

GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma Architecture – SEMESTER – III • EXAMINATION – SUMMER 2017

Subject Code: 3336204

Date: 01/05/ 2017

Subject Name: STRUCTURE II

Time: 02:30 PM TO 04:30 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) Define the following terms with respect to concrete. (Any five) **05**
 (i) Water cement ratio (ii) Workability (iii) Durability
 (iv) Creep (v) Shrinkage (vi) Tensile strength
- (b) Write in brief about types of reinforcement. **05**
- Q.2** (a) Write in brief about folded plates, domes and shells. **05**
- (b) Explain slump test to measure workability of concrete? **05**
- OR**
- (b) What is compressive strength of concrete? How the test is performed in the laboratory to measure it? **05**
- Q.3** Define prestressed concrete and give its advantages and disadvantages. **10**
- OR**
- Explain different prestressing systems with neat sketches. **10**
- Q.4** (a) State the assumptions made for Working Stress Method. **05**
- (b) Write in brief about balanced section, under reinforced section and over reinforced section. **05**
- Q.5** A rectangular beam of 230 mm × 560 mm effective depth is reinforced with 3 nos. 20 mm diameter bars. Find the moment of resistance of the beam. Also state the type of beam. The materials are M20 grade concrete and HYSD reinforcement of grade Fe 415. Take $\sigma_{cbc} = 7 \text{ N/mm}^2$, $\sigma_{st} = 230 \text{ N/mm}^2$, $m = 13.33$ and $k = 0.29$ **10**