

Reg. No. :

**Question Paper Code : 52756**

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Third Semester

Civil Engineering

CE 6304 — SURVEYING I

(Regulation 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write short notes on ranging.
2. Differentiate between Engineer's chain and revenue chain.
3. A length of a line measured with a 20 m chain was found to be 250 m. Calculate the true length of the line if the chain was 10 cm too long.
4. What are the sources of local attraction?
5. Name different kinds of bench marks.
6. What are the types of staffs?
7. State the uses of contours.
8. What is cross — sectioning, state its application.
9. What is meant by substance bar?
10. What are the different systems of tachometer survey?

PART B — (5 × 13 = 65 marks)

11. (a) Explain the principles adopted in the construction of vernier scales.

Or

- (b) A distance of 200 m was measured by 30 m chain, later on it was detected that the chain was 0.1 m too long. Another 500 m (i.e., total 2500 m) was measured and it was detected that the chain was 0.15 mm too long. If the length of the chain in the initial stage was correct, determine the exact length that was measured.

12. (a) The following bearings were observed in running a closed traverse :

Line	F.B	B.B
AB	75° 5'	254° 20'
BC	115° 20'	296° 35'
CD	165° 35'	345° 35'
DE	224° 50'	44° 5'
EA	304° 50'	125° 5'

At what stations do you suspect the local attraction. Determine the correct magnetic bearings. It declination was 5° 10' E, what are the true bearing?

Or

- (b) (i) What is two point problem and explain with neat sketch. (6)  
(ii) Explain with sketches, the following methods using plane table. (6)  
(1) Radiation. (3)  
(2) Intersection. (4)

13. (a) The following consecutive readings were taken with a dumpy level : 6.210, 6.920, 7.120, 8.420, 9.810, 6.630, 7.90, 8.26, 9.710 and 10.210. The level was shifted after 5th reading. The R.L at first point was 100 m. Calculate the RL of the points and apply the arithmetical check. (13)

Or

- (b) The following consecutive reading were taken with a dumpy level : 1.904, 2.653, 3.906, 4.026, 1.964, 1.702, 1.592, 1.262, 2.542, 2.006, 3.145. The instrument was shifted after fourth and eighth readings. The first reading was taken on the staff held on the B.M of R.L. 100 m. Calculate the R.L of the points and apply the arithmetical check. (13)

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

Ordinate :	O <sub>1</sub>	O <sub>2</sub>	O <sub>3</sub>	O <sub>4</sub>	O <sub>5</sub>	O <sub>6</sub>	O <sub>7</sub>	O <sub>8</sub>	O <sub>9</sub>
Distance (m) :	0	50	100	150	200	250	300	350	400
Offset (m) :	10.6	15.4	20.2	18.7	16.4	20.8	22.4	19.3	17.6

Or

- (b) A series of offsets were taken from a chain line to a curved boundary line at intervals of 15 m in the following order. 0, 2.65, 3.80, 3.75, 4.65, 3.60, 4.95, 5.85m Compute the area between the chain line, the curved boundary and the end offsets by (i) average ordinate rule (ii) Trapezoidal rule and (iii) Simpson's rule. (13)

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

- (i) Deflection angle  
(ii) Magnetic bearing of a line.

Or

- (b) Following lengths and bearing 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.

PART C — (1 × 15 = 15 marks)

16. (a) Write a case study on contour mapping of hilly terrain. (15)

Or

- (b) Explain in detail about the traversing method adopted for a river and a lake with suitable sketch. (15)