

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – WINTER • 2014****Subject code: 1721502****Date: 03-12-2014****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 various design philosophies for reinforced concrete and explain any one in detail.	07
	(b)	Explain with sketches: Beam of uniform strength, shear centre , various models of Stress strain curve for concrete	07
Q.2	(a)	Explain the importance of deflection calculation in design criteria of RCC beams.State the factors and preventive measures to be adopted in RCC beams.	07
	(b)	Compare the steps to calculate long term deflections as per the Indian standards and British standards for a simply supported beam subjected to udl.	07
		OR	
	(b)	Explain the response of RC beam under uniaxial and biaxial bending.	07
Q.3	(a)	Discuss the stress-strain characteristic curve of unconfined concrete prescribed by various researchers.	07
	(b)	Show the influence of confinement in columns and explain effect of various types of confinement. Explain active and passive confinement	07
		OR	
Q.3	(a)	Discuss the influence of the concept of Poisson's ratio, cracked section and modulus of rupture in context of the behavior of reinforced concrete elements.	07
	(b)	Which measures are specified to prevent the brittle failure of beam in flexure? Explain assumptions made in flexure theory.	07
Q.4	(a)	Explain the implication of space truss analogy to understand the Torsional resistance in R.C.C. beam.	07
	(b)	Sketch neatly the principal stress trajectories of a Deep beam and explain the difference between normal beam and deep beams.	07
		OR	

Q.4	(a)	In limit state of design what is the mechanism for the concrete beam to resist shear with and without reinforcement.	07
	(b)	Discuss: Role of web reinforcement in resisting torsion is similar to the role of stirrups in resisting shear. Neatly sketch it . State the code provisions for equivalent moment & shear.	07
Q.5	(a)	Explain the resistance mechanism and factors affecting bond and anchorage in RCC beam.	07
	(b)	What is the significance of yield lines? Show the notations adopted. Draw the yield line patterns for rectangular ,square, triangular and circular slabs with different support conditions	07
OR			
Q.5	(a)	Give the significance of side face reinforcement ,minimum longitudinal reinforcement, effect of slenderness ratio in long columns, effective section	07
	(b)	State the differences between stress-strain model of concrete adopted by ACI-318 and IS-456	07
