

**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 cm<sup>2</sup> 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 <sup>0</sup> 45' | 297 <sup>0</sup> 45' |
| BC   | 32 <sup>0</sup> 30'  | 212 <sup>0</sup> 30' |
| CD   | 292 <sup>0</sup> 00' | 112 <sup>0</sup> 00' |
| DE   | 199 <sup>0</sup> 45' | 19 <sup>0</sup> 45'  |
| EA   | 135 <sup>0</sup> 15' | 315 <sup>0</sup> 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**

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