

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. E. - SEMESTER – I-II (NEW) • EXAMINATION – WINTER • 2014**

**Subject Code: 2110004**

**Date: 03-01-2015**

**Subject Name: Elements of Civil Engineering**

**Time: 10:30 am - 01:00 pm**

**Total Marks: 70**

**Instructions:**

1. Question No. 1 is compulsory. Attempt any four out of remaining Six questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|------------|--|--------------|
| <b>Q.1</b> | <b>Objective Questions (MCQ)</b>   | <b>MARKS</b> |
|            | <b>(a) Attempt Following Questions.</b>  | <b>07</b>    |
|            | <ol style="list-style-type: none"><li>1. To carry out detail soil investigation is the role of a civil engineer?<br/>a. Yes                      b. No</li><li>2. Up to how much area the curvature of earth can be neglected?<br/>a. 100m<sup>2</sup>                  b. 150m<sup>2</sup>                  c. 250m<sup>2</sup>                  d. 300m<sup>2</sup></li><li>3. Prismatic compass is more accurate than surveyors compass?<br/>a. Yes                      b. No</li><li>4. B.M. in leveling designates what?</li><li>5. For under water construction which lime is used?</li><li>6. Rivers are surface source of water?<br/>a. Yes                      b. No</li><li>7. B.O.T. in transportation designates what?</li></ol>   |              |
|            | <b>(b) Attempt Following Questions.</b>  | <b>07</b>    |
|            | <ol style="list-style-type: none"><li>1. If scale of a map is 1cm=50m, R.F. is<br/>a. 1/50                      b. 1/500                      c. 1/5000                      d. 1/50000</li><li>2. If <math>q</math> be the angle of slope and <math>L</math> be the slopping distance, slope correction is given by<br/>a. <math>L(1-\sin q)</math>              b. <math>L(1-\cos q)</math>              c. <math>L(1-\sec q)</math></li><li>3. The W.C.B. of a line is 320°, its Q.B. is<br/>a. N40°W                  b. N40°E                  c. W40°N                  d. E40°N</li><li>4. Curvature correction in leveling is always<br/>a. Additive                  b. Subtractive</li><li>5. The amount of water used for 1Kg of distemper is<br/>a. 0.2 litre                  b. 0.4 litre                  c. 0.6 litre                  d. 0.8 litre</li><li>6. Snow load is<br/>a. Dead load                  b. Live load                  c. Wind load                  d. None of these</li><li>7. Which of following value cannot be used for geometric design of highways?<br/>a. AADT                      b. PHV                      c. Volume count              d. VKT</li></ol> |              |
| <b>Q.2</b> | <b>(a) Discuss the Impact of infrastructural development on the economy of a country.</b>  | <b>03</b>    |
|            | <b>(b) Differentiate between Plane surveying &amp; Geodetic surveying.</b>   | <b>04</b>    |
|            | <b>(c) A 30m chain was found to be 0.15m too long after chaining a distance of 5000m. It was found to be 0.3m too long after measuring a total distance of 10000m. At the start of the work, the chain was tested and was found to be exactly 30m in length. Find out the correct length of the measured distance.</b>   | <b>07</b>    |

- Q.3** (a) Explain reciprocal ranging with neat sketch. **03**  
 (b) Explain W.C.B. and Q.B. system. **04**  
 Following are the bearings of a closed traverse ABCDEA.

Line	AB	BC	CD	DE	EA
<b>F.B.</b>	140°30'	80°30'	340°00'	290°30'	230°30'
<b>B.B.</b>	320°30'	260°30'	160°00'	110°30'	50°30'

- (c) Calculate included angles and also apply necessary checks. **07**
- Q.4** (a) Enumerate various methods of leveling and describe differential leveling. **03**  
 (b) Describe with sketches, the characteristics of contours. **04**  
 (c) Data extracted from the level book of a survey department is tabled below: **07**

Station	B.S.	I.S.	F.S.	Rise	Fall	R.L.	Remark
1	1.155	-	-	?	?	50.00	B.M.
2	-	1.565	-	?	?	?	
3	-	2.695	-	?	?	?	
4	2.085	-	3.850	?	?	?	C.P.
5	-	2.895	-	?	?	?	
6	-	-	4.125	?	?	?	End of work

Determine R.L. of all stations by rise and fall method also show arithmetic checks.

- Q.5** (a) Which are the objectives of GIS? **03**  
 (b) Differentiate between load bearing structure and framed structure. **04**  
 (c) Enlist various types of cement. Discuss properties of any two. **07**
- Q.6** (a) What do you mean by building bye-laws? Explain built up area in detail. **03**  
 (b) Explain design loads acting on a building. **04**  
 (c) Which are the principles of planning? Explain privacy and circulation in detail. **07**
- Q.7** (a) Differentiate between weir and barrage. **03**  
 (b) What is hydrology? What are its applications? **04**  
 (c) Give brief note on different transportation systems. **07**

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