

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2023

Subject Code:2140601

Date: 06-02-2024

Subject Name:Advanced Surveying

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.

- Q.1** (a) Differentiate between Fixed hair method and movable hair method. **03**
(b) Discuss the principle of Techeometry. **04**
(c) Derive the distance and elevation formula for Techeometry when staff is held vertical. **07**

- Q.2** (a) Differentiate between stadia hair method and tangential method. **03**
(b) Describe how tacheometric survey is conducted in the field. **04**
(c) Explain how you will find constants of techeometer in the field. **07**

OR

- (c) What are the different errors in tacheometry? **07**
Q.3 (a) Differentiate between plane surveying and geodetic surveying. **03**
(b) What is triangulation? Explain the principle of triangulation. **04**
(c) What is base line? How it is selected? Describe the procedure for it's extension. **07**

OR

- Q.3** (a) What are the different types of errors in surveying measurements? **03**
(b) Differentiate between 1) Gross error and random errors.2) Cumulative error and compensating error. **04**
(c) Discuss the seven Laws of weight. **07**
- Q.4** (a) Define and explain probable error. **03**
(b) Differentiate between the indirect and direct observations. **04**
(c) Independent and dependent quantity. **07**

OR

- Q.4** (a) Explain objectives of field astronomy. **03**
(b) Explain the following terms: 1) Departure. 2) Zenith. 3) Nadir. 4) Spherical triangle **04**
(c) Explain co-ordinate systems ion celestial sphere. **07**
- Q.5** (a) Explain principles and objectives of photogrammetry. **03**
(b) Define:1) Exposure station. 2) Photo principle point. 3) Flying height.4) Photo nadir point. **04**
(c) What are the applications of Geographic Information system in Civil Engineering? **07**

OR

- Q.5** (a) Explain the basic principles of electromagnetic distance measurement. **03**
(b) What are the advantages of EDM instruments? **04**
(c) Define remote sensing and explain principles of remote sensing. **07**