

Reg. No. :

922011103021

Question Paper Code : 11183

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2012.

Third Semester

Civil Engineering

CE 2204 — SURVEYING — I

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is meant by geodetic surveying?
2. When do you require indirect ranging?
3. Distinguish between true meridian and magnetic meridian.
4. What is the use of trough compass in plane table surveying?
5. State any four types of levelling instrument.
6. What is meant by change point in levelling?
7. Differentiate between latitude and departure.
8. * How would you eliminate parallax in theodolite?
9. What is meant by stopping sight distance?
10. List out any four special instruments used in mine surveying.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the conventional signs used in chain surveying with neat sketches

Or

- (b) A line was measured with a steel tape which was exactly 30 m at 25°C and at a pull of 15 kg, the measured length being 1950 m. The temperature during the measurement was 35°C and the pull applied was 25 kg. Assuming the tape to be supported at every 30 m, calculate the true length, if the cross sectional area of the tape was 0.020 cm², coefficient of thermal expansion of the material per °C = 3×10^{-6} , modulus of elasticity (E) = 2.1×10^6 kg/cm² and weight of tape material = 7.8 g/cm³.

12. (a) The following are the bearings taken on a compass traverse.

Line	FB	BB
AB	S 37°30'E	N 37°30'W
BC	S 43°15'W	N 44°15'E
CD	N 73°00'W	S 72°15'E
DE	N 12°45'E	S 13°15'W
EA	N 60°00'E	S 59°00'W

Compute the interior angles by applying correction for errors. Assume that there is no local attraction.

Or

- (b) Explain the procedure for solving three point problem by Lehmann's method.

13. (a) The following staff readings were observed successively with a level. The instrument having been moved after the second, fifth and eighth readings.

0.675, 1.230, 0.750, 2.565, 2.225, 1.935, 1.835, 3.220, 3.115 and 2.875.

The first staff reading was taken with a staff held on a bench mark of reduced level + 100.000. Enter the readings in the level book form and find the reduced levels of all the points.

Or

- (b) Explain the sources of various errors in levelling.

14. (a) With a neat sketch, describe the components of a transit theodolite.

Or

- (b) The following table gives the latitudes and departures of the sides of a closed traverse *ABCD*. Find the area of the traverse.

Side	Latitude (in m)		Departure (in m)	
	<i>N</i>	<i>S</i>	<i>E</i>	<i>W</i>
<i>AB</i>	214.8	—	124.0	—
<i>BC</i>	—	245.1	205.7	—
<i>CD</i>	—	155.9	—	90.0
<i>DA</i>	186.2	—	—	239.7

15. (a) Explain the details to be collected during different types of surveys for a railway project.

Or

- (b) Describe any two procedures for setting up transition curves in the field.