

Total No of Questions : 8

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EI-213

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UITians

B.E. (VIIIth Sem.) (CGPA) Civil Engg. Exam.-2015

Elective - II

PRE STRESSED CONCRETE

Paper - CE-804

Time Allowed : Three Hours

Maximum Marks : 60

Note : All questions are compulsory.

- Q.I ✓ What is pre-stressing? Discuss its types in Detail.
- Q.II ✓ What are the losses in Pre-tensioned Pre-stressed Concrete.
- Q.III ✓ A Pre-stressed Concrete beam of Section 120 mm wide by 300mm deep is used over an effective span of 6m to support a uniformly distributed load of 4Kg/m which includes the self-wt. of the beam. The beam is pre-stressed by the straight cable carrying a force of 180 KN and located at an eccentricity of 50 mm.

Determine the location of the thrust line in the beam and plot its position at Quarter and Central Span Sections.

Q.IV Write the Design Procedure for Circular tanks.

Q.V A pre-stressed cylinder pipe is to be designed using a steel cylinder of 1000mm internal diameter and thickness 1.6 mm. The circumferential wire winding consist of a 4 mm High Tensile wire initially tensioned to a stress of 1000 N/mm^2 . Ultimate tensile strength of the wire 1600 N/mm^2 , yield stress of the Steel Cylinder is 280 N/mm^2 . The maximum permissible compressive stress in concrete at transfer is 40 N/mm^2 and No Tensile stresses are permitted under working pressure of 0.8 N/mm^2 . Determine the thickness of the concrete lining required, the no. of turns of circumferential wire winding and factor of safety against bursting, Assume modular ratio as 6.

Q.VI Write the procedure for design of a Pre-stressed portal frame hinged at the supports.

(3)

Q.VII Write short note on the following (any two) :

- (a) Differential Shrinkage
- (b) Flexural Strength of Composite Section
- (c) Anchorage Slip

Q.VIII Write the various methods of postensioning.
Explain any one in Detail.
