Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem- 1st Regular Examination January 2011

Subject code: 110004
Subject Name: Elements of Civil Engineering.

Date:06/ 01 /2011 **Time: 10.30 am - 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.**

Q.1 **(a)** Define surveying? Explain various divisions of surveying? State and explain its fundamental principles? **05**

(b) What is closing error in a compass traverse? How is it adjusted graphically? **05**

(c) What is ranging? Enumerate various methods of ranging? Explain with neat sketch the procedure for indirect ranging? **04**

Q.2 Do as directed:

(a) The following consecutive readings were taken with a level and a 4m staff at a common interval of 30m; The first reading was taken at B.M. having R.L. =100m.The instrument were shifted after the fourth and ninth readings. Rule out a page of a level book, enter the readings given and also calculate the reduced levels of the points by the collimation method. Also apply arithmetic checks. **07**

Consecutive readings are: 2.650, 1.745, 0.625, 0.260, 2.525, 2.160, 1.235, 0.870, 1.365, 0.625, 1.790, and 2.535.

(b) Give comparison between prismatic compass and surveyors' compass? **03**

(c) What are contours? Discuss its characteristics with the help of neat sketches? **04**

OR

(b) The length of a chain line when measured with a 20m chain was found to be 1432 meters. But when a 30m chain which was 0.65 meter too short was used for the purpose, the line was found to be 1445 meterlong. Find the error in 20m chain? **03**

(c) Given below are the bearings of lines of a closed traverse ABCD. **04**

Line	Fore bearing
AB	$N45^0E$
BC	$N75^0E$
CD	$S35^0W$
DA	$N65^0W$

Find the included angles and apply necessary checks.

Q.3 **(a)** What is brick? What are the requirements of good quality bricks? State it's different types? **05**

(b) What is cement? What are its ingredients? State the function of each ingredient? **05**

(c) What is seasoning of timber? Why is it required? State various methods of seasoning and explain any one? **04**

OR

Q.3	**(a)**	What is concrete? What are its requirements? What is its drawback? How can it be overcome?	**05**
	(b)	Give classification of conducting and Magnetic materials? State it's various Engineering uses?	**05**
	(c)	What are composites? List different types of composites? Explain any one?	**04**
Q.4	**(a)**	Enlist the principles of planning? Explain aspect and Roominess?	**05**
	(b)	Explain with neat sketch various types of shallow foundations? State their functions?	**05**
	(c)	Distinguish between Load bearing and framed structure?	**04**

OR

Q.4	**(a)**	Explain with neat sketch the various terminologies related to staircase?	**05**
	(b)	Draw a neat sketch of typical cross section through door and window showing all Building components?	**05**
	(c)	What are building bye-laws? Why are they required? State building bye-laws for Margins of residential area?	**04**
Q.5	**(a)**	What is called rainwater harvesting? Explain various methods for rain water Harvesting?	**05**
	(b)	What are the major modes of transportation? Explain the importance of road transportation over other modes?	**05**
	(c)	Explain with a neat sketch the hydrological cycle?	**04**

OR

Q.5	**(a)**	Draw a neat labeled sketch of typical cross section for a roadway and railway?	**05**
	(b)	Write a note on Traffic control devices?	**05**
	(c)	What is Watershed development? State its objectives?	**04**

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