

Total No. of printed pages = 4

CT-302/Surveying-I/3rd Sem/2016/N

SURVEYING – I

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer any *five* questions.

1. (a) Explain plane surveying and geodetic surveying. Explain principles of surveying. 5
- (b) What is local attraction ? How will you eliminate local attraction ? 4
- (c) A 20m chain was found to be 10 cm too long after chaining a distance of 1700m. It was found to be 20 cm too long at the end of day's work after chaining a total distance of 3000m. Find the true distance if the chain was correct before the commencement of the work. 5
2. (a) Differentiate between cumulative and compensating errors. Also write the different types of errors in chaining. 4

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- (b) The following staff readings were observed successively with a level. The instrument having been moved after third, fifth and eight readings :

0.875, 1.235, 2.310, 1.385, 2.930, 3.125, 4.125, 0.120, 1.875, 2.030, 3.765m.

The first reading was taken with the staff held upon a benchmark of elevation 132.135m. Enter the readings in level book-form and reduce the levels. Use rise and fall method and apply the usual check. 10

3. (a) What is ranging in chain surveying ? Explain different methods of ranging. 6
- (b) The following bearings were taken in running a compass traverse : 8

Line	FB	BB
AB	124°30'	304°30'
BC	68°15'	246°0'
CD	310°30'	135°15'
DA	200°15'	17°45'

At what station do you suspect local attraction ? Compute the included angles and find the corrected bearings of the lines.

4. (a) What is reciprocal levelling ? Under what ground conditions we go for reciprocal levelling ? 7
- (b) What is contour ? What are the characteristics of contours ? 7
5. (a) What are the temporary adjustments of a level ? Explain them. 6
- (b) What are the uses of contour map ? Explain any four. 8
6. (a) Differentiate between surveyor's compass and prismatic compass. 4
- (b) Explain the following : $5 \times 2 = 10$
- (i) Magnetic meridian
 - (ii) Parallax
 - (iii) Datum and Bench mark
 - (iv) Contour gradient
 - (v) Differential levelling.

7. (a) What are the different methods of contouring? Discuss any one. 7

(b) A 30m chain was tested before the commencement of the day's work and found to be correct. After chaining 100 chains, the chain was found to be half decimeter too long. At the end of day's work, after chaining a total distance of 180 chains, the chain was found to be one decimeter too long. What was the true distance chained? 7