Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III(OLD) • EXAMINATION – WINTER 2016

Subject Code:131304 **Date:11/01/2017**

Subject Name:Basics of Structural 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. **Draw neat and clean figures, whenever required.**

Q.1	**(a)**	Determine the slope at the support and deflection at the center of a simply supported beam of span L, subjected to UDL w kN/m throughout, along with point load W at the tip of beam, using any method.	**07**
	(b)	Determine the slope and deflection at the tip of cantilever beam subjected to point load 'W' at the center of beam. The beam has a span of L. Use any method.	**07**
Q.2	**(a)**	Explain the initial and final setting time test of cement with its importance.	**07**
	(b)	Explain the term "Fineness Modulus" with its importance. Give the range of fineness modulus for sand and coarse aggregate.	**07**
		OR	
	(b)	Explain the "compacting factor test" with its importance.	**07**
Q.3	**(a)**	Derive basic slope curvature relation for bending element.	**07**
	(b)	Elaborate on the alkali aggregate reaction. Explain the factors affecting on it.	**07**
		OR	
Q.3	**(a)**	Explain the strength test on cement.	**07**
	(b)	Explain the particle size distribution curve.	**07**
Q.4	**(a)**	Explain the term "consolidation of soil" with its importance.	**07**
	(b)	Explain the middle quarter rule of circular section.	**07**
		OR	
Q.4	**(a)**	Explain middle third rule of rectangular section.	**07**
	(b)	Explain the factors that affect on soil bearing capacity.	**07**
Q.5	**(a)**	Explain any one method of sub-surface investigation.	**07**
	(b)	Draw the shear force and bending moment diagram for a fixed beam subjected to UDL w kN/m throughout.	**07**
		OR	
Q.5	**(a)**	Explain the basic steps involved in moment distribution method of analysis.	**07**
	(b)	Derive the Eular's equation for crippling load of column when both ends of the column are hinged.	**07**

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