Question Paper Code : X 20290

B.E./B.Tech. DEGREE EXAMINATIONS, NOV./DEC. 2020
Third Semester
Civil Engineering
CE 6304 – SURVEYING – I
(Regulations 2013)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions.

PART – A   (10×2=20 Marks)

1. What is meant by ranging ?

2. What are the different cumulative errors in chain surveying ?

3. What is meant by local attraction ?

4. Define Isogonic line and Agonic line.

5. What are the different methods of levelling ?

6. Define : (a) Fore sight (b) Back sight.

7. Define Contour interval.

8. What are the different methods of locating contour ?

9. Define standards in theodolite.

10. What is an anallactic lens ?

PART – B **(5×13=65 Marks)**

11. a) A steel tape of nominal length 30 m was suspended between supports to measure the length of a line. The measured length of the line on a slope of angle 3°50' is 29.859 m. The mean temperature during the measurement was 12°C and the pull applied was 100 N. If standard length of the tape is 30.005 m at 20°C, and the standard pull is 45 N, calculate the corrected horizontal length. Take weight of the tape = 0.15 N/m, its cross sectional area 2.5 mm^2, α = 1.15 × 10^{-5} per °C and E = 2.0 ×10^5 N/mm^2. **(13)**

(OR)

b) Explain the classification of surveying. **(13)**

12. a) In a closed compus trarese survey, PQRST, following are the observations made with a suspicion of local attraction is there

Line	Fore Bearing	Back Bearing
PQ	147°	326°45'
QR	74°30'	253°00'
RS	41°30'	222°45'
ST	312°15'	132°45'
TP	214°15'	39°15'

Find the station affected with local attraction, included angels and the corrected bearings. **(13)**

(OR)

b) What is resection ? Explain in detail about three point method with suitable diagram. **(13)**

13. a) In a fly level surveying, starting from bench mark A (R.L = 400.00) and ending with staff station, the following consecutive sights are taken 0.925, 1.205, 2.045, 1.625, 2.215, 2.415, 2.105 and 1.405. Find the R.Ls of point B.

(13)

(OR)

b) A level was set up at a point 'O' and the distance to two staff stations A and B were 60 m and 200 m. The observed staff readings, on A and B were 2.25 and 1.815. Find the correct difference of levels between stations A and B. **(13)**

14. a) Determine the area for the following observations by (i) Trapezoidal rule (ii) Simpson's rule. **(13)**

Ordinate	O_1	O_2	O_3	O_4	O_5	O_6	O_7	O_8	O_9
Distance (m)	0	20	40	60	80	100	120	140	160
Offset (m)	23	40	42	30	32	60	10	14	22

(OR)

b) A railway embankment is 8 m wide at the formation level with the side slopes 2:1 in transverse side. Calculate the volume when centre distance 50 m. The lengths are 0.5, 1.0, 1.5, 1.67, 2.0, 1.17 and 0.87 m. **(13)**

15. a) Determine the gradient from a point A to point B from the following observations made with a tachometer fitted with an analytic lens. The constant of the instrument was 100, Zero and the staff was held vertically. **(13)**

Inst. Station	Staff Station	Bearing	Vertical Angle	Staff Reading
P	A	134°	+10°32'	1.360, 1.915, 2.470
	B	224°	+ 5°6′	1.065, 1.885, 2.705

(OR)

b) A tachometer was setup at a station C and the following readings were obtaining on a staff was held vertically. K = 100 and C = 0.15. **(13)**

Inst. Station	Staff Station	Vertical Angle	Staff Reading
C	BM	− 5°20'	1.150, 1.800, 2.450
C	D	+ 8°12'	0.750, 1.500, 2.250

RL of BM 750.500. Calculate the horizontal distance CD and RL of D.

PART – C **(1×15=15 Marks)**

16. a) Explain how a point can be plotted on a plan using two known points on plant and their corresponding ground stations. **(15)**

(OR)

b) The following consequent readings where taken in a level and a 4m leveling staff on a continuously sloping ground at common interval of 30 m the readings are 0.855, 1.545, 2.335, 3.115, 3.825, 0.455, 1.380, 2.055, 2.855, 3.455, 0.585, 1.015, 1.850, 2.755, 3.845. R.L. of A is 380.500 m the last reading taken point is B. Find the gradient between A and B. **(15)**

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