

04/06/2018 2.00 PM to 5.00 PM

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10CV74

Seventh Semester B.E. Degree Examination, June/July 2018
Design of Prestressed Concrete Structures

- 3 b. A post tensioned concrete beam 100 mm wide and 300 mm deep, spanning over 10 m is stressed by successive tensioning and anchoring of three cables 1, 2 and 3 respectively. The cross-sectional area of each cable is 200mm^2 and initial stress in cable is 1200 N/mm^2 . Modular ratio = 6.0. The first cable is parabolic with an eccentricity of 50 mm below centroidal axis at the centre of span and 50 mm above centroidal axis at support sections. The second cable is parabolic with zero eccentricity at supports and an eccentricity of 50 mm at the centre of span. The third cable is straight with a uniform eccentricity of 50 mm below centroidal axis. Estimate the percentage loss of stress in each of the cable, if they are successively tensioned and anchored. (17 Marks)