312339

12425

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

Marks

1. Attempt any FIVE of the following : **10**

(a) List four classification of surveying based on instruments used.

(b) State the relation between fore and back bearing of a line with a neat sketch.

(c) State the fundamental axes of theodolite.

(d) Define plane survey and geodetic survey.

(e) State the advantages of auto level.

(f) Enlist the methods of plane tabling.

(g) State the principle of plane table surveying.

2. Attempt any THREE of the following : **12**

(a) Explain in detail the classification of survey.

(b) Interpret any four codes of signals used to direct assistant in ranging.

(c) State the formulae for conversion of reduced bearing to whole circle bearing in all four quadrants.

(d) Explain in detail the procedure to measure deflection angle by transit theodolite.

3. Attempt any THREE of the following : **12**

(a) Explain local attraction and state the causes of it.

(b) State the errors that will be eliminated by repetition method.

(c) Find the length and bearing of line PQ. The coordinates of two points P and Q are given as :

Point	Coordinates
P	975.50, 830.20
Q	1189.70, 579.30

(d) Write the merits and demerits of plane table survey.

4. Attempt any THREE of the following : **12**

(a) Explain in brief radiation method of plane tabling. State its advantages over other methods.

(b) Explain theodolite traversing by included angle method.

(c) Explain the temporary adjustments of dumply level.

(d) Compare collimation plane method and rise and fall method.

(e) Explain differential levelling with a neat labelled sketch.

5. Attempt any TWO of the following : **12**

(a) Following bearing were observed for the traverse ABCDEA. Detect the local attraction at the stations and correct the bearing of remaining lines. Also calculate included angles.

Line	Fore Bearing	Back Bearing
AB	68° 15'	248° 15'
BC	148° 45'	326° 15'
CD	224° 30'	46° 00'
DE	217° 15'	38° 15'
EA	327° 45'	147° 45'

(b) Explain Latitude, Departure, Consecutive Co-ordinate and independent co-ordinate.

(c) The following consecutive readings were taken with a auto level and a 4 m levelling staff on continuously slopping ground at a common interval of 30 m. 0.585 on A, 0.936, 1.953, 2.846, 3.644, 3.938, 0.962, 1.035, 1.689, 2.534, 3.844, 0.956, 1.976, 3.016 on B. The elevation of A was 520.450 m. Prepare a page of level book and apply the usual checks. Use collimation plane method.

6. Attempt any TWO of the following : **12**

(a) State the temporary adjustment of theodolite.

(b) Sketch the contour for :

(i) Hill

(ii) Valley

(iii) Ridge Line

(iv) Saddle

(v) Vertical Cliff

(vi) Overhanging Cliff

(c) Points P and Q are two ground points at a distance of 10 m, with their reduced levels 45.490 and 48.430 m respectively. Interpolate the contours 46, 47 and 48 m between points P and Q.
