

GUJARAT TECHNOLOGICAL UNIVERSITY**BA - SEMESTER – VI EXAMINATION – WINTER 2019****Subject Code:1065004****Date:28/11/2019****Subject Name: Structure VI****Time:10:30 AM TO 12:30 PM****Total Marks: 50****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of IS – 456 & IS -3370 is permitted

- Q.1** (a) Explain different types of foundation with neat sketches. **06**
(b) Find the depth of combined rectangular footing for 1300 kN and 1700 kN column loads spaced at 4 m centre to centre. Each column size is 500 mm X 500 mm. SBC of soil is 260 kN /m². Use M 25 and Fe – 500 **10**

- Q.2** (a) Explain the behavior of cantilever retaining wall and sketch the reinforcement details. **07**
(b) Design cantilever retaining wall of height 6 m. SBC = 160 kN/m². $\phi = 30$ degrees $\mu = 0.5$ unit weight of Soil = 18 kN/m³ M20 and Fe 415. Also perform the stability checks. **10**

OR

- (b) Describe active earth pressure by Rankine Theory (1) Dry and moist backfill with no surcharge (2) Submerged soil (3) Backfill with uniform surcharge (4) Backfill with sloping surcharge and (5) Inclined backfill and surcharge **10**
(c) Explain the types of retaining wall and sketch the deflection profile of counter fort retaining wall. **07**
- Q.3** (a) Fix the basic dimensions and design the top dome of Intze type of elevated water tank to store 8 Lac liters. The height of staging = 15 m. The SBC of soil = 160 kN/ m². The intensity of wind pressure = 15 kN / m². Use M 25 concrete and Fe 415 steel. Sketch the dimensions of Intze tank. **10**

OR

- (b) Explain with sketch various kinds of joints in water tanks and write down the various structural elements of Intze water tank and sketch neat diagram of Intze tank showing economic proportions of structural elements of Intze tank **10**
