

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.ARCH - SEMESTER- VI • EXAMINATION – SUMMER 2015**

**Subject Code: 1065004****Date: 08 / 05 / 2015****Subject Name: Structure – VI****Total Marks: 50****Time: 10:30am to 12:30pm****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use IS - 465: 2000, 875 & 3370 & Steel Table.

- Q.1** (a) Explain the types of combined footing. **06**  
 (b) Draw the Shear force and Bending moment diagram of rectangular combined footing. Locate the critical section. **04**  
 (c) Find the depth of a Rectangular footing having a load of 800 kN and 1100 kN column is having space 3m c/c. **10**  
 Each column size = 400 mm x 400 mm.  
 SBC of soil = 280 kN/m<sup>2</sup>.  
 Use M<sub>20</sub> concrete and Fe<sub>415</sub> grade.
- Q.2** (a) Draw a cantilever retaining wall and the type of force acting on it. **06**  
 (b) Types of retaining wall. Explain the counter fort retaining wall. **08**  
 (c) The steps to calculate the retaining wall. **08**
- OR
- (c) Design cantilever retaining wall of height 5.5 m. **08**  
 SBC = 175 kPA.  
 $\phi = 30$  degrees  
 $\mu = 0.5$   
 Soil = 18 kN/m<sup>3</sup>  
 M<sub>20</sub> and Fe<sub>415</sub>.
- Q.3** Difference between the following : (Any four) **08**  
 1. Combine footing and Continuous Footing.  
 2. Grillage Foundation and Mat Foundation.  
 3. Grillage Foundation and Raft Foundation.  
 4. Shallow Foundation and Deep Foundation  
 5. Simple Footing and Stepped Foundation.
- OR
- Q.3** Fix the basic dimension and design the top dome of Intze type container elevated water tank to store 6 lakh litre water. **08**  
 If height = 16 m  
 Wind load = 1.5 kN/m<sup>2</sup>  
 SBC of soil = 200 kN/m<sup>2</sup>  
 Use M<sub>20</sub> and Fe<sub>415</sub> grade of steel and draw the sketch.

\*\*\*\*\*