

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Architecture – SEMESTER – III • EXAMINATION – WINTER 2016****Subject Code: 3336204****Date: 22/11/ 2016****Subject Name: Structure II****Time: 10:30 AM TO 12:30 PM****Total Marks: 50****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of programmable & Communication aids are strictly prohibited.
5. Use of only simple calculator is permitted in Mathematics.
6. English version is authentic.

- Q.1** (a) Discuss the factors affecting reduction in durability of the concrete. **05**
 (b) What is Slump? How it is measured? **05**
- Q.2** (a) Describe TMT bars, HYSD Bars, Design Mix Concrete, Mild steel and steel as reinforcement. **05**
 (b) For a rectangular beam of size 250 mm wide and 520 mm effective depth. Find out the Balanced depth of N.A., Balanced Leaver arm and Balanced M.R. Take M 20 and HYSD Reinforcement (Fe 415) for the beam C/S. **05**

OR

- (b) Define Types of loads. **05**
- Q.3** (a) Describe Special structures for the structural concepts. **05**
 (b) Define and Describe Pre stressing systems with neat sketches. Also elaborate material used for Prestressing. **10**

OR

- (b) Describe losses for pre-stress. **10**
- Q.4** (a) State assumption for Working Stress Method. **05**
 (b) A simply supported beam at size 230 mm × 600 mm overall depth is reinforced with 4 nos. 12 mm diameter bars. Find the safe uniformly distributed load on beam on a span of 4m. The material are M 20 grade concrete and HYSD Reinforcement of grade Fe 415. **10**

Concrete Grade	M 20	M 20
Steel Grade	Fe 250	Fe 415
σ_{cbc}	7	7
σ_{st}	140	230
K	0.4	0.29
J	0.87	0.90
Qbal	1.21	0.91