Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 80196

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

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 are the principles of surveying?
2. What are the methods of surveying based on instrument?
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. The concert following reduced bearing to whole circle bearing
   (a) N 70° E
   (b) S 30° E
6. What are the different types of levelling staff?
7. Define Contour interval.
8. What are the different methods of locating contour?
9. What are the three kinds of telescope used in stadia surveying?
10. What is the Well conditioned triangles?

PART B — (5 × 13 = 65 marks)

11. (a) Two stations P and Q on the main survey line were taken on the opposite sides of a pond. On the right of PQ, a line PR, 210 m long was laid down and another line PS, 260 m long was laid down on the left of PQ. The points R, Q and S are on the same straight line. The measured lengths of RQ and QS are 85 m and 75 m respectively. What is length of PQ? (13)

Or

(b) (i) Write the equation for the different tape corrections. (10)

(ii) What is different between plane surveying and Geodetic surveying? (3)

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

Line	F.B	B.B
AB	80° 15'	259° 30'
BC	120° 30'	301° 45'
CD	170° 45'	350° 45'
DE	230° 00'	49° 15'
EA	310° 00'	130° 15'

Mention which stations were affected by local attraction and determine the corrected bearing. (13)

Or

(b) (i) State the advantages and disadvantages of plane table surveying.(8)

(ii) What is different between surveyor's compass and prismatic compass? (5)

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 R.L 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_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) A tachometer is set up at an intermediate point on a traverse course PQ and the following observations are made as a vertically held staff

Staff station	Vertical angle	Staff intercept	Axial hair reading
P	+8°36'	2.350	2.105
Q	+6°6'	2.055	1.895

The instrument is fitted with an anallactic lens and the constant is 100. Compute the length of PQ and reduced level of Q, that of P being 321.50m. (13)

Or

(b) Two sets of tachometric readings were taken from an instrument station A, the reduced level of which was 100.06 m to a staff station B.

(i) Instrument P — multiplying constant 100, additive constant 0.06m staff held vertical

(ii) Instrument Q — multiplying constant 90, additive constant 0.06m staff held normal to the line of sight

Inst. station	At	To	Ht of Inst	Vertical angle	Staff reading
P	A	B	1.5 m	26°	0.755, 1.005, 1.255
Q	A	B	1.45 m	26°	?

What should be the stadia readings with instrument Q? (13)

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)