43 (B.ARCH-6) 6·5

2015

STRUCTURE VI

Paper : Eng 6·5

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. *(a)* Explain various types of welded joints with diagrams. 10

   (b) What are the advantages and disadvantages of welded joints ? 10

2. *(a)* What are the various specifications used for design of lacing and battens as per IS. 800 : 2007 ? 10

   (b) What are various specifications for five as per IS. 800 : 2007 ? 10

3. *(a)* Define Lap Joints and Butt Joints. 10

(b) What do you understand by Rivet Value ? Cite assumptions for design of a Riveted Joint. 10

4. Answer **any two** questions :

(a) A steel column 10*m* long carries an axial load of 1000*kN*. The column is hinged at both ends. Design an economical built up section with double lacing. 20

(b) A rolled steel beam section HB 350 @ 0·674 *kN/m* is used as a stanchion. If unsupported length of the stanchion is 4*m*, determine the safe load carrying capacity of the section. 20

(c) A single Riveted lap joint is used to connect plate 10*mm* thick. If 20*mm* diameter rivets are used at 55*mm* gauge, determine the strength of joint and its efficiency. 20
Given condition

Working stress in shear in Rivets = 80 *kN/mm*² (*MPa*)

Working stress in bearing in Rivets = 250 *N/mm*² (*MPa*)

Working stress in Axial tension in plates = $0 \cdot 6\rho_y$

$$\rho_y = 260 \, N/mm^2$$