

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-I & II (NEW) EXAMINATION – WINTER 2015

Subject Code: 2110004

Date: 31/12/2015

Subject Name: Elements of Civil Engineering

Time: 10:30am to 01:00pm

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.

	MARKS
Q.1 Objective Question (MCQ)	07
(a) Attempt Following Questions.	
1. The W.C.B. of a line is 50° , its Q.B. is (a) $N50^\circ W$ (b) $N50^\circ E$ (c) $W50^\circ N$ (d) $E50^\circ N$	
2. The graduated ring and needle are free to move independently in (a) surveyor's compass (b) prismatic compass (c) in both of above	
3. If the value of contour decreases from inside to outside it shows (a) lake (b) plain terrain (c) hill (d) undulating surface	
4. Planimeter is useful to measure (a) length (b) area (c) volume (d) time	
5. HI in leveling denotes (a) total height of staff (b) height of line of sight with respect to datum (c) height of line of sight with respect to MSL (d) total height of leveling instrument	
6. GIS is useful for (a) environmental impact assessment (b) surveying and mapping (c) natural resource management (d) all of the above	
7. The quantity of water required for domestic use is (a) 500 lpcd (b) 145 lpcd (c) 135 lpcd (d) 100 lpcd	
(b) Attempt Following Questions.	07
1. Portion of water held by trees during rainfall is known as (a) depression storage (b) Infiltration (c) Interception (d) None of the above	
2. Write full form of MDR in context with highway engineering.	
3. Load bearing structure transfers the load to sub-soil by (a) columns (b) columns and beams (c) masonry walls (d) none of the above	
4. Room which receives air and light from particular direction is called the (a) aspect (b) prospect (c) privacy (d) roominess	
5. What is the size of a standard brick?	
6. If scale of a map is $1\text{cm} = 4\text{m}$, R.F. is (a) $1/4000$ (b) $1/400$ (c) $1/40$ (d) $1/4$	
7. Civil engineer is mainly responsible for (a) construction (b) supervision (c) estimation (d) all of above	
Q.2 (a) Write a short note on gravity dam.	03
(b) Enumerate the qualities of good brick.	04
(c) Classify the various types of water sources. Discuss any two sources in detail.	07

- Q.3** (a) Write a short note on 'roominess' **03**
 (b) Draw typical line plan of residential building having living room, two bed rooms, kitchen, toilet and verandah. **04**
 (c) Name the various types of traffic signs used for traffic control. Describe any two categories of traffic signs in detail. **07**
- Q.4** (a) Enumerate various loads acting on a building. Write briefly about any one. **03**
 (b) Discuss about spread footing and combined footing with neat sketches. **04**
 (c) Differentiate between framed and load bearing structure. **07**
- Q.5** (a) Discuss the scope of civil engineering in development of nation. **03**
 (b) Write a short note on surveyor's compass with neat sketch. **04**
 (c) Find the interior angles for a close traverse having following data. **07**

Line	Fore Bearing	Back Bearing
AB	150 ⁰ 15'	330 ⁰ 15'
BC	20 ⁰ 30'	200 ⁰ 30'
CD	295 ⁰ 45'	115 ⁰ 45'
DE	218 ⁰ 00'	38 ⁰ 00'
EA	120 ⁰ 30'	300 ⁰ 30'

- Q.6** (a) Briefly discuss about Remote Sensing. **03**
 (b) Explain the procedure for reciprocal ranging. **04**
 (c) The following consecutive readings were taken with a leveling instrument at intervals of 20 m. **07**
 2.375, 1.730, 0.615, 3.450, 2.835, 2.070, 1.835, 0.985, 0.435, 1.630, 2.255, 3.630 m
 The instrument was shifted after the fourth and eighth readings. The last reading was taken on B.M. of R.L. 110.200 m. Calculate the R.L.s of all the points using rise and fall method.
- Q.7** (a) List out the various instruments used in chain surveying. **03**
 (b) Write characteristics of contours. **04**
 (c) Draw neat sketch of roof top rainwater harvesting system and then write benefits of rainwater harvesting. **07**
