

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 poisson's 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) **14**

(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.

Q.5 (a) Explain the concept of Yield lines **07**

(b) Describe in brief: **07**

(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.

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**
