

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 1 – EXAMINATION – SUMMER 2026

Subject Code: BE01000101 /BE01R00101

Date: 24/06/2026

Subject Name: Basic Civil Engineering

Time: 10:30 AM TO 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.**
- 4. Simple and non-programmable scientific calculators are allowed.**

- Q.1** (a) Define: (1) Reduced Bearing, (2) Contour Interval, and (3) Benchmark. **03**
(b) What is building automation? Explain with an example. **04**
(c) The following staff readings were observed successively with a level, the instrument having been shifted after the fourth and eighth readings: 1.143, 1.765, 2.566, 3.820, 1.390, 2.262, 0.664, 0.433, 3.722, 2.886, 1.618, 0.616. Enter these readings in a page of the level book and compute the Reduced Levels of the points by the Rise and Fall method, given that the first reading was taken on a Bench Mark of 112.280m. **07**
- Q.2** (a) Describe roof top rain water harvesting in brief. **03**
(b) What are the characteristics of contours? **04**
(c) Draw a neat cross-sectional sketch of a wall and label its building components. **07**
- OR
- Q.2** (c) Describe the different types of loads acting on a building and their importance in designing a building. **07**
- Q.3** (a) Describe the role of plastic and epoxy in modern construction. **03**
(b) Write a brief note on the properties of cement. **04**
(c) Discuss the key characteristics of earthquake resistant buildings. **07**
- OR
- Q.3** (a) What are the applications of timber in civil engineering works? **03**
(b) List any four branches of civil engineering and briefly state their roles. **04**
(c) Write a brief note on (1) Benefits of green buildings, and (2) Concept of smart city. **07**
- Q.4** (a) The observed fore bearings of the traverse sides are as follows: AB = $70^{\circ} 30'$, BC = $140^{\circ} 15'$, and CD = $320^{\circ} 30'$. Determine their back bearings. **03**
(b) Discuss the two basic principles of survey? **04**
(c) How are bricks classified according to Indian Standard? Explain the essential properties of a good brick. **07**
- OR
- Q.4** (a) What is an auto-level used for in surveying? **03**
(b) Discuss fly-levelling in brief with a sketch. **04**
(c) Write a short note on FRP, mentioning its uses and limitations. **07**
- Q.5** (a) Explain English Bond in brief. **03**
(b) Draw a neat line diagram of a 2 BHK residential building. **04**
(c) Write a brief note on (1) Types of sewerage systems, and (2) Septic tank. **07**

OR

Q.5	(a) What is the difference between BOD and COD.	03
	(b) Describe the landfilling method of solid waste disposal.	04
	(c) Explain the necessity of town planning and state its fundamental principles.	07
