BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BE **SEMESTER: VI**
BRANCH: CIVIL **SESSION: SP/2020**

SUBJECT: CE6005 SURVEYING - II

TIME: 1.5 HOURS **FULL MARKS: 25**

INSTRUCTIONS:
1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.
6. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q1 (a) What is degree of curve? Derive a relation between degree of curve and radius of curve. [2]
(b) Calculate the ordinates at 10 m distances for a circular curve having a long chord of 80 m and a versed sine (mid ordinate) of 4 m. [3]

Q2 (a) What are the functions of transition curve? [2]
(b) Two tangents intersect at chainage 59 + 60, the deflection angle being 50º30‘, calculate the necessary data for setting out a curve of 15 chains radius to connect the two tangents by using offsets from chord produced. Assume peg interval as 100 links. The length of chain is 20 m (100 links). [3]

Q3 (a) What do you understand by strength of figure? What is a well-conditioned triangle? [2]
(b) Two triangulation stations A and B are 60 km apart and have elevations 240 m and 280 m respectively. Find the height of signal at B. Maintain a minimum ground clearance of 2 m. The intervening ground may be assumed to be have a uniform elevation of 200 m. [3]

Q4 (a) What do you mean by reconnaissance in triangulation? [2]
(b) How will you do the base line measurement? What are the tape corrections to be applied? [3]

Q5 (a) Discuss briefly different types of errors. [2]
(b) Form normal equations for x, y, and z for the following equations. The weights are also mentioned. [3]
$\mathbf{3}x + \mathbf{3}y + z - \mathbf{4} = \mathbf{0}$ weight = 2
$x + \mathbf{2}y + \mathbf{2}z - \mathbf{6} = \mathbf{0}$ weight = 3
$\mathbf{5}x + y + \mathbf{4}z - \mathbf{21} = \mathbf{0}$ weight = 1

Q6 (a) What do you understand by method of correlates? [2]
(b) What are different types of triangulation adjustments? Discuss briefly about the figure adjustment. [3]

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