I.D. No. 24511

B. Tech. 7th Semester Civil Engg. XI F-Scheme

Examination, May–2014

DESIGN OF STEEL STRUCTURES–II

Paper–CE–401–F

Time allowed : 3 hours] *[Maximum marks : 100*

Note : *(i) Attempt **five** questions in all. **Question No. 1 is compulsory** and do one question from each section of the question paper.*

(ii) All questions carry equal marks.

(iii) Use of IS : 800 : 1984 and IS : 801 : 1975 with latest amendments is allowable.

(iv) If any data is missing the assume the same.

1. Answer the following clearly :

(a) Find out the value of a plastic modulus for a thin walled-cylinder tube, mean diatneter d and wall thickness t ;

(b) Deduce the shape factors for triangular and hollow tube ;

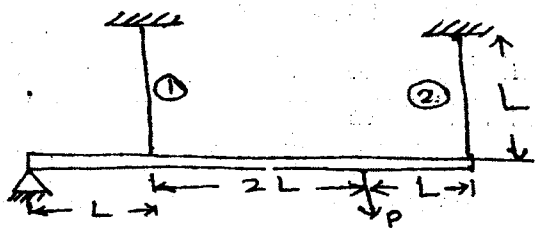
(c) How will you arrive at the inside diameter of the shaft of a steel Stack ;

(d) How will you classify Towers discuss briefly ;

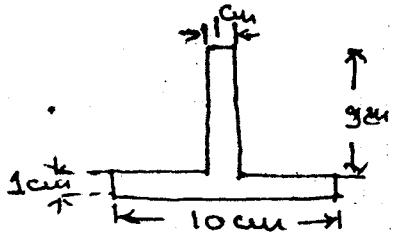
(e) Define spacing of connections in compression flange of cold-formed sections. 5×4=20

Section–A

2. Compute the ultimate load Pu for the structure in the rigid beam given below : 20



3. Find the shape factor of the T-section shown in figure 'A'. Also find fully plastic moment if fy = 250 MPa. 20



Section–B

4. Find the wind pressure for design of a sloping roof of span 10 m and pitch 1/4 with height of eves at 5 m above ground. Assume probability factor as 1.0 height size factor 0.8 and topography factor 1.0 20

5. Design a pre-stressed steel tank for a capacity of 1,00,000 Litres. The tank is open on the top. The height of staging is 12 m upto top of column Pressed Steel plates of size 1.25 m × 1.25 m are available. 20

Section–C

6. Design a self-supporting steel stack of height 60 m above the foundation and having diameter of cylindrical parts as 5 m. 20

7. It is said that a transmission line tower is a three-dimensional cantilever truss. How will you analyse the transmission line tower ? 20

Section–D

8. A square box section 200 mm × 200 mm × 2 mm is to be used as a column of effective length 4 metres. Find the maximum load it can carry. 20

9. Two channels of 150 mm × 50 mm section with bent lips are connected with web to act as beam. The thickness of the plate is 2.5 mm and depth of the lip is 25 mm. The beam has an effective span of 3 metres. Determine the allowable load per m run on the beam. Take fy = 200 N/mm^2. 20