

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER – III • EXAMINATION – SUMMER • 2015

Subject Code: 3336204

Date: 05 /05 /2015

Subject Name: Structure - II

Time: 02:30 PM TO 05:00 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** Explain the following terms: (Any five) **10**
1. Curing.
 2. Durability.
 3. Beam.
 4. Workability.
 5. Water Cement Ratio.
 6. Compaction.
- Q.2** Explain balanced, over reinforced and under reinforced section of beam. **10**
An R.C.C. beam of 350 mm wide and 450 mm effective depth is reinforced with 4 nos. 12 mm diameter bars in tension. Find out the depth of neutral axis and state the type of the beam. The materials are M20 grade concrete and HYSD reinforcement of grade Fe 415.
- Q.3** (a) Explain post tensioning system and its application. Explain thermo electric pre-stressing and chemical pre-stressing. **10**
- OR**
- (b) Define pre-stress and give its advantages. State various systems of pre-stressing tensioning **10**
- Q.4** Define the following terms with neat sketch: **10**
1. Flat slab
 2. Pneumatic Structures
 3. Folded Plates
 4. Shells
 5. Domes
- Q.5** (a) What is creep in concrete? **02**
- (b) A nominal mix of grade M: 20 is to be adopted on site by using table given below. It is decided to use volume batch mixing. Find out the volumetric proportions for mix. Consider the bulk density of cement, sand and gravel as 1440 kg/m³, 1500 kg/m³ and 1700 kg/m³ respectively. **08**

Grade of concrete	Cement kg	FA+CA kg	FA:CA	Water cement ratio
M20	50	250	1:2	0.53
