

17310

11819

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. (A) Attempt any SIX :

12

- (a) State the principles of surveying.
- (b) Define plane and geodetic survey.
- (c) Enlist the different instrument used for linear measurement.
- (d) State the principle of compass survey.
- (e) Define : (i) open traverse (ii) closed traverse
- (f) Enlist the accessories used in plane tabling.
- (g) State the objectives of levelling.
- (h) Define : (i) Datum (ii) Change point

(B) Attempt any TWO :

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- (a) Draw conventional symbols for
 - (i) Embankment
 - (ii) Cutting
 - (iii) Single railway line
 - (iv) Marshy land

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P.T.O.

- (b) State the classification of survey based on :
 - (i) the nature of the field of survey
 - (ii) the object of survey
- (c) Define ranging. State any four codes of signals in ranging.

2. Attempt any FOUR :**16**

- (a) Explain procedure of chaining on sloping ground.
- (b) Explain the procedure of indirect ranging.
- (c) Length of a survey line measured with 30 m chain was found to be 1230 m. When the chain was compare with a standard chain, it was found to be 0.35 m too short. Find correct length of the line.
- (d) Define : (i) Survey line (ii) Base line (iii) Check line (iv) Tie line
- (e) Explain principle of optical square with neat sketch.
- (f) Explain the types of offset with neat sketch.

3. Attempt any FOUR :**16**

- (a) Suggest the method to overcome an obstacle in chaining, where vision is clear but chaining obstructed.
- (b) Draw labelled sketch of prismatic compass.
- (c) Explain the term 'magnetic declination'.
- (d) Convert following whole circle bearing into R.B.
 - (i) $330^{\circ} 30'$ (ii) $45^{\circ} 0'$ (iii) $149^{\circ} 30'$ (iv) $227^{\circ} 30'$
- (e) Explain fore bearing & back bearing & their relationship with sketch.
- (f) The fore bearing of line AB is $111^{\circ} 30'$ and angle ABC is $105^{\circ} 15'$. Find bearing of line BC.

4. Attempt any FOUR :

16

- (a) Calculate the interior angles of closed traverse ABCD with the help of bearing.

Line	AB	BC	CD	DA
Bearing	N 45° 10' E	S 60° 40' E	S 9° 50' W	N 80° 40' W

- (b) Explain the magnetic meridian method of orientation of plane table.
- (c) State two merits and two demerits of plane table survey.
- (d) Explain the intersection method of plane table survey with neat sketch.
- (e) Explain the error in plane table survey.
- (f) Differentiate between H.I. method and rise and fall method on any four points.

5. Attempt any FOUR :

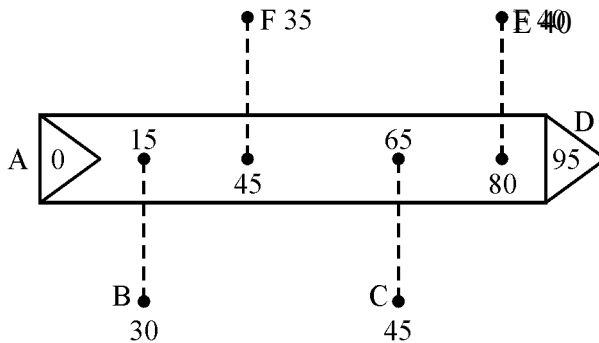
16

- (a) State the fundamental lines of dumpy level and give their relationship when the instrument is in perfect adjustment.
- (b) State methods of levelling. Explain fly levelling and check levelling.
- (c) State the advantages of auto level over dumpy level.
- (d) Explain the various sources of errors occurring during the process of levelling.
- (e) Explain the purpose of taking change point in levelling operation.
- (f) Find the height of roof ceiling from floor, if RL of floor is 100.00 m and inverted staff reading at roof ceiling is 3.950 m.

P.T.O.

6. Attempt any TWO :

(a) Find the area of the field done by cross staff survey.



(b) Find corrected F.B and B.B. of traverse ABCD.

Line	F.B.	B.B.
AB	46° 30'	225° 30'
BC	118° 0'	298° 0'
CD	168° 30'	347° 30'
DA	292° 0'	110° 30'

(c) Calculate the reduce level by H.I. method on continuous sloping ground with 4 m levelling staff at common interval of 15 m, 0.905, 1.625, 1.975, 3.050, 0.565, 1.945, 2.855, 3.250, 0.855, 1.015, 2.755. The reduce level of first point is 100 m. Make the entries in a level book and apply usual check.
