GANPAT UNIVERSITY
B.TECH SEM IV CIVIL ENGINEERING
REGULAR EXAMINATION (NEW CBCS) APRIL-JUNE - 2017
2CI402: SURVEYING

Time: 3 Hours

Max Marks: 60

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

Que. – 1	(A)	What is surveying? Give details of plane table and importance of it in surveying.	05
	(B)	Describe the methods checking the accuracy of closed and open traverse.	05

OR

Que. – 1	(A)	Explain the mechanical method of three point problem method.	05
	(B)	Write a short note on latitude and departure.	05

Que. – 2	(A)	Enlist the accessories of plane table and explain any two of them.	05
	(B)	The following records are obtained in a traverse survey where the length and bearing of the last line were not recorded:	05

Line	Length (m)	Bearing
AB	75.5	$30^0 24'$
BC	180.5	$110^0 36'$
CD	60.25	$210^0 30'$
DA	?	?

Compute the length and bearing of line DA.

OR

Que. – 2	(A)	Explain orientation by back sighting with neat sketch.	05
	(B)	The following observations were taken from stations P and Q.	05

Line	Length (m)	Bearing
PA	125.0	$S60^0 30'W$
PQ	200.0	$N30^0 30'E$
QB	150.5	$N50^0 15'W$

Calculate the length and bearing of AB and also the angles PAB and QBA.

Que. – 3	(A)	Draw section of theodolite showing all its parts with its function.	05
	(B)	A four sided traverse ABCD, has the following lengths and bearings:	05

Side	Length (m)	Bearing
AB	500	Roughly east
BC	245	178^0
CD	Not obtained	270^0
DA	216	10^0

Find the exact bearing of the side AB.

SECTION-II

Que. – 4   **(A)**   Describe dumpy level with figure.   05

(B)   A road embankment is 8 m wide and 200 m in length at the formation level,   05
with a side slope of 1.5:1. The embankment has a rising gradient of 1 in 100 m.
the ground levels at every 50m along the center line are as follows:

Distance (m)	0	50	100	150	200
R.L.(m)	164.5	165.2	166.8	167	167.2

The formation level of zero chainage is 166 m. calculate the volume of earth

OR

Que. – 4   **(A)**   Briefly explain Curvature Correction, Refraction Correction and Sensitiveness   05
of Bubble Tube.

(B)   Derive an expression for trapezoidal formula for volume. Compare it with   05
prismoidal formula.

Que. – 5   **(A)**   Define following terms: 05
   (a) Soundings
   (b) Shore Line Survey
   (c) Control Points

(B)   State the importance of curves in Civil Engineering.   ·03
(C)   In a levelling exercise the staff reading taken on a benchmark of 100m is 2.220.   02
Find out RL of roof if the inverted staff reading on a roof of a shed is 1.250.

OR

Que. – 5   **(A)**   Which are operations involved in Hydrographic surveying?   05
(B)   Draw a neat sketch showing all the components of simple circular curve.   03
(C)   Define following terms: 02
   (a) GTS
   (b) Datum surface

Que. – 6   **(A)**   Two tangents intersect at a chainage of 1400 m. The deflection angle being 24°.   05
Calculate the following quantities for setting out a curve of radius 275 m.
   (a) Tangent length   (b) Length of long chord
   (c) Length of curve   (e) Apex distance
   (d) Chainage of point commencement and tangency.

(B)   In a leveling work following are the observation taken at every 30 m interval   05
along a survey line. First reading was taken on zero chainage having R.L. =
176.500. Enter these observations in proper tabular form, compute reduced
levels and show necessary check, determine the general gradient of ground form
first point and last point neglecting other points. Instrument shifted after 4th
Observation.
1.750, 1.370, 1.150, 2.315, 0.950, 1.415, 2.040 and 3.590

END OF PAPER