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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.	Explain the principle of stadia method in Tacheometric surveying.					5m	
1B.	Following observations were made with staff held vertical and instrument fitted with analytic lens.						
	Instrument station	Instrument station HI (m) Staff station Vertical angle Staff readings (m)				Ema	
	0	1.450	BM	-6°	1.335, 1.895, 2.460	эm	
	0	1.450	CP	+8°30'	0.780, 1.265, 1.745		
	Р	1.400	CP	-6°30'	1.550, 1.615, 2.075		
	RL of BM is 500.000m and K=100. Find RL of P						
2A.	How is Azimuth of a line calculated from photographic measurements?					2m	
2B.	Explain the procedure to find scale of vertical photograph.					3m	
2C.	A line measures 9.5 cm on photograph taken with camera of focal length of 18.5cm. The corresponding line measures 3.4cm on map which is drawn to the scale of 1:50000. Calculate the flying height of the aircraft above mean sea level, when the photograph was taken. The average altitude of photograph area is 310m.					5m	
3A.	Two straights AB and BC intersect at a chainage of 4242m. The angle of intersection is 140°. It is required to set out a 5° simple circular curve to connect the straights. Calculate all the data necessary to set out the curve by the method of offset from the chord produced with an interval of 30m.				6m		
3B.	• With a neat sketch explain any two methods of determining the accurate length of the center line of the bridge.					4m	

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4A.	A 3°49'20'' simple circular curve and deflection angle of 70° was to be set out. The chainage of point of curve was 1022m. Due to inaccessibility problem it was required to rotate the forward tangent by 12° (clockwise) about the point of tangency. Find the new radius and chainage of the tangent point and that of point of intersection.	6m
4B.	Write a short note on geodimeter with neat sketch of the schematic diagram and its components.	4m
5A.	A, B and C are three visible points in a hydrographical survey. The computed sides of triangle ABC are: AB-630m, BC-872m, CA-1389m. Outside this triangle (and nearer to AC), a station P is established and its position is to be found by three point resection on A, B and C, the angles $_$ APB and $_$ BPC are 32°05' and 45°20' respectively. Determine the distances PA and PC.	4m
5B.	Explain the following operations in underground surveying:a) surface surveyingb) Transfer of surface alignment to underground passageway.	6m