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Roll No.

320313(20)

B. E. (Third Semester) Examination, 2020

(Old Scheme)

(Civil Engg. Branch)

SURVEYING-I

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) from each question is compulsory. Attempt any two parts from parts (b), (c) and (d).

Unit-I

1. (a) Write relationship between fundamental lines of level. 2

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- (b) Explain :
- (i) Level surface and level line
 - (ii) Mean sea level
 - (iii) Cross section leveling 7
- (c) What is reciprocal levelling? Explain the procedure for conducting reciprocal levelling. 7
- (d) Explain the temporary adjustment of a dumpy level. 7

Unit-II

2. (a) What do you understand by contour interval? 2
- (b) What is grade contour? How will you locate it?
- (i) On the ground
 - (ii) On the map 7
- (c) Explain the process of interpolation of contours by arithmetic calculations. 7
- (d) Give a brief account with sketches on the uses of contour maps. 7

Unit-III

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3. (a) Define 'Latitudes' and 'Departures' in theodolite traversing with respect to co-ordinate systems. 2
- (b) Compute the length CD for a traverse. If A, D, E are points on a straight line. 7

Line	Bearing	Length (m)
AB	85°	90
BC	32°	150
CD	350°
DE	18°	182.0

- (c) Explain the method of theodolite traversing of direct method without transiting by fast needle method. 7
- (d) In an open traverse ABCDE it is required to fix the mid-point F of the line joining A and E. Find the length and bearing of that point from the station 'C' details below as : 7

Line	Length (m)	Bearing
AB	130.5	N20°30'E
BC	215.0	N60°15'E
CD	155.5	S30°30'E
DE	120.0	N80°30'E

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Unit-IV

4. (a) Mention the different methods of orientation. 2
- (b) Explain with neat sketches :
- (i) Tangent clinometer
- (ii) Planimeter 7
- (c) With neat sketches detail the accessories of plane table surveying. 7
- (d) Explain the mechanical method of solving 3-point problem in plane tabling. What is Lehmann's rule? 7

Unit-V

5. (a) Write the relationship between radius and degree of curve. 2
- (b) Explain the elements of simple circular curve. Give their relationship. 7
- (c) Calculate the elements at 10 m distance for a circular curve having a long chord of 80 m and a versed sine of 4 meters. 7

- (d) Two tangents AB and BC intersect at point B at chainage 150.5 m. Calculate all the necessary data for setting out a circular curve of radius 100 m and deflection angle 30° , by the methods of offsets from long chord.