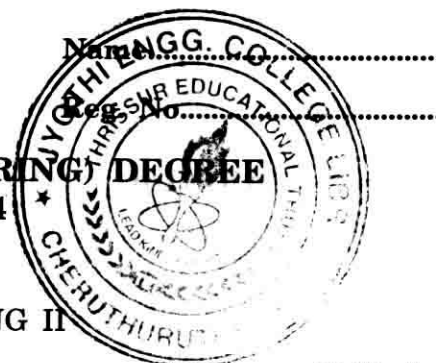C 61572 (Pages : 2)

FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, APRIL 2014

(2009 Scheme)

CE 09 406/PTCE 09 405—SURVEYING II

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. Distinguish between fixed hair and movable hair method of tacheometry.

2. Why are soundings required in hydrographic surveying ?

3. List the various corrections to be applied to a measured base line.

4. Differentiate between Sidereal time and Standard time.

5. List out different types of electronic distance measuring instruments.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. Describe the procedure to determine the constants of a tacheometer in the field.

7. Explain how a sounding point can be located by means of a range and one angle from the boat.

8. Explain the base line measurements using rigid bars.

9. Explain the approximate method of adjustment of geodetic quadrilateral.

10. Establish the relationship between right ascension and hour angle.

11. Briefly explain phototheodolite.

(4 × 5 = 20 marks)

Part C

Answer all questions.

12. (a) For determining the multiplying constant of a tacheometer, the following observations were taken on a staff held truly vertical at distance measured from the instrument :—

Observations		Horizontal distance in metres	Vertical angle	Staff intercept in metres
1	...	40	+ 2°36'	0.400
2	...	80	+ 1°12'	0.795
3	...	120	+ 0°30'	1.200

Turn over

The focal length of the object glass is 20 cm and the distance from the object glass to trunnion axis is 10 cm. Calculate the multiplying constant.

Or

(b) The following observations were made on three stations A, B and C from a station 'P'. Station 'P' and 'B' being on the same side of line AC. ∠APB = 36° 40', ∠BPC = 45° 48', ∠ABC = 135° 20'.

AB = 3013 m and BC = 3357 m . Determine the length PA, PB and PC in order to fix the position of the boat which is used in the sounding operation.

13. (a) The following are the direct measurement of a base line :—

3678.32 m, 3678.38 m, 3678.00 m ,3678.29 m, 3678.26 m and 3678.98 m. Find the most probable value of the length of the base line and its probable error.

Or

(b) Directions are observed from a satellite station 'S', 250 m from station 'C' with the following results ∠A = 0° 0' 0" , ∠B =71° 54' 32" , ∠ C = 296° 12' 02 ". The approximate length of AC and BC are respectively 27036 m and 35642 m . Calculate the angle ACB.

14. (a) Calculate the sun's hour angle and sun's azimuth at sunrise at a place in latitude 42° N when its declination is 24° N.

Or

(b) Explain various systems of Co-ordinates adopted in astronomical surveying.

15. (a) Explain analytical method of ground photogrammetry.

Or

(b) Find the elevation of the top of the chimney from the following data :—

Instrument station		Reading on BM	Angle of elevation	Remarks
A	...	0.862	18° 36'	RL of BM = 421.380 m and
B	...	1.222	10° 12'	distance AB = 50 m

Stations A and B and the top of chimney are in the same vertical plane.

(4 × 10 = 40 marks)