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Reg. No. :

Name :

Fourth Semester B.Tech. Degree Examination, April/May 2012
(2008 Scheme)
Branch : Civil
08.405 : SURVEYING – II

Time : 3 Hours

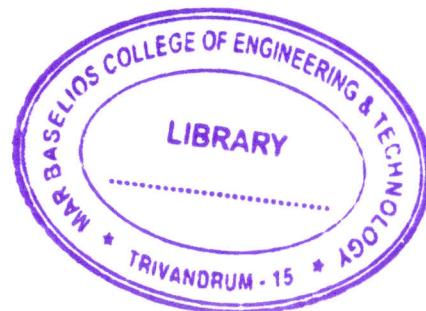
Max. Marks : 100

PART – A

Answer **all** questions :

- I. a) How are triangulation system classified ? Indicate the use of each system.
- b) Explain the term strength of figure.
- c) State any four laws of weight.
- d) List the various methods of setting out simple curve.
- e) Show that shift bisects transition curve and vice versa.
- f) Define the following terms :
 - i) Altitude
 - ii) Latitude
 - iii) Right Ascension.
- g) Distinguish between oblique photograph and tilted photograph.
- h) What are the principles of EDM instrument ?

(8x5=40 Marks)



P.T.O.



PART – B

Answer **one full** question from **each** Module.

MODULE – I

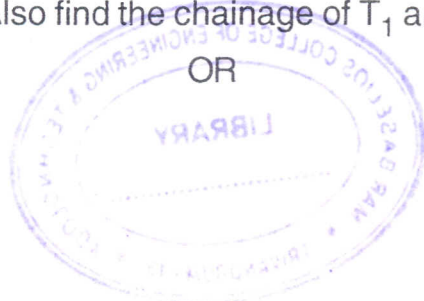
- II. a) How will you determine the intervisibility of triangulation stations ? 8
- b) Two triangulation stations A and B are 40 km apart and have elevations of 178 m and 175 m respectively. Find the minimum height of signal required at B so that the line of sight may not pass nearer the ground than 3 meters. The intervening ground may be assumed to have a uniform elevation of 150 metres. 12

OR

- c) State the rule of 'least squares'. Explain how this rule could be applied to determine the most probable value of a quantity. 8
- d) Find the most probable value of the following angles closing the horizon :
- A = $122^{\circ}05'58.9''$ weight 2
- B = $86^{\circ}45'16.4''$ weight 1
- C = $72^{\circ}50'31.2''$ weight 3
- D = $78^{\circ}18'16.6''$ weight 1 12

MODULE – II

- III. a) Explain clearly why transition curves are provided at the ends of a circular curve. What are the conditions to be fulfilled ? 8
- b) Two straights AV and BV intersect at chainage of 1252 m. They are intercepted by a line MN 150 m long such that $\angle AMN = 157^{\circ}54'$ and $\angle MNB = 160^{\circ}48'$. Find the radius of the simple curve which is tangential to AV, MN and BV. Also find the chainage of T_1 and T_2 . 12





- c) Explain the various systems of co-ordinates employed to locate the position of a celestial body. 8
- d) The altitude of a star at the upper culmination is $72^{\circ}30'$ and that at lower culmination is $20^{\circ}30'$. Both the culminations being to the north side of the zenith of the place. Determine the declination and the latitude of the observer. 12

MODULE – III

- IV. a) Derive an expression for scale of vertical photograph. Explain how the ground co-ordinates and the distances can be obtained from a vertical photograph. 10
- b) Two points A and B having elevations of 650 m and 250 m respectively above datum, appear on a vertical photograph obtained with a camera of focal length 250 mm and flying altitude of 2700 m above datum. Their correlated photographic co-ordinates are as follows :

Point	Photographic (x) cm	Co-ordinates (y) cm
a	+ 3.65	+ 2.54
b	- 2.25	+ 5.59

Determine the length of the ground line AB. 10

OR

- c) Explain briefly the measurement of distance with EDM instruments. What are the advantages of EDM measurements ? 10
- d) Briefly explain the fundamental quantities measured by total station. How they can be used to find the level and coordinates of observed station ? 10

