

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2021****Subject Code:3142202****Date:04/09/2021****Subject Name:Mine Surveying - I****Time:02:30 PM TO 05:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

	<b>Marks</b>
<b>Q.1</b> (a) What is surveying? Classify it based on instrument used.	<b>03</b>
(b) Write a short note on (i) Plans and Maps and (ii) Scales	<b>04</b>
(c) Discuss in brief the principles of surveying.	<b>07</b>
<b>Q.2</b> (a) What is theodolite? Discuss its types.	<b>03</b>
(b) Define the terms: (i) Line of collimation (ii) Telescope normal (iii) Transiting (iv) Face right observation	<b>04</b>
(c) Discuss in brief the temporary adjustment of theodolite with neat sketch.	<b>07</b>
<b>OR</b>	
(c) Explain how you would measure a horizontal angle by repetition with a theodolite.	<b>07</b>
<b>Q.3</b> (a) What is levelling? Discuss types of levels.	<b>03</b>
(b) Define the terms: (i) Benchmark (ii) Datum (iii) Level line (iv) Mean sea level	<b>04</b>
(c) Describe with the help of sketches the characteristic of contours.	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) Write a short note on contour gradient.	<b>03</b>
(b) Describe the various methods of contouring. Discuss the merits and demerits of each.	<b>04</b>
(c) The following consecutive readings were taken with a level and a 4.0 m staff on a continuously sloping ground at a common interval of 30 m.: 0.780, 1.535, 1.955, 2.430, 3.480, 1.155, 1.960, 2.365, 3.640, 0.935, 1.045, 1.630 and 2.545 The reduced level of the first point A was 180.750 m. Rule out a page of a level field book and enter the above readings. Calculate the reduced levels of the points by rise and fall method. Also calculate the gradient of the line joining the first and last points.	<b>07</b>
<b>Q.4</b> (a) Describe selection of triangulation stations.	<b>03</b>
(b) Write a short note on closing error of traversing.	<b>04</b>
(c) Explain the method: Traversing by direct observation of angles	<b>07</b>
<b>OR</b>	
<b>Q.4</b> (a) Draw various patterns of stadia diaphragm	<b>03</b>
(b) What is traversing? Describe methods of traversing in brief.	<b>04</b>
(c) Define principle of stadia method with neat sketch.	<b>07</b>
<b>Q.5</b> (a) Write a short note on Planimeter.	<b>03</b>
(b) List out the methods for measurement of volume and describe any one from it in detail.	<b>04</b>

(c) Describe a miner's dial with its construction, adjustments and use in mining fields. **07**

**OR**

**Q.5** (a) Write a short note on Abney level. **03**

(b) List out the methods of determining areas and explain any one from it with sketch. **04**

(c) Describe a sextant with its construction, adjustments and steps to measure a horizontal angle with it. **07**

\*\*\*