



Bharatiya Vidya Bhavan's
Sardar Patel College of Engineering

(A Government Aided Autonomous Institute)
Munshi Nagar, Andheri (West), Mumbai - 400058.

End semester exam
/ December 2016



9

Max. Marks: 100
Class: T.E
Name of the Course: DDSS

Semester: VI

Q. P. Code:
Duration: 4 hr
Program: Civil
Course Code : CE352

Master file

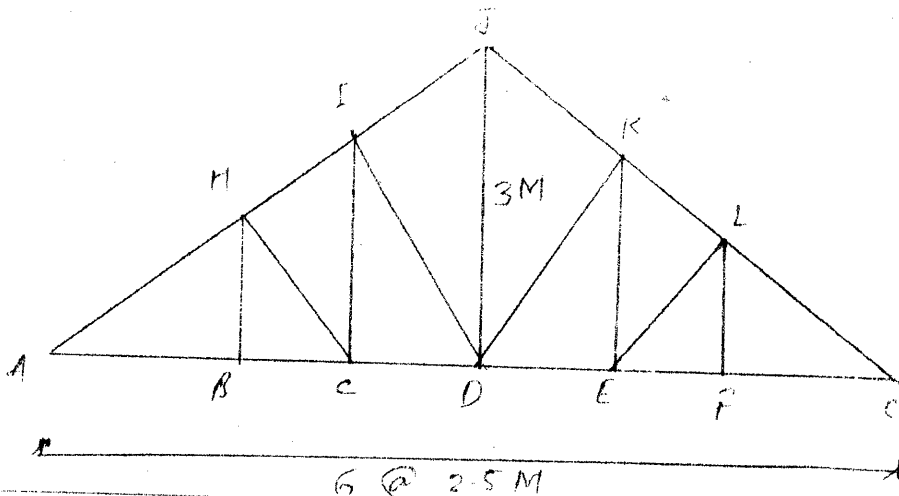
Instructions:

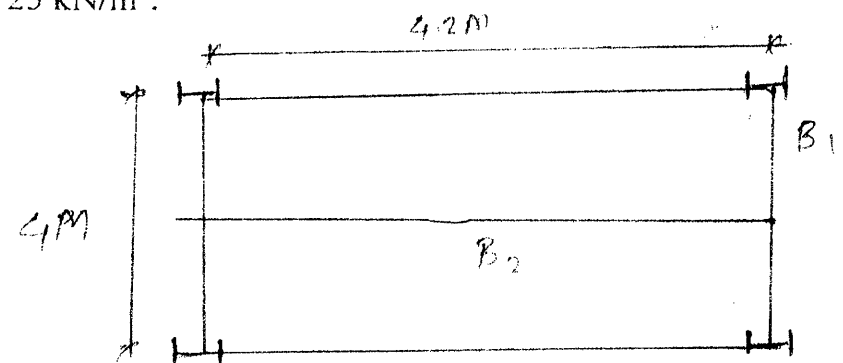
1. All questions are compulsory.
2. Assume suitable data wherever necessary and state it clearly.
3. Figures to the right indicate full marks.
4. Use of IS 800-2007 and Steel table is allowed.

Q.1 The truss shown in the figure has end A as hinged and end G as roller support. Member loads are as follows. 20M

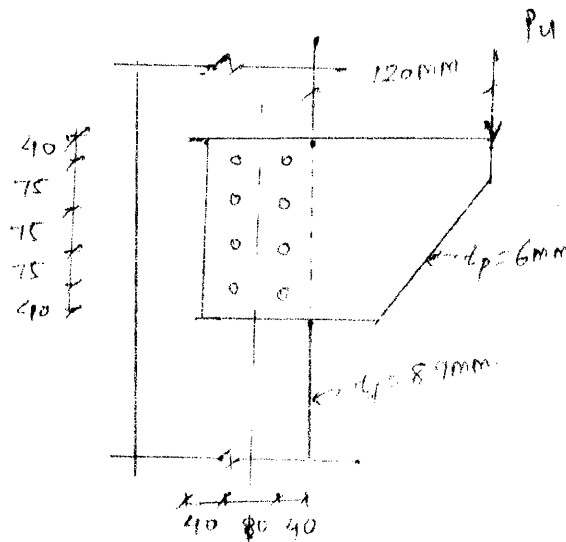
Member	DD (kN)	LL (kN)	WL (kN)
CH	7 (C)	7 (C)	30 (T)
CD	28 (T)	28 (T)	100 (C)

Design these members considering proper partial safety factor and combination and bolted connection. Draw details of joint 'C'.



<p>Q.2</p>	<p>Design beam B1 as laterally supported using the following data. Thickness of the slab 140mm $L.L = 3 \text{ kN/m}^2$ all the beams support 150mm thick brick wall of 3.5m height. Density of masonry is 20 kN/m^3 and that of concrete is 25 kN/m^3.</p>  <p>The diagram shows a horizontal beam labeled B1 supported by a vertical wall labeled B2. The beam has a length of 4.2m, indicated by a dimension line above it. The wall has a height of 4m, indicated by a dimension line to the left of it. The beam is supported at its ends by the wall. There are also dimension lines at the ends of the beam indicating its width.</p>	<p>20M</p>
<p>Q.3</p>	<p>a) Design a column made of I section to carry factored load of 2000kN. One end of the member is restrained against rotation as well as translation while the other end is restrained against translation but free for rotation. Unsupported length of the column is 3m.</p> <p>b) 2 channels ISMC – 250 are placed back to back at a spacing of 200mm if the effective length of the column corresponding to x-axis is 5m and corresponding to y-axis is 3.8m. determine the safe capacity of the column.</p>	<p>10 M</p> <p>10M</p>
<p>Q.4</p>	<p>Determine compressive and tensile load* for a single angle discontinued member of a roof truss. The c/c distance is 1.8m and 2 bolts of M16 of grade 4.6 grade are provided at each end. Size of angle ISA 90x90x8 consider hinged condition</p>	<p>20M</p>
<p>Q.5</p>	<p>a) Explain philosophy behind the Limit state method.</p>	<p>5M</p>

b)	Explain the term local buckling with the help of neat sketch	5M
c)	Design slab base and concrete pedestal for ISHB 250 @ 51 kg/m. the column has an effective depth of 5m. consider M15 and S.B.C of soil as 250 kN/m ²	10M
Q.6		
a)	A laterally supported beam of effective span 8m consist of ISMB 500 @ 86.9 kg/m check whether beam is safe or not	12M
b)	Explain the term local buckling with the help of neat sketch	8M
Q.7	Calculate safe working load for an eccentric bracket connection shown in the figure. Use bolt of grade 4.6	20M



*** BEST OF LUCK ***

