



Reg. No. :

Name :

**Eighth Semester B.Tech. Degree Examination, December 2016
(2008 Scheme)**

08.802 : DESIGN AND DRAWING OF STEEL STRUCTURES (C)

Time : 4 Hours

Max. Marks : 100

Instructions : Answer 'all' questions from Part A and two questions from Part B. Assume suitable data wherever necessary. Use of steel tables, IS 800, IS 875 (1, 2 and 3), IS 801, IS 804, IS 806, IS 1161, IS 6533 (2) are permitted.

PART – A

(2×10=20 Marks)

1. Explain the design procedure steps for stays in a pressed steel water tank and show the details with a rough sketch. 10
2. Draw the cross section details of a through type railway plate girder bridge. 10

PART – B

(2×40=80 Marks)

3. a) Design a circular water tank with hemispherical bottom to store 1,50,000 litres of water. Safe bearing capacity of soil-200 kN/m². Intensity of wind pressure – 1.5 kN/m². Design the supporting beams and columns also. 20
- b) Draw to suitable scale
 - i) Elevation
 - ii) Connection details of tank plates. 20

OR

4. a) Design a rectangular water tank of capacity 1,25,000 litres. The height of staging is 12 m. Safe bearing capacity of soil – 200 kN/m². Design
 - i) the tank plates
 - ii) the T-cover joint
 - iii) supporting beams. 20



- b) Draw to a suitable scale :
- i) Elevation of the tank
 - ii) The plan showing arrangement of plates. 20
5. a) Design a self supporting steel chimney for a height of 70 m and of diameter 3.5 m. Thickness of lining – 0.1 m. Wind pressure 1.5 kN/m^2 , SBC 200 kN/m^2 . 20
- b) Draw to suitable scale
- i) the sectional elevation
 - ii) foundation details. 20

OR

6. a) Design a through type welded plate girder for a single BG track. Cross girders are spaced at 3 m apart. The total span of main girders from c/c of bearing is 27 m. Stringers are provided at 2 m between centre lines, weight of stock rail – 60 Kg/m. Weight of check rails – 40 Kg/m. Sleepers are provided at 45 cm c/c and the size of the sleeper is $2.8 \text{ m} \times 0.25 \text{ m} \times 0.25 \text{ m}$. Weight of timber = 750 kg/m^3 . The spacing between the main girders – 5 m. 20
- b) Draw to a suitable scale :
- i) Longitudinal section
 - ii) Cross section
 - iii) Plan. 20

