* S E - 8 0 5 3 / 3 0 0 *

SE-8053

B. E. II (Sem. III) (Civil) Examination

May / June – 2011

Surveying - I

(New Course)

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. 2 (Sem. 3) (Civil)**

Name of the Subject :

☛ **Surveying - 1 (NEW)**

☛ Subject Code No. : **8 0 5 3** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Figures to the right indicate full marks.

(3) Assume suitable data if required and mention it clearly.

(4) Draw neat and labelled sketch wherever required.

(5) Use of non-programmable calculator is permitted.

1 Write short notes on any two : **10**

(a) Soundings in hydrographic survey

(b) Methods of plane table surveying

(c) Permanent adjustments of theodolite.

2 (a) What are the checks in theodolite traversing in case of : **10**

(i) Closed traverse

(ii) Open traverse

(b) Compare plane table survey with **10**

(i) Chain survey

(ii) Theodolite survey

OR

(b) What is trial and error method or Lehmaan's method of plane tabling ?

3 (a) What is hydrographic survey ? What are its uses ? **10**

OR

(a) How soundings are carried out ? What are the equipments needed for sounding ? **10**

(b) Coordinates of two points A & B are given below. **10**
A third point C has been chosen in such a way that bearings of AC and CB are 28°15' and 46°30' respectively. Calculate the length of the line AC and CB.

Point	*Northing*	*Easting*
A	150	200
B	1500	1300

SECTION - II

4 Explain in brief : (any **three**) **6**

(i) Multiplier constant for planimeter
(ii) Axis-signal correction
(iii) Trapezoidal Rule
(iv) Degree of curve

5 Solve any **four** : **24**

(i) The following perpendicular offsets were taken from a chain line to a hedge :

Chainage (m)	0	15	30	45	60	70	80	100	120	140
Offsets (m)	7.6	8.5	10.7	12.8	10.6	9.5	8.3	7.9	6.4	4.4

Calculate the area between the survey line, the hedge and the end offsets by (a) Trapezoidal Rule (b) Simpson's Rule.

(ii) The following observations were made with a planimeter.
AreaI.R. F.R.N

Area	I. R.	F. R.	N
(1) Known area of 60 sq. inches	2.326	8.286	0
(2) Unknown area	8.286	5.220	+1

The anchor point was placed outside the figure in both the cases with the same setting of the tracing arm. Calculate :

(i) The multiplier constant
(ii) The unknown area

(iii) An embankment of width 10 m and side slopes 1 1/2 : 1 is required to be made on a ground which is levelled in a direction transverse to the centre line. The central heights at 40 m intervals are as follows :

0.90, 1.25, 2.15, 2.50, 1.85, 1.35, and 0.85.

Calculate the volume of earthwork according to

(a) the trapezoidal formula and

(b) The prismoidal formula

(iv) Two tangents AB & BC intersect at a point B at Chainage 150.5 m. Calculate all the necessary data for setting out a circular curve of radius 100m and deflection angle 30° by the method of offsets from the long chord.

(v) If the distance between two stations is 980 m find the linear and angular corrections for curvature, refraction and the combined correction. R sin 1 " = 30.91.

6 Attempt any **four** : **20**

(i) Discuss the types of level section with neat sketch.

(ii) Show that the curvature correction in angular measure is half the central angle.

(iii) What is zero circle ? Derive the formula for determining area of the zero circle.

(iv) Write short note on : setting out of a building foundation.

(v) Write short note on : "Vertical Curves".
