Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014

Subject code: 1721502 **Date: 18-06-2014**

Subject Name: Behaviour of Reinforced Concrete

Time: 02:30 pm - 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)**	State the basic assumptions and its implications on design of Reinforced Concrete elements under axial force.	**07**
	(b)	Discuss the various idealized stress strain models for concrete proposed by researchers.	**07**
Q.2	**(a)**	Describe effect of uniaxial and biaxial stresses on concrete.	**07**
	(b)	Describe stress-strain characteristic curve of unconfined concrete prescribed by various researchers.	**07**
		OR	
	(b)	How the confinement does affect the compressive strength of concrete? Explain in detail taking example of reinforced column.	**07**
Q.3	**(a)**	Explain moment curvature relationship of Reinforced Concrete element.	**07**
	(b)	The role of web reinforcement in torsion members is similar to that of stirrups in flexural members subject to shear. Justify the statement .State the provisions from the code.	**07**
		OR	
Q.3	**(a)**	Define poissonôs ratio, modulus of elasticity, and modulus of rupture and explain their influence on the behaviour of reinforced concrete elements.	**07**
	(b)	Elaborate Truss Model for RC element under shear.	**07**
Q.4	**(a)**	Explain the behaviour of deep beams.	**07**
	(b)	Discuss the governing factors which affect the long and short term deflections of flexural members.	**07**
		OR	
Q.4		Write a short note on (Attempt any four) **(a)** Effective width of flange of a T-beam. **(b)** Effect of slenderness on behaviour of Reinforced Concrete column. **(c)** Interface shear transfer. **(d)** Effective section in torsion. **(e)** Minimum eccentricity in column. **(f)** Beam with very small amount of steel.	**14**
Q.5	**(a)**	Explain the concept of Yield lines	**07**
	(b)	Describe in brief: (i) Why it is necessary to provide longitudinal as well as shear reinforcement for section under torsional moment? (ii) Draw bending stress, shear stress and torsional stress distribution diagram across a rectangular section.	**07**
		OR	
Q.5	**(a)**	Give load resisting mechanism of corbel in brief.	**07**
	(b)	How the bond stresses develop at the surface of reinforcement? What are the factors affecting bond strength? Explain in detail.	**07**

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