Model Question Paper

13.802 DESIGN AND DRAWING OF STEEL STRUCTURES (C)

(**Note:** Use of IS. Codes 800-2007, 875 (2&3)-1987, 6533-1989 and Railway loading standards are permitted in the examination hall.)

Time :4hours **Maximum Total Marks: 150**

Part A

Answer all questions**(2 × 20 = 40 Marks)**

1. Design a purlin for a span of 4m with spacing 2.5m, wind pressure 1.5 kN/m^2 and slope of principal rafter 26.56^0.
2. Sketch the component details of a deck type and through type plate girder railway bridge and differentiate between Deck type and through type bridges

Part B

Answer one full question out of the two from each module.**(2 × 55 = 110Marks)**

3. (a) A rectangular pressed steel tank is required to store 0.15 million litres of water at a height 15m above ground level. Also design the supporting structures if wind force is 1.5kN/m^2**30 Marks**

   (b) Draw to suitable scale

   (1) General elevation of tank showing dimensions and arrangement of structural elements including staging.**15 Marks**

   (2) Plan showing the arrangement of stays.**10 Marks**

OR

4. (a) Design a steel roof truss for the following data. Span =12 m, spacing 4.5m, roofing GI sheets, wind pressure as per IS 875. Place Cochin Kerala.**30 Marks**

   (b) Prepare drawing of the truss designed with details of joint at ridge and at the base.

   25 Marks

5. (a) Design a lined self supporting chimney of height 75m and diameter 3.5m.

Wind data

Height	0 -30m	30 -50 m	50 – 75m
Design wind speed	40m/s	41m/s	42m/s

30 Marks

(b) Draw to suitable scale

(i)The elevation **15Marks**

(ii)Section showing the details of plate connections of the above designed stack.

10 Marks

OR

6. Design a plate girder for a deck type railway bridge of span 22m for a modified broad gauge loading.**30 Marks**

(b) Draw plan, elevation and central section of the plate girder. **25 Marks**