B Tech III Se mester Back Paper Examination - 2016
TCE302-Basic surveying

M.M. 100   **Time 3 Hrs**

Note: Attempt all questions. Each question is of 20 marks.

Q.1 Attempt any 4 parts, each par t is of 5 marks
   A. Explain the basic princip le of surveying.
   B. Define the terms compensating and cumulative error.
   C. Explain the fundamental lines of theodolite and its desired relationship.

   E. In an old map a line AB was drawn to a magnetic bearing of $5^0 30'$ the ma gnetic declination at the time being 1^0 East. To what magnetic bearing should the line be se t now if the present magnetic declination is $8^0 30$ East.

Q.2 Attempt any 4 parts, each par t is of 5 marks
   A. A 20 m chain was found t o be 10 cm too long after chaining a distance of 1600m. It was found to be 16 cm too long at th e end of day work after chaining total distance of 2800m. Find the true distance if the chain was correct before the commencement of the work.
   B. Define the following term : (1) local attraction (2) Benchmark
   C. Discuss two point problem s.
   D. Briefly describe any one method of interpolation.
   E. Discuss the instruments in plane table surveying with the help of neat and cl ean diagram.

Q.3 Attempt any 4 parts, each par t is of 5 marks
   A. Describe with the help of sketches the characteristics of contour.
   B. What are the temporar y adjustments of theodolite? Explain the re etition method for measurement of horizontal angle with the help of theodolite.
   C. The following reading ref er to reciprocal leveling taken with one level:

| Instrument at | Re ading on | | Remark |
	A	B	
A	1.824	0.929	Distance b/w A & B= 1110m
B	2.748	1.606	R.L of A= 130.815m

   Determine:
   i.   The true differenc e in elevation between A & B
   ii. The reduced level of B
   iii. combined correcti on for curvature and refraction
   iv. angular error in th e collimation adjustment of the level

Q.4 Attempt any 2 parts, each par t is of 10 marks
   A. The following bearing we re observed in running a closed traverse:-

LINE	F.B	B.B
AB	$75^o 5'$	$254^o 20'$
BC	$115^o 20'$	$296^o 35'$
CD	$165^o 35'$	$345^o 35'$
DE	$224^o 50'$	$44^o 5'$

| | EA | $304\,^{o}50'$ | $125\,^{o}5'$ |

Determine the correct mag netic bearing if declination was $5^{o}10'$, what are th e true bearings?

B. The particulars of a traver se survey are given below:

LINE	L ENGTH (M)	BEARING
AB	150	342^{0}
BC	513	14^{0}
CD	315	137^{0}

Calculate the distance between point E on AB, 100 m from A, and a p oint F on CD, 125 m from C.

C. Draw a neat sketch of circular curve define and show the following notation thereon:

(i) Back tangent (ii) fo rward tangent (iii) point of curve (iv) point of tan gency

(v) Angle of intersection (vi) angle of deflection (vii) long chord (viii) apex distance

(ix) Mid ordinate (x) p oint of intersection

Q.5 Attempt any 2 parts, each par t is of 10 marks

A. What is transition curve? When and why it is used? Write a note on differ ent type of transition curve.

B. What do you mean by orientation? Explain the method of orientation by method of back sighting. Also mention the Lehman's rule.

C. Prove that the shape of we ll-conditioned triangle is isosceles with base angl e equal to $56^{0}14'$.

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