

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER –I • EXAMINATION – WINTER 2012****Subject code: 110004****Date: 29-01-2013****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) Explain scope of civil Engineering **07**
 (b) Describe briefly the seven elements involved in Remote sensing process. **07**
- Q.2** (a) Explain point to be consider in planning of industrial building. **07**
 (b) Write the abbreviations for DPC, GI, RCC, FSI, W.C, LM, GL, RWP. Draw symbols for Meter, Bell, Manhole, Wood, Bracket fan, Revolving door, **07**
- Q.3** (a) Discuss various methods and formulae to compute area and volume. **07**
 (b) The area of the plan of an old map plotted to a scale of 10 meters to 1 cm measures now as 100.2 sq cm as measured by a planimeter. The plan is found to have shrunk so that a line originally 10 cm long now measures 9.7 cm only. Further the 20 m chain used is 8 cm too short. Find the true area of the survey. **07**
- Q.4** (a) Discuss various construction material and explain the different types of paints used in building construction. **07**
 (b) Discuss use and properties of Wrought iron. **07**
- Q.5** (a) Define True meridian, Back bearing, Isogonic and Agonic line, Declination and Dip. **04**
 (b) Find the included angles between line AB and AC if the bearings are **03**
 (i) AB $60^{\circ} 10'$ AC $245^{\circ} 10'$
 (ii) AB $N 60^{\circ} 50' E$ AC $S 40^{\circ} 40' E$ (Reduce bearing)
 (iii) AB $N 30^{\circ} 25' E$ AC $N 30^{\circ} 25' W$ (Reduce bearing)
- (c) The following is the page of a level field book. Fill in the missing readings and calculate the reduced levels of all the points. Apply the usual checks. **07**
- | Station | Back sight | Inter sight | Four sight | Rise | Fall | R.L | Remarks |
|---------|------------|-------------|------------|-------|-------|---------|---------|
| 1 | 2.150 | | | | | 450.000 | BM.1 |
| 2 | 1.640 | | ? | 0.500 | | | |
| 3 | | 2.345 | | | ? | | |
| 4 | ? | | 1.965 | ? | | | |
| 5 | 2.050 | | 1.825 | | 0.400 | | |
| 6 | | ? | | ? | | 451.500 | BM.2 |
| 7 | 1.690 | | ? | 0.120 | | | |
| 8 | 2.865 | | 2.100 | | ? | | |
| 9 | | | ? | ? | | 452.250 | BM.3 |
- Q.6** (a) Explain conservation of water, Discuss conversation of water for Domestic and Industrial. **07**
 (b) Explain hydrological cycle with neat sketch. Explain briefly watershed development. List various sources of water. **07**
- Q.7** (a) Define intersection. Draw various types of intersection. **07**
 (b) Write down types of Harbour, Give advantage and dis advantage of water way. **07**
