B. TECH. (CIVIL ENGINEERING) BTCLEVI

00083

Term-End Examination

December, 2012

BICE-017 : STRUCTURAL DESIGN AND DRAWING - II

Time : 3 hours   *Maximum Marks : 70*

Note :   *Attempt **any five** questions and assume any data if necessary.*

1. A pre - tensioned concrete beam, 100 mm wide   **14**
    and 300 mm deep, is prestressed by straight wires
    carrying an initial force of 150 kN at eccentricity
    of 50 mm. The modulus of elasticity of steel and
    concrete are 210 and 35 kN/mm^2 respectively.
    Estimate the percentage loss of stress in steel due
    to elastic deformation of concrete if the area of
    steel wires is 188 mm^2.

2. Define prestress concrete and explain the system   **14**
    of prestressing.

3. Write the design steps of plate girders Railway   **14**
    bridges.

4. For designing steel tank, which of the loads are   **14**
    considered, explain in details.

5. Design dimension and section of a circular tank **14**
   with flexible base for capacity of 400000 litres. The
   depth of water is to be 4 m, including a free board
   of 200 mm. Use m_{20} concrete.

6. Write the design steps of steel chimneys. **14**

7. Write notes on *any two* : 2x7=**14**
   (a) Intze tank
   (b) Method of prestressing in steel tank
   (c) Trussed girder railway bridges.

_____