

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
<b>Q.1</b>	(a) What are the fundamental lines of a theodolite?	<b>03</b>
	(b) Write a note on dumpy level.	<b>04</b>
	(c) Describe construction and various uses of Miners dial.	<b>07</b>
<b>Q.2</b>	(a) What is the method of base line measurement?	<b>03</b>
	(b) Differentiate between external focusing and internal focusing telescope.	<b>04</b>
	(c) Explain the procedure of the leveling to establish underground bench mark.	<b>07</b>
	<b>OR</b>	
	(c) List out various types of Theodolite. Explain any one of them in brief with neat sketch.	<b>07</b>
<b>Q.3</b>	(a) Give the use of prismatic compass.	<b>03</b>
	(b) Write a note on Omitted measurement.	<b>04</b>
	(c) Describe closing error and it's adjustment.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Write the types of errors in dial surveying.	<b>03</b>
	(b) Write note on Characteristics of contours.	<b>04</b>
	(c) Write principle of tacheometric surveying. Explain additive and Multiplying constants.	<b>07</b>
<b>Q.4</b>	(a) Give the name of types of levels according to their general arrangement.	<b>03</b>
	(b) Explain test and adjustments of Miners dial.	<b>04</b>
	(c) Write a note on measurement of Horizontal Angles and Vertical Angles.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Write any two aims of subsidence measurements.	<b>03</b>
	(b) Explain tubular compass with neat sketch.	<b>04</b>
	(c) What is surveying? Give basic principle of surveying and name all the instruments used for it.	<b>07</b>
<b>Q.5</b>	(a) Describe any two objects of leveling.	<b>03</b>
	(b) What is leveling? Explain fly leveling.	<b>04</b>
	(c) Write a note on underground levelling and subsidence survey	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Define the term : Transit Theodolite and Non-transit Theodolite	<b>03</b>
	(b) Write a brief note on latest equipments used for surveying.	<b>04</b>
	(c) Explain the procedure for determining the constants by tacheometric surveying.	<b>07</b>

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