Marks Distribution (Chapterwise)																													
	Plane Table Surveying				Theodolite Traversing				Trigonometric Levelling				Curves				Area and Volume				Hydrographic Surveying				Setting out of works			
	T	D	N	Total	T	D	N	Total	T	D	N	Total	T	D	N	Total	T	D	N	Total	T	D	N	Total	T	D	N	Total
Nov-17	21	0	0	**21**	17	0	7	**24**	3	11	4	**18**	25	0	0	**25**	6	0	7	**13**	11	0	0	**11**	7	0	0	**7**
May-17	18	0	0	**18**	18	0	0	**18**	0	3	0	**3**	11	0	14	**25**	13	3	7	**23**	3	0	0	**3**	15	0	0	**15**
Jan-17	7	0	0	**7**	20	0	7	**27**	4	4	0	**8**	17	0	7	**24**	7	0	7	**14**	11	0	0	**11**	14	0	0	**14**
Jun-16	7	0	0	**7**	7	0	14	**21**	4	10	0	**14**	21	3	7	**31**	4	3	7	**14**	11	0	0	**11**	7	0	0	**7**
	Average			13	Average			23	Average			11	Average			26	Average			16	Average			9	Average			11
	T=Theory				D=Derivation				N=Numerical																			

Chapter-1 Plane Table surveying

Sr	Type	Question	Marks	Year
1	T	State disadvantages of plane table survey.	3	Nov-17
2	T	Enlist various methods of plane table survey. Explain two point problem and three point problem method with sketch.	7	Nov-17
3	T	Enlist various methods of plane table survey. Explain two point problem and three point problem method with sketch. (1) Alidade (2) Trough compass.	3	Nov-17
4	T	Explain process of setting up of plane table in the field.	4	Nov-17
5	T	Enumerate various sources of errors in plane table survey.	4	Nov-17
6	T	Describe briefly the uses of various accessories of a plane table.	4	May-17
7	T	Enlist different methods of plane tabling. Explain method of intersection.	7	May-17
8	T	Enlist various methods of plane tabling. Explain method of Traversing with neat sketch.	7	May-17
9	T	Explain three instruments of plane table survey with sketch.	3	Jan-17
10	T	What is orientation? Discuss the different methods of orientation of a plane table.	4	Jan-17
11	T	Explain radiation method of plane table survey.	3	Jun-16
12	T	Explain Two point problem of resection in plane table survey.	4	Jun-16

Chapter-2 Theodolite Traversing

Sr	Type	Question	Marks	Year
1	N	Due to some problems with equipment, the bearings of two sides were not taken for a closed traverse ABCDEA. Compute the missing quantities from given data. **Line / Length(m) / QB** AB — 725 — S 60° E BC — 1050 — Missing CD — 1250 — Missing DE — 950 — S 55°30' W EA — 575 — S 2° 45' W	7	Nov-17
2	N	The latitude and departures of the lines of a closed traverse are given below. Calculate the area of traverse by Co-ordinates method and Meridian distance method. **Line / Northing / Southing / Easting / Westing** AB — - — 157.2 — 154.8 — - BC — 210.4 — - — 52.5 — - CD — 175.4 — - — - — 98.3 DA — - — 228.7 — - — 109	7	Jan-17
3	N	In a closed traverse the latitudes and departures of the sides were calculated it was observed that $\Sigma L=1.42$ and $\Sigma D=-2.14$. Calculate the length and bearingand of the closing error.	7	Jun-16
4	N	A theodolite was setup at P and the angle of elevation of the top of an electric pole QR was 25˚30'. The horizontal distance between P and Q, the foot of the pole was 500m. determine the RL of the top of the pole if the staff reading held on a BM or RL 100m was 3.535m with the telescope in horizontal plane.	7	Jun-16
5	T	How reading of the vernier theodolite is taken?	3	Nov-17
6	T	What do you mean by balancing of traverse? Explain third rule in detail.	4	Nov-17
7	T	Explain repetition method of measuring horizontal angle with its observation table.	7	Nov-17
8	T	Give use of following essential parts of transit vernier theodolite. (1) Lower plate (2) Altitude bubble (3) Clamp screws.	3	Nov-17
9	T	Define (i) Latitude (ii) Departure (iii)Independent coordinates (iv) Consecutive coordinates (v) Closing error (vi) Plunging (vii) Swinging.	7	May-17
10	T	Explain the repetition method to measure horizontal angle. Illustrate with an example.	4	May-17
11	T	Explain sequential procedure of temporary adjustment of theodolite.	3	May-17
12	T	List fundamental lines of theodolite and desired relationship between	4	May-17

		them.		
13	T	What is closing error in a closed traverse? How will you find out its magnitude and direction?	7	Jan-17
14	T	List the Fundamental lines of a theodolite and explain briefly the desired relationship between these lines.	7	Jan-17
15	T	Give Classification of theodolites.	3	Jan-17
16	T	What is meant by balancing a traverse? State the various rules used to do this.	3	Jan-17
17	T	Enlist methods of theodolite traversing and explain any one of them in detail.	7	Jun-16

