C 3108

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Fourth Semester

Civil Engineering

CE 1254 — SURVEYING — II

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

Draw neat sketches necessary.

PART A — (10 × 2 = 20 marks)

1. What are the merits of an Anallactic Lens?

2. What is the "Subtense Method"?

3. What are the corrections to be applied for observed vertical angles in geodetic surveying?

4. Give the classification of triangulation system.

5. What are the different kinds of errors of measurements?

6. Give the rules of assigning weightage to the field observations.

7. Explain the term "Sidereal Time".

8. The standard time meridian in India is 82° 30' E. If the standard time at any instant is 10 hours 14 minutes 6 seconds, find the local mean time for a place having longitude 10° E.

9. What is meant by Scale of a Photograph?

10. Define "Mean Sea Level".

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the use of a Beaman Stadia Arc. (6)

(ii) Explain different errors that may arise in stadia surveying (10)

Or

(b) (i) A tacheometric is set up at an intermediate point on a traverse course PQ and the following observations are made on a vertically held staff :

Staff Station	Vertical Angle	Staff Intercept	Axial hair readings
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 321.50 meters. (10)

(ii) Explain the use of Subtense bar. (6)

12. (a) (i) Explain with reference to signals, Non-luminous, luminous and night signals, and phase of signals. (8)

(ii) What are the different methods by which the difference in elevation could be determined? Name the corrections to be applied. (8)

Or

(b) (i) Write short notes on :

(1) satellite station

(2) selection of site for Base line.

(ii) The top of a chimney was sighted from two stations P and R at very different levels, the stations P and R being in line with the top of the chimney. The angle of elevation from P to the top of chimney was 38°21' and that from to the top of chimney was 21° 18'. The angle of elevation from R to a vane 2 m above the foot of the staff held at P was 15° 11'. The heights of the instruments at P and R were 1.87 m and 1.64 m respectively. The horizontal distance between P and R was 127 m and the reduced level of R was 112.78 m. Find the R.L. of the top of the chimney and the horizontal distance from P to the chimney. (8)

13. (a) (i) Explain the "Laws of Accidental Errors" (8)

(ii) The angles of a triangle ABC were recorded as follows :

A = 77° 14' 20" weight 4

B = 49° 40' 35" weight 3

C = 53° 04' 52" weight 2

Give the corrected values of the angles. (8)

Or

(b) (i) Explain the "method of correlates" (8)

(ii) Given the following equations (8)

A = 42° 36' 28" weight 2

B = 28° 12' 42" weight 2

C = 65°25' 16" weight 1

A + B = 70°49' 10" weight 2

B + C 93° 37' 58" weight 1 Find the most probable values of A,B and C.

14. (a) (i) Briefly explain the different methods of determination of time. (12)

(ii) Find the L.S.T. at a place in longitude 72° 10' E, at 8 hours 40 min. p.m., the G.S.T. of G.M.N. being 6 hour 42 min. 32 sec. (4)

Or

(b) Explain the terms :

(i) Tilt Dostortion

(ii) Relief Displacement

(iii) Crab and drift

(iv) Ground Control. (16)

15. (a) List the different methods of locating soundings. Explain any two methods. (8 + 8)

Or

(b) (i) What is a "three point problem" in hydrographic surveying? What are the various solutions for the problem? Explain any one method. (6)

(ii) Explain briefly the different methods of Prediction of tides. (10)
