

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER- III(OLD) EXAMINATION – SUMMER 2019****Subject Code: 131304****Date: 18/06/2019****Subject Name: Basics Of Structural Engineering****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Determine the slope at supports and deflection at the center of simply supported beam subjected to UDL 'w' kN/m through the beam. **07**
- (b) Define the following terms with suitable examples. Carry over moment, Distribution factor, Fixed end moment. **07**
- Q.2** (a) Establish basic slope curvature relation for bending element. **07**
- (b) Enlist the factors affecting the creep and shrinkage. **07**
- OR**
- (b) Enlist the types of cement with its use. **07**
- Q.3** (a) Explain the term 'Curing'. What are the factors affecting for the selection of type of curing? **07**
- (b) Determine the slope and deflection at the tip of a cantilever beam of span L, subjected to UDL w kN/m throughout, along with point load W at the tip of beam. Use any method. **07**
- OR**
- Q.3** (a) Explain the term 'Workability'. Explain any one of the field method to determine workability. **07**
- (b) Explain the term 'Compaction of Soil'. Write the factors affecting on it **07**
- Q.4** (a) Establish the expression for the maximum and minimum stresses at the base of an unsymmetrical column which is subjected to eccentric load. **07**
- (b) What are the methods of sub-surface investigation? Discuss any one in detail. **07**
- OR**
- Q.4** (a) Explain any one method to determine bearing capacity of soil. **07**
- (b) Explain Liquid Limit, Plastic Limit and Shrinkage Limit, with its uses **07**
- Q.5** (a) Explain the alkali aggregate reaction. Explain the factors affecting on it **07**
- (b) Explain middle quarter rule for circular section. **07**
- OR**
- Q.5** (a) Explain the permeability of soil. Write the test procedure to find the soil permeability. **07**
- (b) Discuss the particle size distribution curve. **07**

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