

**B.Tech. CIVIL ENGINEERING (BTCLEVI)**

**Term-End Examination**

**June , 2015**

**00976**

**BICEE-009 : ADVANCED STEEL DESIGN**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Answer any **four** questions. Assume any missing data suitably. Use of scientific calculator and BIS codes is allowed.

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1. (a) Discuss single circuit, double circuit and multiple circuit towers.  $7\frac{1}{2}$   
(b) What are the various loads acting on towers ? 10
  
2. Write down the design principle of self-supporting steel chimney with an example, assuming suitable data.  $17\frac{1}{2}$
  
3. (a) Explain briefly the design steps for cross girders in plate girder bridges. 9  
(b) Briefly describe the design steps of tension member.  $8\frac{1}{2}$

4. A self-supporting steel stack is 80 metres high and its diameter at the top is 3 metres. Design the plates for the stack. Also design the base plate and anchor bolts. The foundation and riveted joints need not be designed. Adopt the wind force as per IS : 875. Wind pressure at 30 m height is  $1.50 \text{ kN/m}^2$ .

$17\frac{1}{2}$

5. Design an elevated steel tank, circular in shape for 2,00,000 litres capacity with circular girder supported on suitable number of columns. The shape of bottom may be assumed suitably. The roof covering and staging for the tank need not be designed.

$17\frac{1}{2}$

6. Design a welded plate girder of 25 m effective span and simply supported at the two ends. It carries a uniformly distributed load of  $100 \text{ kN/m}$ .

$17\frac{1}{2}$

