

B. Tech 3rd Semester Examination

Surveying (NS)

CE-214

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

- Note :** (i) Attempt five question carrying at least one from each section. Question no. 9 is compulsory.
(ii) Support your answer with neat sketches wherever necessary.

SECTION - A

1. (a) Describe the classification of survey, based on the instruments used. (5)
(b) With the help of neat sketch describe the necessity and method of indirect ranging. (5)
(c) A piece of ground was measured with an incorrect chain. The area of the plot as got from the drawings is 1600 sq.cm. The scale of the drawing being 10 meter=1cm. Find the corrected area of the piece of ground if the correct length of the chain is 30.1 meter. (10)
2. (a) Describe any two units of angular measurements. (5)
(b) Draw a typical neat sketch of a metric chain and mark the different parts. (5)
(c) Determine the sag correction for a 30m steel tape under a pull of 80N in 3 bays of 10m each. The area of cross section of the tape is 8 mm² and the unit weight of steel is 77 kN/mm³. (10)

SECTION - B

3. (a) Draw the neat sketches of the scales of prismatic compass and surveyors compass and show the marking on them. (6)

- (b) Differentiate between method of repetitions and reiteration in theodolite survey. (4)
- (c) Calculate latitudes, departures and closing error for the following traverse and adjust using Bowditch's rule.

Line	Length (m)	W.C.B.
AB	89.31	45°10'
BC	219.76	72°05'
CD	151.18	161°52'
DE	159.10	228°43'
EA	232.26	300°42' (10)

4. (a) Differentiate between "traversing by method of deflection angle" and "traversing by method of direct angle." (5)
(b) Draw a page of Theodolite observation field book and label all the columns. (5)
(c) The bearing of the diagonal (AC) of a square ABCD is 35°30'. Find the bearing of the other diagonal BD and all the lines. (10)

SECTION - C

5. (a) Describe the term "turning point" and its importance in levelling. (5)
(b) Describe the typical characteristics of contours. (5)
(c) The following readings were taken at intervals of 100m in levelling along the alignment for a proposed road.
1.21, 1.40, 2.71, 3.41, 3.81, 1.17, 3.07, 3.70, 1.71, 1.33, 3.37, 3.04, 2.10 and 1.15.
The foresights were 5th, 10th and 14th reading. RL of the first point was 258.42m.
Draw of up the level book record for this work. Determine RLs of all the points and apply the usual check. (10)
6. (a) Differentiate between "profile levelling" and "reciprocal levelling". (5)

