

MANIPAL INSTITUTE OF TECHNOLOGY

(A constituent unit of MAHE, Manipal)

III SEMESTER B.TECH. (CIVIL) END SEMESTER EXAMINATIONS

NOVEMBER

SUBJECT: BASICS OF SURVEYING (CIE 2104)

Date of Exam: 27/11/2018

Time of Exam: 9AM-12PM

Max. Marks: 50

Instructions to Candidates:

✤ Answer ALL the questions & missing data may be suitably assumed

Q. No	Description							
1A.	A 30 m steel tape was standardized under 40 N pull at 66°F. It was suspended in 5 equal spans during measurement. The temperature during the measurement was 92°F and the pull extended was 100 N. The area of cross section of the tape was 8 mm ² . The unit weight of the steel tape is 78 kN/m ³ . Take coefficient of thermal expansion is equal to 6.3×10^{-6} °F and Young's modulus E = 2×10^{5} N/mm ² . Find the true length of the tape.							
1 B .	A chain line AB has met with an obstacle as river, 'M' and 'N' being the continuation of the line AB, on the near and distant banks respectively. A point 'P' is measured 105 m at right angles to AB from 'M'. At 'P' PA and PN are set out such that angle APN is 90°. AM is measured as 85 m. Find MN, the width of the river.							
1C.	Write short notes on i) Metric Chain ii) Engineer's Chain iii) Surveyor's Chain							
2A.	Interior angles of an irregular hexagonal plot ABCDEFA are $\bot A=52^{\circ}$ 14', $\bot B=165^{\circ}15'$, $\bot C=98^{\circ}30'$, $\bot D=40^{\circ}50'$, $\bot E=130^{\circ}40'$, $\bot F=232^{\circ}31'$ If the bearing of line AB is N75 ^o 15'W, find the fore and back bearings of remaining lines in quadrantal system.							
2B.	The bearings of the lines of a traverse are given below. At what stations do you suspect local attraction? Correct the bearings for local attraction. Also calculate true bearings of the lines if declination observed at a place is 10^045 'WLineFore Bearing Back Bearing BCAB $36^030'$ 216^010'BC $109^035'$ 288^040'CD $159^030'$ 341^010'DE $270^020'$ EF $280^040'$	5	2					
3A.	Write explanatory notes on the various Indirect Methods of Contouring.							
3B.	Explain in detail how to locate position of station occupied by plane table on the plan by three point problem.							
4A.	The following consecutive readings were taken with a dumpy level and 4 m leveling staff on continuous sloping ground at 30 m intervals. 0.680, 1.455, 1.855, 2.330, 2.885, 3.380, 1.055, 1.860, 2.265, 3.540, 0.835, 0.945, 1.530 and 2.250. The R.L. of starting point was 80.750 m. Rule out page of a level book and enters the above readings. Find R.L. of other points by Rise and Fall method and apply necessary checks. Also determine gradient of a line joining first and last point.							

	Reciprocal levels were run with a dumpy level and following readings were recorded						
4B.		Instrument Near	Staff reading at				
			Α	В		5	4
		А	1.225	1.375			
		В	0.850	0.5			
	Calculate the RL of the station if RL of A= 626.255, Also find combined correction for						
	curvature and Refraction						
5A.	An instrument was set up at point A with horizontal sight when the staff held at BM o					_	5
	. 500m, reading was 3.56m. The distance of point P from A was 2500m and p was at angle					5	
	of elevation 5°30'. Determine the RL of P. apply curvature and refraction corrections						
5B.	With neat sketch derive a height and distance equation for single plane method when					5	5
	Instrument axes at different levels and write equation to calculate RL.					-	