GUJARAT TECHNOLOGICAL UNIVERSITY
B.ARCH - SEMESTER– III • EXAMINATION – SUMMER 2014

Subject Code: 1035003   **Date: 30-05-2014**
Subject Name: Structure-III
Time: 2:30 PM to 4:30 PM   **Total Marks: 50**
Instructions:
   1. **Attempt all questions.**
   2. **Make suitable sketches wherever necessary.**
   3. **Figures to the right indicate full marks.**

Q.1	**(a)**	A square column of 400 mm side carries a compressive Load of 400 kN at an eccentricity of 100mm on x-x axis. Find maximum stress and minimum stress at the base of the column.	**08**
	(b)	A hollow circular section is having internal diameter 60mm and 10mm thickness. Calculate radius of gyration.	**08**
Q.2	**(a)**	A circular column 450mm in diameter carries a load of 600kN at an eccentricity of 100mm. Calculate maximum and minimum stresses for the column.	**06**
	(b)	An unknown weight falls through 20mm on a collar rigidly attached to the lower end of a vertical bar, 4m long and 25mm in diameter. If the max. instantaneous extension is known to be 4mm, what is the corresponding stress and the value of unknown weight? Take E = 210 kN/mm^2.	**10**

OR

	(b)	A steel bar 50mm in diameter and 2.5m long has to transmit a shock energy of 100 N.m. Calculate the max. instantaneous stress and elongation produced. Take E= 2 X 10^5 N/mm^2.	**10**
Q.3	**(a)**	A fixed beam of 5 m span carries a central point load of 40 kN. Find out fixing moments and draw S.F and B.M diagram of the beam.	**08**
	(b)	A fixed beam of 6 m span carries U.D.L of 80 kN/m over its entire span. Draw S.F and B.M diagrams for the beam. Also find point of Contraflexure.	**10**

OR

Q.3	A continuous beam ABC is simply supported at A, B and C such that AB= BC = 6m. The span AB carries an u.d.l of 12 kN/m and span BC carries a central point load of 36 kN. Draw S.F and B.M diagrams for the beam	**18**

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