horizontal angles.(1) Repetition method (2) Reiteration method. (06)

(B) It was impossible to observe the length and bearing of the line PQ directly. The following observations were, therefore taken from two stations A and B. (06)

Line	Length in m	Bearing
AP	126.00	S 65°36'W
AB	314.40	N 24°12'E
BQ	115.50	N 76°48'W

Compute the length and bearing of PQ, and the angles APQ and BQP.

OR

Q-4 (A) What do you meant by balancing a traverse? State and explain methods of balancing traverse. (06)

(B) A four sided traverse ABCD, has the following lengths and bearings: (06)

Side	Length in m	Bearing
AB	500	Roughly East
BC	245	178°
CD	Not obtained	270°
DA	216	10°

Find the exact bearing of the side AB.

Q-5 (A) For a closed traverse ABCDA, compute the missing data. (05)

Line	Length (m)	Bearing
AB	100.00	N45o30'W
BC	605.00	N5o30'E
CD	95.00	N88o20'E
DA	?	?

(B) Explain the graphical method of three point problem of plane table survey. (06)

OR

Q-5 (A) Describe method for measurement of vertical angles by theodolite. (05)

(B) The following offsets were taken from a chain line to a hedge : (06)

Dist.(m)	0	8	1	16	24	32	48	64	88	112
Offsets(m)	3.76	4.32	5.44	4.88	3.84	3.36	3.36	3.00	2.52	1.84

Compute area in sq. meters included between the chain line, the hedge and the end offsets by (a) Simpson's Rule and (b) the trapezoidal rule.

Q-6 **Answer the following questions.** (12)

(A) Write the procedure for setting out of building.

(B) List out the methods of plane table and explain any two of them.

(C) The areas enclosed by contour lines, at 5 m intervals, for a reservoir up to the face of a proposed dam, are shown below:

Value of contour(m)	1005	1010	1015	1020	1025	1030	1035
Area(m^2)	400	1500	3000	8000	18000	25000	40000

Taking 1005 and 1035 m as the bottom most and highest water levels respectively, determine the capacity of the reservoir by using:
(i)The trapezoidal formula (ii) the Prismoidal formula.

END OF PAPER