

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEMESTER 1st / 2nd (NEW) EXAMINATION WINTER 2016

Subject Code: 2110004

Date: 28/01/2017

Subject Name: Elements of Civil Engineering

Time: 10:30 AM TO 1:00 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 Objective Question (MCQ)

MARKS

(a)

07

1. A scale on which three dimensions can be measured is known as
(a) Plain scale (b) Diagonal scale (c) Vernier scale (d) Chord scale
2. Which of the following instrument is used for measurements of angles?
(a) Geodimeter (b) Tellurometer (c) Sextant (d) Telescope
3. Staff reading taken on a benchmark or change point is known as
(a) Back sight (b) Intermediate sight (c) Fore sight (d) None of the above
4. Galvanizing means covering iron with a thin coat of
(a) Tin (b) Glaze (c) Zinc (d) Coal tar
5. Which of the following structure can be constructed for water conservation?
(a) Gabian structure (b) Khet Talawadi (c) Check dam (d) All of the above
6. An intersection where there is no need of traffic police to manage traffic is
(a) Unchannelized intersection (b) Channelized intersection
(c) Rotary intersection (d) all of the above
7. A horizontal structural member provided below the window opening is _____
(a) Lintel (b) Parapet (c) Sill (d) Plinth

(b)

07

1. The longest chain line passing through the centre of the area is known as
(a) Base line (b) Tie line (c) Check line (d) All of the above
2. The angle of inclination in between the longitudinal axis of a magnetic needle and horizontal plane at any place is known as
(a) Magnetic bearing (b) Magnetic declination (c) Dip (d) WCB
3. The percentage of alumina in good brick earth lies between
(a) 10 – 20% (b) 20 – 30% (c) 30 – 40% (d) 40 – 50%
4. An independent footing of two columns are connected by a beam is called
(a) spread footing (b) strap footing (c) combined footing (d) Mat foundation
5. A structural component of earthen dam is
(a) Sluice gates (b) Spillway gates (c) Impervious core (d) None of the above
6. “Keep Left” sign is a type of
(a) Regulatory sign (b) Warning sign (c) Informatory sign (d) None of the above
7. A wider longer step provided at the end of flight for resting and change in direction is _____
(a) Tread (b) Riser (c) Going (d) Landing

Q.2 (a) Draw contour of following natural features.

03

- (1) Depression (2) Over Hanging cliff (3) Ridge lines

(b) Classify survey based on purpose and nature of field.

04

(c) Scope of civil engineer according to the functions of civil engineering.

07

Q.3 (a) Write working of prism square with sketch.

03

(b) Write aim and applications of survey.

04

(c) A 30 m chain was tested and found 8 cm too short before the start of work. After measuring a distance of 1220 m, it was found 11 cm too long and after measuring 950 m; the chain was found 13 cm too long during testing at the end of day's work. Find correct distance measured during the day.

07

- Q.4 (a)** Convert following WCB into QB with sketch. **03**
 (1) 91° (2) 32° (3) 279°
- (b)** Uses of lime as a building material. **04**
(c) Define local attraction. How it is detected? Explain the methods applied to correct stations affected by local attraction. **07**

- Q.5 (a)** Draw neat sketch of framed and paneled door showing all its components. **03**
(b) Explain various types of concrete. **04**
(c) The following table shows the readings recorded in a leveling work. Some readings are missing. Re-write the page entering the missing reading and apply necessary checks. **07**

Station	B.S.	I.S.	F.S.	Rise	Fall	R.L.	Remarks
1	0.585					90.00	B.M.
2	1.855		×		2.370	×	C.P.-1
3		1.265		×		×	
4		×			×	86.560	
5	×		×	×		89.135	C.P.-2
6		2.855			0.505	×	
7	×		1.655	×		×	C.P.-3
8			2.435	×		×	
	7.475		×	×	×	×	

- Q.6 (a)** Explain various sub surface sources of water. **03**
(b) Classify building based on occupancy as per National Building Code of India. **04**
(c) Prepare line plan, plan and schedule of opening for a kitchen, room with verandah with scale of 1:50. The size of room is 3.0 m × 4.5 m, kitchen is 3.0 m × 3.0 m and verandah is 1.5 m wide. Thickness of external walls and internal walls is 30 cm and 20 cm respectively. Suggest openings & stair at suitable location. **07**
- Q.7 (a)** Discuss disadvantage of air transportation **03**
(b) Explain various geometric cross section elements of a road. **04**
(c) Discuss components and necessity of roof top rain water harvesting. **07**