Chapter-3 Trigonometric Levelling				
Sr	Type	Question	Marks	Year
1	D	Derive equation for horizontal distance between instrument and base of object while base of the object is inaccessible and instrument stations and object are not in a same vertical plane.	4	Nov-17
2	D	Derive an expression for computing horizontal distance and elevation in trigonometric leveling while base of object is inaccessible and instrument stations are in same vertical plane with instrument axes at different level but the difference in a level is small.	7	Nov-17
3	D	Derive distance and height formula for base of the object is accessible.	3	May-17
4	D	Derive formula for height h and distance D in trigonometric leveling when two instruments are set at different level.	4	Jan-17
5	D	Derive the expressions for computing horizontal distance and elevation in trigonometric leveling while base of the object is inaccessible and instrument stations are in the same vertical plane with the elevated object for the instrument axis at same level.	7	Jun-16
6	D	Derive the expressions for computing horizontal distance and elevation in trigonometric leveling while base of the object is inaccessible and instrument stations are in the same vertical plane with the elevated object for the instrument axis at same level.	3	Jun-16
7	N	A theodolite was set up at a distance of 175 m from the statue. The angle of elevation to the top of the statue was 52° 14' while angle of depression to the foot of the statue was 15°12'. The staff reading on B.M. of R.L. 250.270 m with the telescope horizontal was 0.105 m, Find height and R.L. of top of statue.	4	Nov-17
8	T	How correction for curvature and refraction is applied in trigonometric leveling?	3	Nov-17
9	T	Compare/distinguish between trigonometric levelling and direct levelling.	4	Jan-17
10	T	Compare/distinguish between trigonometric levelling and direct levelling.	4	Jun-16

Chapter-4 Curves

Sr	Type	Question	Marks	Year
1	D	Derive relation between radius and degree of a curve. Use arc definition.	3	Jun-16
2	N	The deflection angle is 500 . Calculate the length of the offsets at 20m interval measured from the tangent for setting out of curve of 180m radius if, (a) the offsets are radial (b) Offsets are perpendicular to tangent.	7	May-17
3	N	Two straight AB and BC intersect at a chainage of 4240.0 m. The deflection angle is 450 and radius of curve is 344 m. Calculate, (i) Tangent length (ii) Length of curve (iii) Chainage of point of curve (iv) Chainage of Point of tangency (v) Length of long chord (vi) Degree of curve (vii) Apex distanc.	7	May-17
4	N	Two tangents intersect at a chainage of 1400m the deflection angle being 24°. Calculate the following quantities for setting out a curve of radius 275m. (1) Tangent Length (2) Length of Long Chord (3) Length of Curve (4) Chainage of point of commencement and tangency (5) Apex distance.	7	Jan-17
5	N	Two straight lines intersect at chainage of 1150.50 m and the angle of deflection is 60˚. If the radius of the curve is 450m, determine (1) tangent distance (2) length of curve (3) chainages of points of curvature and tangency (4) length of long chord (5) Degree of curve (6) Apex distance and (7) Midordinate.	7	Jun-16
6	T	Discuss field procedure for setting out a combined curve.	7	Nov-17
7	T	Which data are required to setting out vertical curve?	4	Nov-17
8	T	Enlist various angular methods of setting out simple circular curve. Write various formulae use to determine various elements of simple circular curve.	7	Nov-17
9	T	Why reverse curve is not introduce on high-speed highways?	3	Nov-17
10	T	Enumerate various methods of measurement of area by offset from the baseline. Discuss coordinate method.	4	Nov-17
11	T	Explain two theodolite method of setting out of curve.	4	May-17
12	T	Define transition curve. What are the requirements of a transition curve?	3	May-17
13	T	What is designation of curve. Also discuss arch designation and chord designation.	4	May-17
14	T	Explain the procedure for setting out simple circular curve with a tape and a theodolite (Rankine's method).	7	Jan-17
15	T	Define transition curve, compound curve and reverse curve.	3	Jan-17
16	T	Describe types of vertical curves with sketches.	3	Jan-17
17	T	What are the elements of simple circular curve? Explain with neat	4	Jan-17

		sketch.		
18	T	Draw a neat sketch of simple circular curve with all notations and define point of intersection.	3	Jun-16
19	T	Explain designation of curve.	4	Jun-16
20	T	Explain offsets from the long chord method of setting out circular curve with neat sketch.	7	Jun-16
21	T	Define transition curve, compound curve and reverse curve.	3	Jun-16
22	T	Explain why super elevation is required in roads and railways. Derive an expression for super elevation.	4	Jun-16

