GANPAT UNIVERSITY
3. TECH SEM- IV (CIVIL) NEW CBCS REGULAR EXAMINATION– APRIL-JUNE 2016
2CI402 SURVEYING

TIME: 3 HRS   TOTAL MARKS: 60

Instructions: (1) This Question paper has two sections. Attempt each section in separate answer book.
           (2) Figures on right indicate marks.
           (3) Be precise and to the point in answering the descriptive questions.

SECTION: I

Q.1 (A)   Define: Leveling, Contour, GTS Bench Mark, Mean sea Level, Line of collimation.   (05)
Q.1 (B)   The following notes referred to the reciprocal levels taken with one level.   (05)

Instrument	Staff reading on		Remarks
Near	P	Q	Distance
P	1.150	2.590	PQ=500M
Q	0.980	2.410	RL of P = 520.500

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)   Give comparison of collimation method and Rise-Fall method.   (05)
Q.1 (B)   A Page of a level book is shown in the following. Fill the missing reading (X) and   (05)
calculate the RL of all points. Apply the usual checks.

Station	B.S.	I.S	F.S	Rise	Fall	R.L.	Remarks
1	2.150					450.000	B.M.- I
2	1.645		X	0.500			
3		2.345			X		
4	X		1.965	X			
5	2.050		1.825		0.400		
6	X		X	X		451.500	B.M.- II
7	1.690		1.570	0.120			
8	2.865		2.100		X		
9			X	X		451.250	B.M- III

Q.2 (A)   The following offsets were taken from a chain line to a hedge at regular interval of 5.0 m   (04)
Offsets (m): 2.72, 3.46, 5.23, 6.80, 4.86, 3.35, 3.00, 2.50, 1.60
Determine the Area included between the chain line and the hedge by
(a) Mid-ordinate rule, (b) Average Ordinate rule and (c) Trapezoidal rule.
Q.2 (B)   Write a statement and Equation Simpsons Rule with Figure   (02)
Q.2 (C)   Two straights connected by 5° (arc based) curve has its long chord 50 m. calculate   (04)
intersection angle and its tangent length.

OR

Q.2 (A)   Write a short note on Planimeter with neat sketch.   (04)
Q.2 (B)   Enlist the elements of the curve with their Equation.   (03)
Q.2 (C)   What do you mean by construction survey?   (03)

Q.3(A) What is sounding? Explain Echo-sounding.

Q.3(B) State the trapezoidal rule. What are the considerations and limitation of this rule?

Q.3(C) Calculate the radius of 2° (chord basis) curve. And also calculate intersection angle if the (0⁴
tangent Length is 60 m.

SECTION: II

Q.4(A) Explain the accessories of plane table in detail. (05)

Q.4(B) A closed traverses PQRS, in which the bearing of SP has not observed and length of QR (05)
has been missed out in recording. The rest of the field record is as following. So Find out
missing Data.

Line	Length (m)	Bearing
PQ	335.00	181°18'
QR	?	90°00'
RS	408.00	357°36'
SP	828.00	?

OR

Q.4(A) Explain the resection method with the help of three point problem with the sketch. (05)

Q.4(B) The following lengths and bearings were recorded in running a Theodolite traverse in the (05)
counter clockwise direction, the length of CD and bearing of DE having been omitted.

Line	Length (m)	RB
AB	281.4	S69°11'E
BC	129.4	N21°49'E
CD	?	N19°34'W
DE	144.5	?
EA	168.7	S74°24'W

Determine the length of CD and the bearing of DE.

Q.5(A) Give difference between following: (05)
  (i) Latitude and Departure
  (ii) Consecutive co-ordinates and Independent co-ordinates.

Q.5(B) A four sided traverse ABCD, has the following lengths and bearings: (05)

Line	Length (m)	Bearings
AB	500	Roughly East
BC	245	178°
CD	Not obtained	270°
DA	216	10°

Find the exact bearing of side AB.

OR

Q.5(A) Describe "RADIATION METHOD" of plane table in detail. (05)

Q.5(B) For the following traverse, compute the length CD, so that A, D and E may be in one (05)
straight line.

Line	Length (m)	Bearings
AB	110	83°12'
BC	165	30°42'
CD	---	346°6'
DE	212	16°18'

For a closed traverse ABCDE the length and bearings of the lines are given below. (07)
Prepare gales traverse table for the traverse, showing calculation for each. Also draw
traverse by taking suitable scale.

Line	Length (m)	Bearing
AB	362.55	N33°10'W
BC	218.00	N39°08'E
CD	163.22	S10°20'E
DE	195.95	S66°50'E
EA	278.53	S32°20'W

Q.6 (B)   Describe the Repetition method of measuring horizontal angles. (03)

---END OF PAPER---