JOIT 7/7/2015

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4E4114

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B.Tech. IV Semester(Main/Back) Examination, June/July- 2015
Civil Engineering
4CE4A Surveying-I

Time : 3 Hours

Maximum Marks : 80
Min. Passing Marks : 26

Instructions to Candidates:

*Attempt any **five** questions, selecting **one** question from **each unit**. All questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Unit - I

1. a) Explain following:-
   i) Check line
   ii) Base line
   iii) Offset
   iv) Pacing   (2×4=8)

   b) Represent following with conventional signs
   i) Rocks
   ii) Cultivated land
   iii) Lake
   iv) Dam   (2×4=8)

OR

1. a) Enumerate the different types of tapes used for measuring distance. Explain the details of steel tape.   (8)

   b) A 20 m chain was found to be 10 cm too long after chainy distance of 2000m. It was found to be 16cm too long at the end of day's work after chainy a total distance of 3200 m. Find the true distance if chain was correct before commencement of the work.   (8)

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2. a) Explain following:-
   i) Whole circle Bearing
   ii) Local attraction
   iii) True Bearing
   iv) Angle of Dip   (8)

   b) Following bearings were taken in running a compass traverse

Line	F.B	B.B
AB	$124^0 30'$	$304^0 30'$
BC	$68^0 15'$	$246^0 0'$
CD	$310^0 30'$	$135^0 15'$
DA	$200^0 15'$	$17^0 45'$

   At what stations do you suspect local attraction? Find correct bearings of lines.   (8)

OR

2. a) Explain how will you range a line using theodolite? Write your answer in logical steps.   (8)

   b) The following angles were observed in clockwise direction in an open traverse

   $\angle ABC = 124^0 15'$ $\angle BCD = 156^0 30'$, $\angle CDE = 102^0 0'$, $\angle DEF = 95^0 15'$, and

   $\angle EFG = 212^0 45'$

   Magnetic bearing of line $AB = 241^0 30'$, find bearing of line FG.   (8)

3. Prepare Gale's traverse table. Explain with example how data are entred into this table and computed.   (16)

OR

3. a) Explain method traversing by method of included angle.   (8)

   b) It is not possible to measure the length and fix the direction of a line AB directly on account of an obstruction between the stations A and B. A traverse ACDB was, therefore run and following data was obtained:-

Line	Length	Reduced Bearing
AC	45	N50^{0}E
CD	66	S70^{0}E
DB	60	S30^{0}E

4E4114   (2)

Find the length and direction of line BA. It was required to fix a station E on line BA such that DE will be perpendicular to BA. If there is no obstruction between B and E, calculate the data required for fixing the station as required. **(8)**

Unit - IV

4. a) Explain following:

   i)   Check levelling

   ii) Temporary Bench Mark

   iii) Reduced Level

   iv) Geoid   **(2×4=8)**

   b) In running fly levels from a benchmark of RL 183. 185 following readings were obtained

   B.S.-2.085, 1.025, 1.890, 0.625

   F.S.- 1.925, 2.820, 0.890

   from the last position of the instrument five pegs at 25 m interval are to be set out on an uniformly falling gradient of line 100 to with 1st peg to have a RL of 182.350. Determine the staff readings required for setting the tops of the five pegs on the given grading. **(8)**

OR

4. a) Explain curvature, refraction and combinal corrections.   **(8)**

   b) Reciprocal observations were taken with a dumpy level

Inst. near station	Staff ready at station	
	A	B
A	1.225	1.375
B	0.850	0.500

   RL of station A is known to be 626.155 find RL of B. Also calculate the error in line of collimation and state wether it is inclined upward or down ward. **(8)**

Unit - V

5. a) Explain two point problem.   **(8)**

   b) Explain plane table traversing.   **(8)**

OR

5. a) Explain following:-

   i) Contour interval

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ii) Over hanging Clift

iii) Contour Map

iv) Valley line.

b) Explain different criterions for selecting contour interval. Suggest contour interval Building sites and Reservoir planning. **(8)**

(8)

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