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Question Paper Code : 77066

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Fourth Semester

Civil Engineering

CE 6404 — SURVEYING – II

(Regulation 2013)

Time : Three hours Maximum : 100 marks

1. Missing data if any may suitably be assumed
2. Draw sketches whenever necessary.

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is called triangulation?
2. What is the application Gale's table?
3. State the principle of least squares.
4. What is true and most probable value?
5. What is called trilateration in Modern positioning system?
6. What is a microwave system?
7. List out the various segments in GPS?
8. What is called anti spoofing?
9. State the differences between lunar tides and solar tides.
10. Define MSL.

PART B — ($5 \times 16 = 80$ marks)

11. (a) Explain the various tape corrections to be made while calculating the length of the base.

Or

(b) A Nominal distance of 30 m was set out with a 30 m steel tape from a mark on the top of one peg to a mark on the top of another, the tape being in catenary under a pull of 100 N and at a mean temperature of 70°F. The top of one peg was 0.25 m below the top of the other. The top of the higher peg was 460 m above the sea level. Calculate the exact horizontal distance between the marks on the two pegs and reduce it to mean sea level, if the tape was standardized at a temperature of 60°F in catenary under a pull of (i) 80 N (ii)120 N (iii)100 N.

Take radius of earth = 6370 km

Density of tape = 7.86 g/cm^3

Section of tape = 0.08 sq.cm.

Co-efficient of expansion = 6×10^{-6} per 1°F

Young's modulus = 2×10^7 N/cm^2

12. (a) Find the most probable values of angles A,B, and C of triangle ABC from the following observation equations:

A = 68° 12' 36"

B = 53°46' 12"

A = 58°01' 16"

Or

(b) An angle has been measured under different field conditions, with results as follows:

28° 24' 20"	28° 20' 00"
28° 24' 40"	28° 24' 40"
28°24' 40"	28° 24' 20"
28° 25' 00"	28° 24' 40"
28° 25' 20"	28° 25' 20"

Find (i) The probable error of single observation

(ii) Probable error of the mean.

13. (a) Enumerate the measuring principle and working principle of Electro optical surveying (Total station) with neat sketches.

Or

(b) Brief a comparison about microwave systems and electro optical systems. Also bring out the important precautionary measures and maintenance of total station instrument.

14. (a) With a suitable sketch, explain the salient features of Hand held and Geodetic receivers.

Or

(b) Explain the various segments comprising the functioning of GPS with neat sketches.

15. (a) What is a compound curve? Explain the step by step procedure for setting out a compound curve.

Or

(b) A, B, and C are three visible stations in a hydrographical survey. The computed sides of the triangle ABC are : AB, 1000 m; BC, 1300 m; and CA, 2000 m. Outside this triangle (and nearer to AC), a station P is established and its position is to be found by three point resection on A, B, and C, the angles APB and BPC being respectively 40° 30' and 64° 00'. Determine the distances PA and PC.