Chapter-5 Area & Volume				
Sr	**Type**	**Question**	**Marks**	**Year**
1	D	Derive formula to calculate area by (i) Mid ordinate rule (ii) Average ordinate rule.	3	May-17
2	D	Derive the expression to compute area from offsets to a base line by trapezoidal rule.	3	Jun-16
3	N	The ground level along the centre line of the road is given below. It is proposed that formation level of R.L. 115 m should be kept constant of starting from chainage zero. The formation width of the road is 8 m and side slope 1:1.The ground is level transverse to the centre line. Calculate volume of earthwork by prismoidal and trapezoidal formula. Distance(m): 0, 50, 100, 150, 200, 250 G.L.(m): 117.5, 116.25, 115.95, 116.65, 117.2, 117.85	7	Nov-17
4	N	A canal is running in cutting , bed width of canal is 10m and side slope 1 :1.5 if depth of cutting of canal at 30 m intervals are 1.15, 1.35, 1.40, 1.30, 1.40,1.65, 1.95, 1.85 and 2.10. Calculate volume of earthwork by trapezoidal and Prismoidal formula.	7	May-17
5	N	A single-level section has a formation width of 7.5 m. and side slopes 2:1. The depth of cutting at the centre at every 30 m. intervals is 1.8, 2.175, 2.55, 2.925, and 3m. Find the volume of earthwork in the length of 120 by Trapezoidal formula and Prismoidal formula.	7	Jan-17
6	N	The ground level along the centre line of a road is given below. It is proposed that the formation level of RL 215.0 should be kept constant of starting from the chainage zero. The formation width of the road is 7 m and the side slope 1:1. The ground is level transverse to the centre line.	7	Jun-16
7	T	How computation of area is carried out from plotted plan?	3	Nov-17
8	T	How will you measured area of irregular shape figure by planimeter?	3	Nov-17
9	T	Explain clearly the use of planimeter (with sketch) to calculate the area of an irregular figure.	3	May-17

10	T	What is capacity of a reservoir? Explain the procedure to workout reservoir capacity.	7	May-17
11	T	Describe how you will calculate area of traverse from coordinate.	3	May-17
12	T	Differentiate between trapezoidal rule and Simpson's rule.	4	Jan-17
13	T	List the various methods of calculating the area of a closed traverse? Explain any one.	3	Jan-17
14	T	Discuss how reservoir capacity is determined?	4	Jun-16

Chapter-6 Hydrographic surveying				
Sr	**Type**	**Question**	**Marks**	**Year**
1	T	What are the purposes of hydrographic surveying?	4	Nov-17
2	T	Write brief note on following with neat sketch. (1) Weddell's sounding machine (2) Echo-sounder (3)Hydrographic sextant.	7	Nov-17
3	T	List instruments used for sounding and explain any one with neat sketch.	3	May-17
4	T	Define the following: (a) Shore signals (b) Range (c) Lead Line	3	Jan-17
5	T	Define Sounding and purpose for which soundings are required.	4	Jan-17
6	T	Define Hydrographic surveying. What are the various operations conducted in hydrographic surveying?	4	Jan-17
7	T	Explain shoreline survey.	4	Jun-16
8	T	Explain float gauge with reference to hydrography.	3	Jun-16
9	T	Describe station pointer.	4	Jun-16

Chapter-7 Setting out of works				
Sr	**Type**	**Question**	**Marks**	**Year**
1	T	Discuss horizontal and vertical control in setting out of works. Explain with neat sketch procedure of setting out foundation tranches of a building.	7	Nov-17
2	T	Explain the basic procedure, instruments and materials required to set the foundation of a building on the ground as per plan.	7	May-17
3	T	Explain the procedure of setting out of Building Foundation.	4	May-17
4	T	Explain various control points in setting of foundation.	4	May-17
5	T	Discuss the steps involved in setting out the positions of piers of a bridge.	7	Jan-17
6	T	Explain the procedure of setting out of building foundation.	7	Jan-17
7	T	Explain the procedure of setting out of building foundation.	7	Jun-16