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Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



IV SEMESTER B.TECH (CIVIL ENGINEERING)

END SEMESTER EXAMINATIONS, MAY/JUNE 2016

SUBJECT: APPLIED SURVEYING [CIE 2204]

REVISED CREDIT SYSTEM

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ✤ Answer ALL the questions.
- ✤ Missing data may be suitably assumed.

1A.	Following readings were taken from a tacheometer, fitted with anallactic lens, to points P and Q on opposite sides of a summit. Staff is held normal to line of sight. S being the point on top of the summit, where the tacheometer was mounted and whose RL is 550.000m. Take multiplying constant as 100. Find the distance PQ and gradients of line SP and SQ.Staff stationHI (m)Vertical angleHair readings (m)P1.450-9°1.150,2.050,2.950Q1.450-80.855 1.605 2.355							
1B.	Explain any two methods of determining constants K and C.							
2A.	The distance between two points on a photograph to the principle plane are 58.15mm to the left and 48.48mm to the right. The angle between the points measured with transit theodolite is 46°. Determine the focal length of camera lens.							
2B.	What is relief displacement? How can height of an object be calculated from relief displacement?							
3A.	A completely transitional lemniscate is to be provided on a road bend with an intersection angle of 60°. The apex of the curve is 30m from the point of intersection of the tangents. Calculate all the data necessary to set out a Bernoulli's Lemniscate Curve. At least 10 points are to be marked on the ground for setting out curve.							
3B.	With a neat sketch explain any two methods of determining the location of the central points for the piers of the bridge.							

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4A.	A circular curve of 800m radius has been set out connecting two straights with a deflection angle of 42°. It is decided, for construction reasons, that the mid- point of the curve must be moved 4m towards the center, i.e., away from the intersection point. The alignment of the straights is to remain unaltered. Calculate radius of new curve, deflection angle required for setting out 30m chords of the new curve, length of curve and distance from the intersection	6m
	point to the new tangent point.	
4B.	Write a short note on Total station.	4m
5A.	What is sounding? What are the different methods of sounding? Explain direct method of sounding.	5m
5B.	What are the applications of Underground survey? What are the problems generally encountered in underground surveying?	5m