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Question Paper Code: 31136

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Third Semester

Civil Engineering

01UCE306 – SURVEYING - I

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What are arrows?
2. Define ranging.
3. What is the difference between triangulation and traversing?
4. Discuss the three point method of resection.
5. List out the error in the leveling.
6. What is check leveling?
7. What is Gale's table?
8. Enumerate the instruments used to find the inclination of the contour gradient.
9. On what basis, a vertical curve is designed?
10. What are the purposes of Tacheometric surveying?

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the obstacles in chaining with neat sketches. (16)

Or

- (b) P and Q are two points 517 m apart on the same bank of a river. The bearings of a tree on the other bank observed from P and Q are $N\ 33^\circ 40' E$ and $N\ 43^\circ 20' W$ respectively. Find the width of river if the bearing of PQ is $N\ 78^\circ E$. (16)

12. (a) The following bearings observed in traversing with a compass in a place where local attraction was suspected: At what stations affected by local attraction? Find the corrected bearings of the lines. (16)

Line	Fore Bearing	Back Bearing
AB	$80^\circ\ 30'$	$260^\circ\ 30'$
BC	$351^\circ\ 15'$	$173^\circ\ 0'$
CD	$32^\circ\ 15'$	$208^\circ\ 0'$
DE	$106^\circ\ 15'$	$287^\circ\ 45'$
EF	$99^\circ\ 00'$	$280^\circ\ 0''$
FG	$209^\circ\ 30'$	$29^\circ\ 30'$

Or

- (b) List the various types of errors in plane table surveying and also list out the precautionary measures to overcome them. (16)
13. (a) The following consecutive readings were taken with a dumpy level and a 4 m leveling staff on a continuously sloping ground at 30 m intervals: $0.680, 1.455, 1.855, 2.330, 2.885, 3.380, 1.055, 1.860, 2.265, 3.540, 0.835, 0.945, 1.530$ and 2.250 . The RL of the starting point was 100 m . (a.) Find the RL by height of collimation method. Calculate the gradient of the line joining the first and last point. (16)

Or

- (b) Explain, in details, the different types of leveling. (16)
14. (a) Describe with the help of sketches about the characteristics of contour surveying. (16)

Or

- (b) The following perpendicular offsets were taken at 10m intervals from a survey line to an irregular boundary line. 3.25, 5.60, 4.20, 6.65, 8.75, 6.20, 3.25, 4.20, 5.65. Calculate the area using average ordinate rule, trapezoidal rule and Simpson's rule. (16)

15. (a) In an open traverse *ABCDE*, it is required to find length of *AE* and to fix the midpoint of *AE*. Following is the record of readings.

Line	Length(m)	Bearing
<i>AB</i>	130.5	<i>N 20°30' E</i>
<i>BC</i>	215.0	<i>N 60°15' E</i>
<i>CD</i>	155.5	<i>N 30°30' E</i>
<i>DE</i>	120.0	<i>N 30°30' E</i>

- (i) Determine the length and bearing of *AE* (10)
- (ii) Determine the length and bearing of line joining midpoint of *AE* and the station *C*. (6)

Or

- (b) Explain in detail about temporary adjustment of Theodolite. (16)
