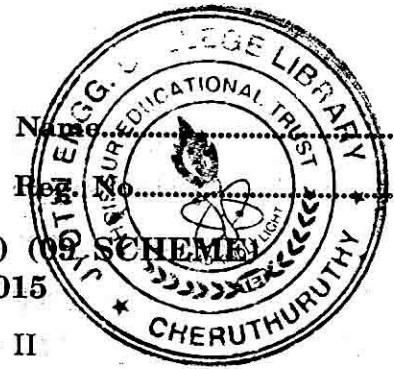


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**FOURTH SEMESTER B.TECH. (ENGINEERING) (CE SCHEME)  
DEGREE EXAMINATION, APRIL 2015**

CE 09 406/PTCE 09 405—SURVEYING - II

Time : Three Hours

Maximum : 70 Marks

**Part A**

*Answer all questions.*

1. Explain the principle of sub tense bar.
2. What is the principle of shore line survey ?
3. What are the requirements of a site selected for a base line in triangulation survey ?
4. Differentiate between celestial horizon and sensible horizon.
5. List out the applications of photogrammetry.

(5 × 2 = 10 marks)

**Part B**

*Answer any four questions.*

6. With usual notations, explain tangential method of tacheometry when both angles are angles of elevation.
7. List out the different methods of location of soundings.
8. What are the different classification of triangulation systems ? Which is the most accurate and why ?
9. Explain laws of weight.
10. Explain the principle of ground photogrammetry.
11. A ship from latitude  $8^{\circ}25'$  sails south for 600 nautical miles. What will be the latitude of ship then ?

(4 × 5 = 20 marks)

**Part C**

*Answer all questions.*

12. (a) 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

Instrument station at	Staff at	Bearing	Vertical angle	Staff readings			
				Bottom	Centre	Top	
A	...	P	$140^{\circ}$	$+10^{\circ} 45'$	1.35	1.92	2.490
	...	Q	$230^{\circ}$	$+5^{\circ} 30'$	1.08	1.90	2.072

Or

Turn over

(b) The following observations were made on three stations P, Q and R from a station 'O'. Station 'O' and 'Q' being on the opposite side of PR.  $\angle POQ = 39^\circ 12' 20''$ ,  $\angle QOR = 50^\circ 40' 50''$ .

$PQ = 3320$  m,  $QR = 3720$  m and  $\angle PQR = 50^\circ 20' 30''$ . Determine the length OP, OQ and OR.

13. (a) The following observations are taken at a station 'O' :—

$$\angle AOB = 87^\circ 34' 22'' \quad \text{weight 2}$$

$$\angle BOC = 98^\circ 42' 18'' \quad \text{weight 3}$$

$$\angle COD = 102^\circ 26' 9'' \quad \text{weight 4}$$

$$\angle DOA = 71^\circ 17' 4'' \quad \text{weight 1}$$

Find the probable values of the angles.

Or

(b) Elevation of two stations P and Q, 120 Km apart are 210 m and 1050 m above mean sea level. The elevation of two peaks A and B on profile between them are 320 m and 557 m.  $PA = 50$  Km,  $PB = 80$  Km. Find whether P and Q are inter visible and if necessary find minimum height of scaffolding at Q, assuming P as ground station.

14. (a) Determine azimuth and altitude of a star from the following data :—

$$\text{Declination of star} = 29^\circ 30' \text{ N}$$

$$\text{Hour angle of star} = 42^\circ 6' \text{ N}$$

$$\text{Latitude of observer} = 50^\circ \text{ N}$$

Or

(b) What is the importance of time in field astronomy? Explain the four systems used for measuring time.

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

Or

(b) Briefly explain the fundamental quantities measured by total station. How they can be used to find the level and co-ordinates of observed station?

(4 × 10 = 40 marks)