

C 40940

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Name.....

Reg. No.....

**FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
APRIL 2013**

CE 09 406/PT CE 09 405—SURVEYING II
(2009 Scheme)
[Regular/Supplementary/Improvement]

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. Distinguish between stadia method and tangential method of tacheometry.
2. List out the equipments needed for sounding in hydrographic surveying.
3. Define probable error and most probable value.
4. List out the methods for the determination of latitude and longitude of a place.
5. List out various input data to be given for distance measurement with total station.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. Explain the use of anallatic lens in an external focussing telescope used in tachemetry.
7. What are the advantages of echo-sounding machines over the conventional methods of lead line and rod ?
8. Explain the methods of marking a triangulation station on the ground.
9. State the equation of conditions that must be satisfied in the adjustment of a geodetic quadrilateral.
10. Establish the relationship between altitude of pole and latitude of observer.
11. Explain the field of ground photogrammetric surveying.

(4 × 5 = 20 marks)

Part C

Answer all questions.

12. (a) To determine elevation of 'A' the following observations were made in a tacheometric survey, the staff held vertically. The constant of the instrument was 100 and was fitted with an anallatic lens.

Turn over

Instrument station at	Height of instrument	Staff station	Vertical angle	Staff readings			Remarks
				Bottom	Centre	Top	
O	1.440	BM	-5° 40'	1.332	1.896	2.460	RL of BM = 158.025
O	1.440	CP	+8° 20'	0.780	1.263	1.746	
A	1.380	Cp	-6° 24'	1.158	1.617	2.076	

Calculate the reduced level of 'A'.

Or

- (b) A, B and C are three points in a hydrographical survey and all the three points are charted and visible. Angles APB and BPC are observed with a sextant from a sounding boat at 'P'. Describe how you would plot the point 'P' in the survey by analytical method.
13. (a) 'A' is a station of triangulation survey to which observations have been made from a neighbouring station. 'A' cannot be used as an instrument station. The theodolite is placed at 'S' near 'A'. Show how the angles observed from 'S' may be adjusted to give the value that have been obtained at 'A'

Or

- (b) the observations closing the horizon at a station are :

A = 24° 22' 18.2" weight 1

B = 30° 12' 24.4" weight 2

A + B = 102° 26' 9" weight 3

C = 305° 35' 13.9" weight 2

B + C = 335° 37' 38" weight 3

Find the most probable values of the angles A, B and C.

14. (a) A zenith pair of observations of stars crossing the meridian was made as follows :

No	Stars	Declination	Altitude
1	X ₁	15° 15' 17" N	62° 15' 20" S
2	X ₂	70° 43' 31" N	62° 17' 30" N

Determine the latitude of the place.

Or

- (b) In a country the standard meridian is $82^{\circ} 30' E$. If the standard time at any instant is 8 h 30 m 40 s, calculate the local mean time for the two places having longitudes $18^{\circ} W$ and $86^{\circ} 30' E$.
15. (a) Briefly explain interpretation of air photographs.
- Or*
- (b) A theodolite was set up at a distance of 200 m from a tower. The angle of elevation to the top of the parapet was $8^{\circ} 18'$ while the angle of depression to the foot of the wall was $2^{\circ} 24'$. The staff reading on the BM having RL 248.362 with the telescope horizontal was 1.286 m. Find the height of tower and RL of the top of the parapet.

(4 × 10 = 40 marks)

