17451

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.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1.   **Attempt any <u>TEN</u> of the following:**   **20**

a) Define :

   i)   True Meridian

   ii) Magnetic Meridian

b) What do you mean by magnetic declination?

c) What do you mean by base line?

d) State types of measuring tapes.

e) State purpose of surveying.

f) Define principle of surveying.

g) Draw contours for a hill and a vally.

h) State any two uses of counter maps.

P.T.O.

    i) List any four accessories used for plane table survey.

    j) State important advantage of total station.

    k) State any two advantages of digital planimeter.

    l) Draw conventional signs for Bridge and Railway.

    m) What do you mean by plane of collimation?

    n) What do you mean by TBM and GTS?

2.   **Attempt any <u>TWO</u> of the following:**   **16**

    a) i) Classify surveying. Also state purpose of each type of survey.

        ii) State any four objects of surveying.

    b) i) How chaining on slopping ground is carried out?

        ii) State any four errors in chaining. Explain how will you eliminate any one error.

    c) A chain survey was carried out from station A to station B and B to station C by using 30 m. chain.

        The chain was initially correct. Distance AB was measured and found to be 428 M. At station B chain was 50 mm too long. Distance BC was 600 M. At the end of work chain was 120 MM long. Calculate true distance AC.

3.   **Attempt any <u>TWO</u> of the following:**   **16**

    a) What do you mean by offsetting? Why it is required. Enlist equipments required for offsetting.

    b) i) Convert following bearings into reduced bearings.

            1) $540°$

            2) $172°\ 20'$

            3) $48°\ 40'$

            4) $160°\ 30'\ 20''$

    ii)   Convert following into W.C.B.

        1) N 30° W

        2) S 040° 30′ E

        3) S 60° W

        4) N 42° 30′ 22″ E

c)   What are obstacles in chaining? Explain how will you tackle any one obstacle in chaining?

4.   **Attempt any <u>TWO</u> of the following:**   **16**

a)   What do you mean by local attraction? How will you eliminate local attraction? Carefully observe following readings and correct the bearings by locating local attraction. Which station has local attraction?

Sr.No.	Line	Fore Bearing	Back Bearing
1	AB	46° 10′	226° 10′
2	BC	119° 20′	298° 40′
3	CD	169° 30′	351° 10′
4	DA	280° 20′	99° 20′

b)   Draw a neat sketch of a dumpy level and explain axis of bubble tube, fore sight, back sight, change point.

c)   Followings readings are taken from a dumpy level on a continuously sloping ground. Draw a page of fild book and enter the readings. Take arithmetic checks and calculate reduced levels Readings - 0.600, 1.100, 1.450, 1.900, 2.380, 2.900, 3.200, 1.200, 1.600. First reading is on B.M. 200 M. instrument is shifted after seventh reading.

5. **Attempt any <u>TWO</u> of the following:** **16**

   a)   i)   Explain temporary adjustments of a dumpy level.

       ii)   State any four sources of errors in levelling work.

   b) Draw a page of field book and enter the readings. Calculate reduced levels by rise and fall method. Take usual checks. First reading is on B.M. 240.50 Mtrs.

      Readings 1.350, 1.840, 1.640, 1.200, 2.100, 1.680, 2.000, 2.400 Instrument was shifted for GP after third reading.

   c)   i)   State characteristics of contour lines.

       ii)   Explain how will you interpolate contours.

6. **Attempt any <u>FOUR</u> of the following:** **16**

   a) What is Bowditch rule? Where it is used?

   b) How will you do orientation of a plane table?

   c) State methods of plane table surveying? Which method is suitable in plane table survey for farm lands.

   d) State advantages and limitations of plane table surveying.

   e) Write any four merits and demerits of plane table surveying.

   f) Calculate area of a figure measured by a planimeter. The readings are

IR	FR	Position of Anchor point	Remarks
7.225	3.125	Out side the figure	The zero of disc passed once

    The tracing arm being so set to give 100 sq. cm.

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3 Hours / 100 Marks