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B.E. CIVIL ENGINEERING (FULL TIME) DEGREE
END SEMESTER EXAMINATIONS NOV/DEC 2013
CIVIL ENGINEERING BRANCH
(REGULATION 2008)
CE 9254 – SURVEYING II

Time : 3.00 hrs

Max.Marks:100

Answer all the questions

Draw neat sketches wherever necessary

PART – A (2 x 10 = 20)

1. Write down the philosophy of surveying.
2. Mention the accuracy of the tacheometry survey.
3. What is a satellite station? When is it resorted to?
4. What are the errors that are eliminated and what not in reciprocal observations in trigonometrical leveling?
5. List the corrections applied to the measured baseline.
6. What is a normal equation? How they are formed?
7. Write down the properties of Gaussian distribution curve.
8. State three point problem. When will it become indeterminate?
9. Enumerate the use of astronomy in Civil Engineering.
10. Ellucidate the corrections applied to the measured altitude of the heavenly body.

PART – B

5 x 16 = 80

11. i. What are the various methods of determining AZIMUTH of a survey line.
ii. Write step by step procedure for the determination of the AZIMUTH of a survey line by extrameridian observation of SUN. (16)
12. a. Derive an expression for Tacheometric surveying using Tangential, Stadia and Subtense method. (16)

(or)

- b. Determine the gradient from a point P to a point Q from the following observations. The constant of the instrument was 100 and the staff was held vertically.

Inst.Stn.at	Staff point	Bearing	Vertical Angle	Staff readings		
				Bottom	Centre	Top
A	P	140°	+ 10 ° 45'	1.35	1.92	2.49
A	Q	230 °	+5 ° 30'	1.08	1.90	2.72

13. a. Derive an expression for the four positions of satellite station reduction to the centre.

(16)

(or)

- b. Determine the most probable values of the angles A, B and C of a triangle ABC from the following observed angles and the respective probable errors of measurements.

Note: weight of the observation is proportional to the square of the probable error.

$$\text{Angle A} = 64^\circ 12' 40'' \pm 3''$$

$$\text{Angle B} = 55^\circ 14' 23'' \pm 2''$$

$$\text{Angle C} = 64^\circ 33' 21'' \pm 4''$$

14. a. Explain difference celestial co-ordinate systems used in Astronomy. What is the need for different co-ordinate systems.

(16)

(or)

- b. Explain the parameters of astronomical triangle. Mention the corrections applied to the measured altitude of the heavenly body.

15. a. Define THREE POINT problem. What are the different methods of solving it?

(16)

(or)

- b. How do you measure the discharge of a large river like Cauvery?