QP Code : 5244

(3 Hours) [Total Marks : 80

N. B. : (1) Question No. 1 is **compulsory**.
(2) Attempt any **three** question out of remaining questions.
(3) Illustrate answers with neat sketches wherever required.
(4) Attempt sub-question in order.
(5) Assume any suitable data if required and state the same clearly.

1. Attempt any **four** :— 20
   (a) Explain the principle of surveying.
   (b) Differentiate between surveyors and prismatic compass.
   (c) Explain temporary adjustments of dumpy level.
   (d) Enlist the advantages and disadvantages of plane table surveying.
   (e) Proceudre for direct measurement of horizontal angle using theodolite.

2. (a) What is bearing of a line? Explain different types of bearings. 4
   (b) Explain the methods of adjusting and testing the chain. 8
   (c) The following bearings was taken while conducting a close traverse with 8
   a compass in a place there local attraction was suspected. At what
   stations do you suspect local attraction? Find the corrected bearings
   for local attraction and for declination of 1°30' w

Line	FB	BB
AB	80°45'	260°00'
BC	130°30'	311°35'
CD	240°15'	60°15'
DA	290°30'	110°10'

3. (a) Explain Differential levelling & reciprocal levelling. 10
   (b) The following consecutive readings were taken with a level and 4.0 m 10
   staff on a continuously sloping ground at a common interval of 30 mt
   0.780, 1.535, 1.955, 2.430, 2.985, 3.480, 1.155, 1.960, 2.365, 3.640,
   0.935, 1.045, 1.630, and 2.545.
   The RL of first point A was 180.75 m. Rule out a page of level book
   & enter above readings. Calculate the RL of all the points by Rise &
   Fall method. Also calculate the gradient of the line joining the first &
   last point.

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4. (a) What is contour? Explain the different characteristics of contour also explain different methods of interpolating contous along with suitability of each one of them. **7**

(b) The length of tracing arm of a planimeter is 15.92 cm. The distance from the hinge to the ancher point is 16.0 cm. The diameter of the rim of the wheel is 2 cm. The wheel is placed outside at a distance of 3.0 cm from the hinge. Claculate area corresponding to revolution of the wheel and the area of zero circle. **7**

(c) The following perpendicular offsets were taken from a chain line to an irregular boundary. Calculte the area using trapezoidal and simpsons rule. **6**

Chainage (m)	0	30	60	90	120	150	180	210
Offsets (m)	0	2.65	3.80	3.75	4.65	3.60	5.00	5.18

5. (a) In a four-sided closed travase ABCDA, the following information is given. **12**

Side	Length (mt)	Deflection angle	Bearing	Co-ordinates
AB	160	?	S40° W	?
BC	340	116(L)	?	26500 S Point B 22400 W
CD	210	60°(L)	?	
DA	?	?	?	?

Fill in the missing data.

(b) Explain is detail the procedure for solving two-point problem on field of plane table surveying. **8**

6. Explain any four :— **20**

(a) Gales table
(b) Local attraction and its eliminations
(c) Method of calculation of earthwork by spot level
(d) Errors in chaining
(e) Ranging and its methods.
(f) Measurement of deflection angle between two points using theodolite.