

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2024****Subject Code:3142202****Date:18-07-2024****Subject Name: Mine Surveying - I****Time:10:30 AM TO 01:00 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.

**MARKS**

- Q.1** (a) Describe the principles involved in a triangulation survey. **03**  
 (b) Differentiate between tubular and through compass. **04**  
 (c) Describe the construction, use, tests and adjustment of Miner's dial. **07**

- Q.2** (a) Explain the divisions and importance of surveying to engineers. **03**  
 (b) Define the traverse survey. Explain the systems of traversing with theodolite. **04**  
 (c) List out different methods of measurement of horizontal angle. Explain repetition methods in brief. **07**

**OR**

- (c) Explain the measurement of horizontal and vertical angles. **07**

- Q.3** (a) Describe the classification of triangulation survey. **03**  
 (b) Explain closing error and its adjustment. **04**  
 (c) Explain the reduction of data with the help of a tacheometric table. **07**

**OR**

- Q.3** (a) Define the term levelling. Discuss the objective of levelling. **03**  
 (b) Explain omitted measurements and their calculations. **04**  
 (c) Explain the general procedure for field work in tacheometric surveying. **07**

- Q.4** (a) Describe various methods of contouring. **03**  
 (b) Explain the classification of surveying. **04**  
 (c) Explain the main sources of errors in plane tabling. How can they be kept to the minimum? **07**

**OR**

- Q.4** (a) Describe with the help of sketches the characteristics of contours. **03**  
 (b) Discuss in brief the principles of surveying. **04**  
 (c) Explain the measurement of area and volume by Trapezoidal and Simpson's rule. **07**

**03**

- Q.5** (a) Define tacheometry. Describe the conditions under which tacheometric surveying is advantageous. **03**  
 (b) Discuss about the temporary adjustment of theodolite. **04**  
 (c) Explain the instruments used in leveling. **07**

**OR**

- Q.5** (a) Explain how you would determine the constants of a tacheometer. **03**  
 (b) Discuss about the permanent adjustment of theodolite. **04**  
 (c) List out different types of level. Explain dumpy level with neat sketch. **07**

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