17310

16172

3 Hours / 100 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. (A) Attempt any SIX of the following : **12**

(a) State the principles of surveying.

(b) Differentiate between 'Plain Survey' and 'Geodetic Survey'.

(c) Define 'Fore Bearing and Back Bearing' of line with neat sketch.

(d) State situations under which chain survey is more suitable.

(e) Enlist various types of Bench marks.

(f) State importance of change point in levelling.

(g) State use of Alidade in Plane table surveying.

(h) What is Level surface and Datum surface ?

(B) Attempt any TWO of the following : **8**

(a) Draw conventional symbols for the following :

(i) Road over Bridge, (ii) Cutting, (iii) Marshy land, (iv) Pond

(b) Explain code of signals in Ranging.

(c) Explain Indirect Ranging with neat sketch.

2. Attempt any FOUR of the following : **16**

(a) State the different points to be considered in selection of survey stations for a closed traverse.

(b) The length of a survey line measured with a 20 m chain was found to be 2500 m. The same length was again measured with a 30 m chain and found to be 2492 m. If the 20 m chain was found to be 5 cm too short, what was error in 30 m chain ?

(c) How do you overcome the obstacle when chaining across a river ? Explain with neat sketch.

(d) Explain principle of chain surveying.

(e) Write the use of following survey instruments :

(i) Ranging Rod (ii) Pegs

(iii) Cross staff (iv) Plumb bob

(f) Draw a labelled sketch of 30 mtr. metric chain.

3. Attempt any FOUR of the following : **16**

(a) Draw a neat labelled sketch of a prismatic compass.

(b) Convert the following whole circle bearings to quadrantal bearing : (i) 165° 30′ (ii) 72° 15′ (iii) 323° 45′ (iv) 218° 30′

(c) Explain with reasons

(i) The zero is marked at south end in prismatic compass.

(ii) Prism is provided in prismatic compass.

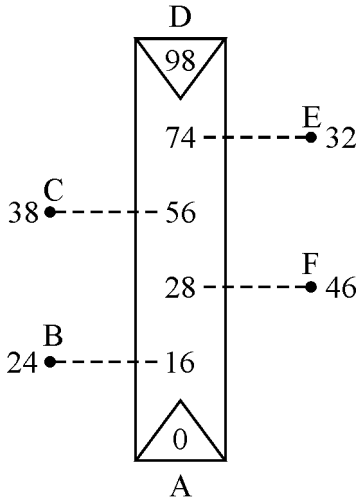
(d) Following are the bearings observed in a closed traverse survey with a prismatic compass at a place where local attraction was suspected :

Line	FB	BB
PQ	285°30′	105°30′
QR	32°00′	210°00′
RS	149°00′	331°30′
SP	198°30′	18°00′

Find the stations affected by local attraction and find the corrected bearings of lines.

(e) Describe with neat sketch (i) Base line (ii) Check line (iii) Tie line (iv) Tie station.

(f) Plot the following cross staff survey of a field and calculate area :



4. Attempt any FOUR of the following : **16**

(a) Following are bearing of lines of a closed traverse ABCD :

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

Calculate the interior angles of traverse.

(b) Differentiate between simple levelling and differential levelling with neat sketch.

(c) Explain orientation of Plane Table by Back-sighting method.

(d) Explain fly levelling with neat sketch. State situation under which fly levelling is needed.

(e) Explain procedure for chain and compass Traversing.

(f) State merits and demerits of plane table surveying.

5. Attempt any TWO of the following : **16**

(a) Following consecutive readings were taken with dumpy level and a 4 m levelling staff on a continuously sloping ground at interval of 30 m. 0.965, 1.100, 1.245, 1.680, 2.100, 2.345, 0.860, 1.005, 1.380, 1.965, 2.450, 2.800, 1.135, 1.785, 2.965, 3.450, RL of first point was 275.50 m. Calculate R.L. of points by H.I. method & apply arithmetic checks.

(b) Calculate the missing readings marked 'X'.

Stn.	B.S	I.S	F.S	Rise	Fall	R.L	Remark
A	X					275.00	BM
B	1.060		1.975		1.500	X	CP_1
C		1.550					
D		X				272.44 D	
E	2.380		1.785				CP_2
F	1.325		0.895			X	CP_3
G			X		0.500	X	L.P

Find missing readings marked 'X'. Calculate R.Ls of all points and apply usual checks.

(c) Explain 'Intersection Method' of plane table surveying with neat sketch. Also give situation when intersection method is used.

6. Attempt any FOUR of the following : **16**

(a) State sources of error in levelling.

(b) Compare Rise & Fall method and H.I. method.

(c) Explain Graphical adjustment of closing error in a closed traverse.

(d) Explain the procedure for profile levelling with neat sketch.

(e) State advantages of Auto-level over dumpy level.

(f) Explain 'Declination of Magnetic needle' and types of declination.
