

GUJARAT TECHNOLOGICAL UNIVERSITY
B. E. - SEMESTER – I • EXAMINATION – WINTER • 2014

Subject code: 110004**Date: 03-01-2015****Subject Name: Elements of Civil Engineering****Time: 10:30 am - 01:00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) Role of Civil Engineer to the society. **07**
 (b) Define surveying and explain the fundamental principles of surveying. **07**
- Q.2** (a) What is reciprocal ranging? Explain with neat sketch. **07**
 (b) A 20 m chain was found to be 20.10 m at the beginning and 20.30 m at the end of the work. The area of the field drawn to a scale 1 cm = 8 m was found to be 32,56 cm² by planimeter. Find the true area of the field in Hectare. **07**
- Q.3** (a) What is meant by closing error in closed traverse? How would you adjust it graphically? **07**
 (b) The bearings of the sides of a traverse ABCDE are as follows: **07**
- | side | F.B. | B.B |
|------|----------------------|----------------------|
| AB | 117 ⁰ 45' | 297 ⁰ 45' |
| BC | 32 ⁰ 30' | 212 ⁰ 30' |
| CD | 292 ⁰ 00' | 112 ⁰ 00' |
| DE | 199 ⁰ 45' | 19 ⁰ 45' |
| EA | 135 ⁰ 15' | 315 ⁰ 15' |
- Find the included angles and apply the necessary checks.
- Q.4** (a) The following perpendicular offsets were taken at 25 m intervals from a survey line to an irregular boundary line. **07**
- | Distance (m) | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 |
|--------------|------|------|------|------|------|------|------|------|------|
| Ordinate(m) | 0.00 | 2.90 | 3.10 | 4.60 | 4.20 | 3.90 | 4.50 | 2.40 | 0.00 |
- Compute total area using Simpson's rule.
- (b) Write a short note for dumpy level and draw a sketch showing various components of it. **07**
- Q.5** (a) Uses and requirements of a good quality bricks. **07**
 (b) Draw a detailed plan of a 2 BHK residential building. **07**
- Q.6** (a) List out principles of planning and explain Roominess and Elegance in detail. **07**
 (b) Explain the loads which are to be taken into account while designing the foundations of a structure. **07**
- Q.7** (a) Brief note on water shed development. **07**
 (b) Explain various aids and devices used to control, regulate and guide traffic. **07**
