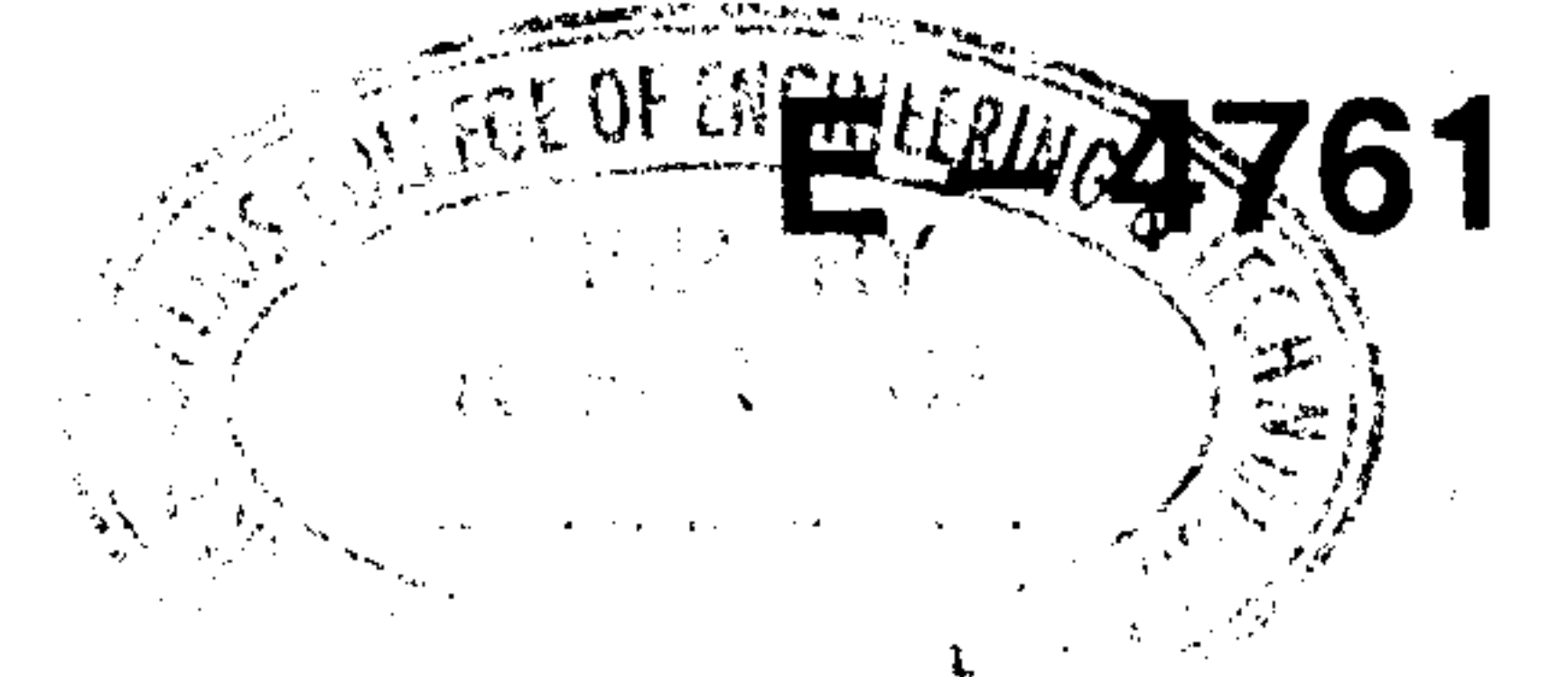




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Reg. No. :

Name :

**Fourth Semester B.Tech. Degree Examination, September 2018
(2008 Scheme)
08.405 : SURVEYING – II (C)**

Time : 3 Hours

Max. Marks : 100

PART – A

I. Answer all questions. (8×5=40 Marks)

1. What is satellite station and phase angle ?
2. Explain the laws of accidental errors and most probable error.
3. What is meant by shift of a curve ? What are the difficulties to set out a curve ?
4. Differentiate celestial horizon and visible horizon.
5. Classify the different coordinate systems of a heavenly body on the celestial sphere.
6. Explain the scale of vertical photograph.
7. Explain tilt displacement.
8. Discuss the different sources of errors for total station.

PART – B

Answer any one full question from each Module. (3×20=60 Marks)

Module – I

- II. a) Discuss the curvature and refraction correction in trigonometrically leveling. From a satellite station S, 5.8 m from main triangulation station A, the following directions were measured. $A = 0^\circ 0' 0''$; $B = 132^\circ 18' 30''$; $C = 232^\circ 24' 06''$; $D = 296^\circ 06' 11''$; $AB = 3265.5$ m; $AC = 4020.2$ m; $AD = 3086.4$ m. Predict the directions of AB, AC and AD from the above given data. 10
- b) A tape 20 m long of standard length at 29°C was used to measure a line, the mean temperature during measurement being 19°C . The measured distance was 882.10 meters, the following being the slopes : $2^\circ 20'$ for 100 m; $4^\circ 12'$ for 150 m; $1^\circ 6'$ for 50 m; $7^\circ 48'$ for 200 m; $3^\circ 00'$ for 300 m; $5^\circ 10'$ for 82.10 m; Find the true length of the line if the coefficient of expansion is 6.5×10^{-4} per degree F. 10

OR

P.T.O.



III. The following angles were observed from a centre station to the surrounding station.

A = $95^{\circ}43'22''$ weight 2

B = $76^{\circ}32'39''$ weight 3

C = $103^{\circ}13'44''$ weight 2

D = $84^{\circ}29'50''$ weight 3

In addition to the above angle (A + B) was observed separately as $172^{\circ}16'16''$ weight.

i) Solve by using method of correlates.

ii) Determine the most probable value.

20

Module – II

IV. Two tangents AB and BC intersect at a chainage of 5555 m. The intersection angle is 140° . Calculate all the necessary data required to set out a 5° simple circular curve to connect the straights by Rankines method of deflection angle. Take the peg interval as 30 m.

20

OR

V. A star was observed at western elongation at a place in latitudes $52^{\circ}20'N$ and latitude $52^{\circ}20' E$ when its clockwise horizontal angle from a survey line was $105^{\circ} 49' 55''$. Find the azimuth of the survey line and the local mean time of elongation given that the stars declination was $73^{\circ} 27' 30'' N$ and its right ascension 14h 50m 54s the GST of GMN being 5h 16m 54s.

20

Module – III

VI. a) Write short notes on :

i) Parallax Bar

ii) Mirror stereoscope.

10

b) Two ground points A and B appear on a pair of overlapping photographs which have been taken from a height of 3600 m above the mean sea level. The base line as measured on the two photographs is 89.5 mm and 90.5 mm respectively. The mean parallax bar readings for A and B are 79.32 mm and 30.82 mm. If the elevation of A above the mean sea level is 230.35 m, compute the elevation of B.

10

OR

VII. a) Write short notes on electro-magnetic distance measurement.

10

b) Define total station surveying. Describe its working principle.

10