NR

Code No: NR310103

III B.Tech I Semester Supplementary Examinations, November 2006
STRUCTURAL ENGINEERING-III (STEEL) DESIGN & DRAWING
(2000 BATCH)
(Civil Engineering)

Time: 3 hours **Max Marks: 80**

Note 1.: Answer any ONE question from Part-A and THREE from Part-B
2.: Assume suitable data, wherever necessary use of I.S codes and Structural tables permitted.

PART-A **Marks (32)**

1. A-Team cum slab construction has 150mm thick slab subjected to a live load of 4kN/m^2. The beam of clear span 10m are spaced 3m c/c. The end walls are 450mm thick. Design one of the intermediate T-beam using M-20 grade concrete and Fe-415 grade HYSD bars. Draw to a suitable scale the details of reinforcement. [24+8]

2. Design a circular footing for a circular column 300mm in dia carrying an ultimate load of 750kN, of the safe bearing capacity of soil is 200 kN/m^2. Use M-20 grade of concrete and Fe-415 grade HYSD bars. Draw to a suitable scale the plan and elevation showing the details of reinforcement. [24+8]

PART-B **Marks (16x3=48)**

3. Design a rectangular column (300 x 400mm) subjected to a design ultimate load of1200kN and an ultimate moment of 200kN-m with respect to the major axis. Use M-20 grade of concrete and Fe-415 grade HYSD bars. Sketch the reinforcement details. [16]

4. Design a two-way slab for a room (4m x 5m) with discontinuous and simply-supported edges on all the sides with corners prevented from lifting to carry a working live - load of 4kN/m^2. Adopt M-20 grade concrete and Fe - 415 grade steel. [16]

5. Explain the salient features of the I-S code method of concrete mix design. [16]

6. (a) Explain the difference between under, over and balanced sections. [6]
   (b) Using working stress method, find the moment of resistance of a rectangular beam 250 mm x 500mm reinforced with 3Nos 16mm dia bars in the compressive side and 4 Nos 20mm dia bars in the tension side. The effective cover is 50mm. M-15 grade of concrete and mild steel are used. [10]

Contd..2

7. Write short notes on any three of the following: [16]
   (a) Braced and unbraced columns
   (b) Concept of Band and Anchorage
   (c) L.S.D Vs W.S.D
   (d) L.S.D for Cracking.

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