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Question Paper Code : 27096

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

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. Define and distinguish the terms true bearing and magnetic bearing.

4. State any two advantages of plane table surveying.

5. What is fly levelling?

6. What is reduction in levelling? Name the methods.

7. State the uses of contours.

8. What is cross – sectioning, state its application?

9. What do you mean by transit?

10. State the reason for taking face right and face left observations.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the basic principles of surveying? Explain them.   (10)

    (ii) What is well conditioned triangle? Explain its significance in surveying.   (6)

Or

    (b) Explain the methods of chaining with neat sketches. While you do chaining to over come obstacles for chaining and not for ranging?

12. (a) On a closed compus traverse 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	219° 15'	39° 15'

Find the station affected with local attraction, included angles and the corrected bearings.

Or

(b) What is resection? Explain the three point problem with illustrative diagram.

13. (a) Following are the successive staff readings taken in a levelling continuously on sloping ground at common interval of 25 m.

0.605, 1.235, 1.860, 2.575, 0.735, 1.430, 1.955, 2.875, 0.875, 1.825, 2.720.

Reduced level of the first point is 160.00 m. Rule out a level book page and enter the above readings. Calculate the reduced levels of the points and also the gradient of the line joining the first point and last point.

Or

(b) (i) Following observations were taken in a reciprocal levelling

Instrument at	Staff reading at	
	A	B
A	1.615	2.535
B	0.725	1.405

Determine the RL of B if that of A is 120.00 m and also the angular error in collimation if the distance between A and B is 1000 m. (10)

(ii) Write short notes on correction for curvature and refraction. (6)

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14. (a) Explain the indirect methods of contouring.

Or

(b) (i) An embankment of width 8 m and side slopes 1.5:1 is required to be made on a ground which is levelled in a direction transverse to the centre line. The centre heights at 24 m intervals are as follows.

0.80, 1.42, 1.90, 2.20, 2.65, 2.20, 1.65, 1.30 and 0.90.

Calculate the volume of earthwork to be carried out informing the embankment.   (10)

(ii) From a topograph map, the areas enclosed by contour lines for a proposed dam are given below. Find the volume of water that can be impounded in this location.   (6)

Contour :	300	305	310	315	320
Area enclosed (hectares) :	20	110	440	930	1120

15. (a) Explain how would you measure with a theodolite

(i) Deflection angle.

(ii) Magnetic bearing of a line.

Or

(b) Following lengths and bearings were recorded in running a theodolite traverse in the counter clockwise direction, the length OP and bearing of PQ having been omitted.

Line	Length (m)	Reduced bearing
MN	281.4	S 69° 11' E
NO	129.4	N 21° 49' E
OP	--	N 19° 34' W
PQ	142.4	-
QM	170.2	S 74° 24' W

Determine the length of OP and the bearing of PQ.