24225

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) Define the term surveying.

(b) State the classification of survey based on object of survey.

(c) Define face left & face right.

(d) Define Base line and Tie line.

(e) Enlist the methods of plane table survey.

(f) Define contour interval.

(g) State the principle of plane table surveying.

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

(a) State the principles of surveying.

(b) Explain indirect ranging with neat sketch.

(c) Explain whole circle bearing & quadrantal bearing.

(d) Convert the following bearings into relevant bearings :

(i) N 42° 0' E (ii) 315° 30'

(iii) S 17° 25' W (iv) 125° 15'

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

(a) State fundamental axis and lines of theodolite and give relations between them.

(b) Describe the procedure for measurement of horizontal angle by repetition method.

(c) Find the length and bearing of CD. The co-ordinates of two points C and D are given as :

Point	Co-ordinates	
C	982.5	825.2
D	1198.6	576.4

(d) Explain intersection method of plane table surveying with neat sketch.

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

(a) State accessories required for plane table survey along with their use.

(b) Describe measurement of magnetic bearing of line with theodolite.

(c) Explain the temporary adjustment of dumpy level.

(d) A level on 4 m staff continuously sloping ground at common interval at 30 m.

0.760, 1.515, 1.935, 2.400, 2.985, 3.650,

1.015, 1.855, 2.495, 3,570, 0.870, 1.085,

1.790, 2.450

RL of first point is 150.00 m.

Calculate RL of all points by HI method & apply usual check.

(e) Differentiate between height of instrument and rise and fall method with respect to any four point.

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

(a) The following bearing were taken in a closed compass traverse survey. Determine the correct bearing. Find station affected by local attraction.

Line	F.B.	B.B.
AB	48° 25'	230° 0'
BC	177° 45'	356° 0'
CD	104° 15'	284° 55'
DE	165° 15'	345° 15'
EA	259° 30'	79° 0'

(b) Following consecutive readings were taken with level :
3.875, 2.100, 2.635, 1.895, 2.410, 0.540, 3.185, 2.155, 1.970, 2.675. The first reading was taken on BM of 575.000 M. The level was shifted after fourth and eighth reading. Rule out page of level field book. Using rise and fall method, calculate reduced levels of all station. Apply check.

(c) Calculate consecutive co-ordinates of following traverse :

Line	Length (m)	WCB
AB	162	120° 30'
BC	142	17° 30'
CD	201	220° 30'
DA	120	333° 20'

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

(a) A traverse survey was conducted and following data is received. Find missing length and bearing of line DA.

Line	Length (m)	Bearings
AB	155.80	78° 30'
BC	175.00	155° 35'
CD	238.50	248° 42'
DA	?	?

(b) Explain the six characteristics of contour with suitable sketch.

(c) Explain direct method of locating contour with neat sketch.