

4E4114

Roll No.

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B.Tech. IV-Sem (Main & Back) Exam; June-July 2016

Civil Engineering
4CE4A Surveying-I

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks (Main & Back): 26

Min. Passing Marks (Old Back): 24

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.

Use of following supporting material is permitted during examination.

1. NIL

2. NIL

UNIT-I

Q.1 (a) What is surveying? How it is useful for civil Engineers? [8]

(b) Distinguish between plain and geodetic surveying. [8]

OR

Q.1 (a) Briefly explain sources of errors in surveying. [6]

(b) Explain different corrections to take measurements. [10]

UNIT-II

- Q.2 (a) Explain with a neat sketch working of a prismatic compass. [8]
- (b) During a traverse survey ABCDA, the following interior angles were measured with a compass:- [8]

$$\angle A = 75^\circ, \quad \angle B = 120^\circ, \quad \angle C = 80^\circ \quad \text{and} \quad \angle D = 85^\circ$$

If the bearing of the line AB is 99° . What are the bearings of the remaining lines of traverse?

OR

- Q.2 (a) Differentiate between -
- (i) Line of collimation and line of sight [2]
 - (ii) Face left and Face right condition [2]
 - (iii) Altitude level axis and plate level axis. [2]
- (b) Explain the temporary adjustment of transit theodolite. [10]

UNIT-III

- Q.3 (a) What is a traverse? Discuss different uses of traverse surveying. [6]
- (b) Differentiate between:- [10]
- (i) Open traverse and closed traverse.
 - (ii) Bowditch's rule and transit rule.
 - (iii) Latitude and departure.

OR

Q.3 The following bearings are taken on a closed traverse.

[16]

Line	AB	BC	CD	DE	EA
F. B	$80^{\circ} 10'$	$120^{\circ} 20'$	$170^{\circ} 50'$	$230^{\circ} 10'$	$310^{\circ} 20'$
B. B	$259^{\circ} 0'$	$310^{\circ} 50'$	$350^{\circ} 50'$	$49^{\circ} 40'$	$130^{\circ} 15'$

Compute the interior angles and find correct bearings of lines if bearings of CD is correct

UNIT-IV

Q.4 (a) Differentiate between simple levelling and differential levelling. [8]

(b) What are temporary adjustments of dumpy levels? How they are performed? [8]

OR

Q.4 The following readings were observed successfully with a levelling instrument. The instrument was shifted after 5th and 11th readings. [16]

- | | | | | |
|------------|------------|------------|------------|------------|
| (1) 0.585 | (2) 1.010 | (3) 1.735 | (4) 3.295 | (5) 1.775 |
| (6) 0.350 | (7) 1.300 | (8) 1.795 | (9) 2.575 | (10) 3.375 |
| (11) 3.895 | (12) 1.735 | (13) 0.635 | (14) 1.605 | |

Draw up a page of level book and determine the R. L. of various points, if R. L. of first point is 136.440m. Use the Rise and Fall method.

UNIT-V

- Q.5 (a) What are different methods of plane table survey? Discuss intersection method with its suitability. [8]
- (b) Explain the two points problem and its solution. [8]

OR

- Q.5 (a) What is contour interval? Explain the factors to be considered in deciding the contour interval. [8]
- (b) What are different uses of contour maps? Explain. [8]
