

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER- 1<sup>st</sup> / 2<sup>nd</sup> • EXAMINATION – SUMMER • 2014**

**Subject Code: 2110004****Date: 24-06-2014****Subject Name: Elements of Civil Engineering****Time: 02:30 pm - 05:00 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.

**Q.1 (a) Objective Questions: MCQ: choose right answer.****07**

1. Planning of a very large area covering several towns and villages is known as:  
( a ) Town planning  
( b ) Village planning  
( c ) Urban planning  
( d ) Regional planning
2. Totalstation take measurements of  
( a ) Length  
( b ) Angle  
( c ) coordinates  
( d ) All of the above
3. Offset are set by instrument  
( a ) Cross staff  
( b ) Prism square  
( c ) Optical square  
( d ) All of the above
4. If W.C.B. of any line lies in quadrant IV then R.B. is equal to  
( a ) WCB  
( b )  $360^\circ$ -WCB  
( c )  $180^\circ$ -WCB  
( d )  $WCB-180^\circ$
5. Write full form of: GTS
6. Curvature correction in leveling is always  
( a ) Additive                      ( b ) Subtractive
7. Contour lines cross one another in case of:  
( a ) Vertical cliff  
( b ) Hillock  
( c ) Overhanging cliff  
( d ) Reservoir

**Q.1 (b) Objective Questions: MCQ: choose right answer.****07**

1. As per principles of building planning ---longer walls of building should face the direction:  
( a ) North-East  
( b ) North-South  
( c ) East- West  
( d ) North-West
2. To define grade of concrete which characteristics is used:  
( a ) Tensile strength  
( b ) Compressive strength  
( c ) Density

- ( d ) None of the above
3. (D)Depth of wall foundation is calculated by thumb rule  
( T=Wall thickness)  
( a ) D is greater than equal to  $2T+30$   
( b ) D is less than equal to  $2T+30$   
( c ) D is greater than equal to  $T+30$   
( d ) None of the above
4. Which type of door provides maximum safety  
( a ) Hollow core flush door  
( b ) Solid core flush door  
( c ) Sash door  
( d ) Battened and ledged door
5. For span of 12 m which pitched roof can be suggested  
( a ) King post  
( b ) Queen post  
( c ) Lean to roof  
( d ) All of the above
6. A barrier across a river to change flow of river water is called  
( a ) Weir  
( b ) Dam  
( c ) Barrage  
( d ) Aqueduct
7. Traffic sign indicating speed limit is categorized in:  
( a ) Regulatory sign  
( b ) Warning sign  
( c ) Informatory sign  
( d ) Prohibitory sign

- Q.2** (a) i. What is the difference between plan and map? **04**  
ii. Convert the following bearing: **03**  
a. RB=S  $50^\circ$  E  
b. RB=S  $20^\circ$  W  
c. WCB= $250^\circ$
- (b) What will be the horizontal distance between two points if measured along rising slope of 1 in 10 found 480m? **07**

- Q.3** (a) Write classification of lime. **07**  
(b) Prepare plan for a room with verandah in scale 1:50. The size of room is 3.0 m x 4.50 m. Verandah is 1.8 m wide. The thickness of wall is 30 cm for external and 20 cm for internal. Provide door, window and steps at suitable location. Write assumed dimensions for them. **07**

- Q.4** (a) i. What is local attraction? What are the sources of local attraction? **03**  
ii. Explain geodetic surveying. **04**

- (b) Following table shows a page of a level book. **07**  
Calculate values for Rise and Fall.  
Calculate R.L. of the stations.  
Apply arithmetic checks. R.L.of B.M. is 150.000.

st	BS	IS	FS	Rise	Fall	R.L.	Remark
A	2.500	-	-				B.M
B	1.685	-	1.575				
C	-	2.735	-				
D	1.515	-	3.335				

E	-	2.325	-				
F	-	1.050	-				
G	1.775	-	0.675				
H	-	-	2.450				

- Q.5 (a)** i. Write use of planimeter with formula. **03**  
ii. Discuss the principles of planning: Flexibility and Circulation in brief. **04**
- (b)** The following fore bearings are observed in a closed traverse ABCD while surveying around a building. Calculate the included angles. **07**

Line	Bearing
AB	124°
BC	60°
CD	318°
DA	200°

- Q.6 (a)** Discuss about various dams. **07**
- (b)** i. What is mass transportation system? **03**  
ii. Sketch the traffic signs for following: **04**
- STOP
  - GIVE WAY
  - T Intersection
  - One way
- Q.7 (a)** Write functions of following building components: **07**
- Weathershed /Chajja
  - Lintel
  - Plinth
  - Stair
  - Foundation
  - Beam
  - Slab
- (b)** i. Explain the term Infrastructure. **04**  
ii. What are GPS, RS and GIS? **03**

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