B. Tech Degree III Semester Examination, November 2008

CE 302 SURVEYING I

(Common for 1999 & 2002 Schemes)

Time : 3 Hours   Maximum Marks : 100

I.   (a)   What do you mean by Hypotenusal Allowance?   (4)

      (b)   A 20m chain was found to be 10cm too long after chaining a distance of 1500m. It was found to be 18 cm too long at the end of day's work after chaining a total distance of 2900m. Find the true distance if the chain was correct before the commencement of the work.   (6)

      (c)   Explain the following with the help of neat sketches.

          (i)   Cross staff   (5)

          (ii)   Optical square.   (5)

OR

II.   (a)   Define the following terms :

          (i)   Check line   (ii)   Tie line

          (iii)   Range ties   (iv)   Base line   (5)

      (b)   What are the errors in chain survey?   (7)

      (c)   A survey line ABC crosses a river at right angles and cuts its banks at B and C. To determine the width BC a line BD, 50 m long, was set out roughly parallel to the near bank. Points C and D were joined and line CD extended to another point E. Point D was joined to the mid point O of the line BE and line DO extended to point F such that DO = OF. Points E and F were joined and the line EF extended to cut the survey line ABC at G. If FG = 30m and GB = 70m, determine the width BC.   (8)

III.   (a)   Differentiate between whole circle bearing system and Quadrantal Bearing System.   (6)

      (b)   A compass traverse ABCDEA was run anticlockwise and the following bearings were taken where local attraction was suspected.

Line	FB	BB
AB	$150^0 0'$	$329^0 45'$
BC	$77^0 30'$	$256^0 45'$
CD	$41^0 30'$	$222^0 45'$
DE	$314^0 15'$	$134^0 45'$
EA	$220^0 15'$	$40^0 15'$

Determine the local attraction and the correct bearings by $150^0 0'$ using included angles. (14)

OR

IV.   (a)   Explain   (i)   Radiation Method   (5)

                 (ii)   Intersection method   (5)

      (b)   What do you mean by Resection? Explain Two-point problem with neat sketches.   (10)

V.   (a)   Explain Reciprocal Levelling.   (5)

      (b)   The following consecutive readings were taken with a dumpy level and a 4m leveling staff on a continuously sloping ground at 30m intervals.

0.680, 1.455, 1.855, 2.330, 2.885, 3.380, 1.055, 1.860, 2.265, 3.540, 0.835, 0.945, 1.530 and 2.250

The reduced level of the initial point was 80.750m. Rule out a page of level book, enter the readings and evaluate reduced levels of each point by "Rise and Fall" Method. Apply check and also calculate the gradient of the line joining the first and last point.   (15)

OR

VI.	(a)	Explain the main characteristics of Contour.	(5)
	(b)	Compare and contrast Height of Collimation Method and Rise and Fall Method.	(5)
	(c)	Explain the methods of Locating Contour.	(10)

VII.	(a)	With neat sketches explain Ceylon Ghat Tracer.	(6)
	(b)	The following perpendicular offsets were taken from a chain line to a hedge.	

Chainage (M)	0	15	30	45	60	70	80	100	120	140
Offsets (M)	7.60	8.5	10.7	12.8	10.6	9.5	8.3	7.9	6.4	4.4

Calculate the area between the survey line, the hedge and the end offsets by
(i)   Trapezoidal Rule   (ii)   Simpson's Rule   (14)

OR

VIII.	(a)	With a neat sketch explain the working principle of a Pentagraph.	(10)
	(b)	Explain Mass-Haul Diagram. What are its uses?	(10)

IX.	(a)	Explain the Repetition and Reiteration method in measuring Horizontal angles using a theodolite.	(12)
	(b)	Explain Bowditch's method of adjusting the traverse.	(8)

OR

X.	(a)	With a neat sketch explain Tangential Tacheometry.	(8)
	(b)	The lengths and bearings of a traverse ABCD are as follows :	

Line	Length (m)	Bearing
AB	75.50	$30^0 24'$
BC	180.50	$110^0 36'$
CD	60.25	$210^0 30'$

Compute the length and bearing of line DA.   (12)

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