(Pages : 3) **A – 4170**

Reg. No. : .....

Name : .....

Fourth Semester B.Tech. Degree Examination, June 2016
(2013 Scheme)
13.405 : SURVEYING – II (C)

Time : 3 Hours Max. Marks : 100

Instruction : *Answer* ***all*** *questions from Part – **A** and* ***one full*** *question from* ***each*** *Module in Part – **B**.*

PART – A

I. a) What are the requirements for the selection of site for base line ?

b) How are curves classified ?

c) What is the principle of an EDM ?

d) Differentiate between a vertical, tilted and oblique photograph.

e) What are the applications of remote sensing ? **(5×4=20 Marks)**

PART – B

Module – I

II. a) Enumerate the operations involved in triangulation survey. 8

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 = 54° 34′ 48″. 6	weight 3
C = 305° 25′ 13″. 9	weight 2
B + C = 335° 37′ 38″. 0	weight 3

Find the most probable values of the angles A, B and C. 12

OR

III. a) Define :
   i) True error
   ii) Most probable error
   iii) Residual error
   iv) Weight of an observation. 8

   b) From a satellite station S, 24.24 m from C, the following angles were measured to three stations A, B and C. The stations B and S being on opposite sides of AC. $\angle$ ASB = 62° 32′ 40″ and $\angle$ ASC = 78° 24′ 30″. The approximate lengths of AC and BC were 4705.5 m and 5695.8 m respectively. Find angle ACB. 12

Module – II

IV. a) Explain briefly the methods for balancing the traverse. 8

   b) Two tangents intersect at a chainage of 1190 m, the deflection angle being 36°. Compute all the data necessary to set out a curve of radius 300 m by deflection angle method. The peg interval is 30 m. 12

OR

V. a) Show that the transition curve bisects the shift. 8

   b) The following are the particulars of a traverse : 12

Line	Length (m)	Bearing
AB	145.8	342° 24'
BC	517.2	14° 35'
CD	315.9	137° 20'

Calculate the length and bearing of the closing line DA and the angle CDA.

Module – III

VI. a) What is modulation and what are the methods of modulation ? 8

   b) What is GPS ? Explain in detail the components of GPS. 12

OR

VII. a) What are the steps involved in conducting a survey using total station ? 8

   b) Write a note on the different types of EDM instruments. 12

Module – IV

VIII. a) What are the stages involved in an idealised remote sensing system ? 8

b) The photo co-ordinates of the image p and q of two points P and Q measured on a vertical photograph taken at flying height of 1.6 km from a camera having the lens of focal length 15 cm are $x_p = -46.35$, $y_p = -48.20$, $x_q = +38.48$, $y_q = +41.62$ mm. The elevation of P and Q above the MSL are 140 m and 220 m, respectively. Determine distance PQ. 12

OR

IX. a) A tower, lying on a flat area having an average elevation of 600 m above mean sea-level, was photographed with a camera having a focal length of 22 cm. The distance between the images of top and bottom of the tower measures 0.42 cm on the photograph. A line AB, 250 m long on the ground, measures 14 cm on the same photograph. Determine the height of the tower if the distance of the image of the top of the tower is 4.5 cm from the principal point. 8

b) Explain in detail with sketches the GIS data types highlighting the application and advantages/disadvantages of each type. 12