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K – 5453

Reg. No. : .....

Name : .....

Eighth Semester B.Tech. Degree Examination, February 2021.

(2013 Scheme)

13.802 DESIGN AND DRAWING OF STEEL STRUCTURES (C)

Time : 4 Hours

Max. Marks : 150

Instructions:

1. Answer all questions from Part A and **one** question out of two from each module in Part B
2. Assume suitable data wherever necessary.
3. Use of steel section tables, IS codes 800-1984, 800-2007, 875 all parts, 6533, 1161, 804, 806 and railway loading standards are permitted in the examination hall.

PART – A

1. Explain the procedure to calculate the wind loading on trusses as per IS:875
2. Explain the different types of steel chimneys with neat sketches

(2 × 20 = 40 Marks)

PART – B

Module – I

3. (a) A square pressed steel tank is required to store $120m^3$ of water at a height of 15m above the ground level. Design the water tank including the supporting beams. (No design of staging required) **(30)**

P.T.O.

(b) Draw to a suitable scale (i) the Sectional elevation of the tank showing the dimensions and arrangement of structural elements for the tank including supporting beams along (ii) Sectional plan of the tank **(25)**

OR

4. (a) Design a steel tubular roof truss for a span of 8m. Spacing of the trusses is 4m. Use GI sheets. Wind pressure as per IS:875. Location is Bombay **(30)**

(b) Draw the elevation of the truss showing the details of joint at support and at any other joint **(25)**

Module – II

5. (a) Design a lined self supporting chimney for a height of 100m and diameter of 5m. Assume wind pressure as 1.3kN/m uniformly distributed **(30)**

(b) Draw to a suitable scale (i) The elevation and foundation details (ii) Details of flue openings **(25)**

OR

6. (a) Design a plate girder for a deck type railway bridge for a span of 25m for BG loading **(30)**

(b) Draw to a suitable scale the longitudinal elevation plan and sectional at support location for the plate girder. **(25)**

(2 × 55 = 110 Marks)