

**B.Tech. CIVIL ENGINEERING (BTCLEVI)****Term-End Examination****December, 2015****BICE-017 : STRUCTURAL DESIGN AND  
DRAWING – II***Time : 3 hours**Maximum Marks : 70*

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**Note :** Answer any **five** questions. All questions carry equal marks. Assume any missing data suitably, if necessary and mention the same. Use of IS 456 – 2000, IS 800 – 2007 and steel table is permitted. Use of scientific calculator is permitted.

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1. (a) What is the system of prestressing ?  
Explain any one method in detail with a neat sketch. 7
- (b) Explain the forces acting on tall chimneys. 7
2. Write down the steps for designing of trussed girder railway bridges. 14
3. Write down the design steps of Intz tanks in detail. 14
4. Design a clear water reservoir of 1000 KL capacity which is to be placed at 1 m below the ground level. The net safe bearing capacity of earth is  $80 \text{ kN/m}^2$ . Use M-25 and HYSD bars. 14

5. Compute and draw the location of pressure line for a rectangular beam 25 cm wide by 30 cm deep that is prestressed with a force of 500 kN at a constant eccentricity of 7.5 cm. The beam is supporting a 50 kN concentrated load at the middle of a span of 4 m. Neglect dead weight of beam. 14
6. Classify steel chimneys. Derive the expressions for bending moment, stresses and thickness of plates for designing a steel chimney. 14
7. Design a plate girder for a bridge of span 24 m for carrying a udl of 50 kN/m. 14
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