

EI-213

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.

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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/mm². Ultimate tensile strength of the wire 1600 N/mm², yield stress of the Steel Cylinder is 280 N/mm². The maximum permissible compressive stress in concrete at transfer is 40 N/mm² and No Tensile stresses are permitted under working pressure of 0.8 N/mm². 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.

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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.
