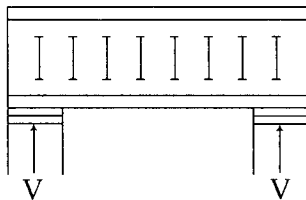


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**B.TECH. CIVIL ENGINEERING
(BTCLEVI)****Term-End Examination****December, 2012****BICEE-009 : ADVANCED STEEL DESIGN***Time : 3 hours**Maximum Marks : 70*

Note : Answer any four questions : Assume any missing data suitably. Use of scientific calculator and BIS code are allowed.

1. A simply supported plate girder having a span of 17.5 m has to support floor beams that frame at 2 m center-to-centre as shown in figure. Each floor beam introduces a concentrated load of 100 kN on the girder. In addition the girder has to carry uniformly distributed load of 18 kN/m including its own weight. The top flanges of the girder is to be restrained effectively and the girder provided with vertical stiffeners. Assuming that the depth of web plate is to be 100 cm. Find suitable thickness of the web.



2. Design a gantry girder for an electric overhead crane with the following data : 17.5
- Capacity of crane = 100 kN
 - Weight of trolley = 40 kN
 - Weight of crane girder = 200 kN
 - Span of crane girder = 18 m
 - Centre to centre distance between columns = 8 m
 - Min^m clearance between trolley and gantry girder = 1.2 m
 - Centre to centre distance of crane wheels = 3 m
3. Design a pressed steel tank having a capacity of 1,20,000 litres. The tank is open on the top. The height of staging is 12 m upto the top of columns. 17.5
4. Write the design steps of self supporting chimney with an example assuming suitable data. 17.5
5. Design a column section to carry an axial load of 410 kN. The column is 4.2 m long and is effectively held in position at both ends but restrained against rotation at one end only. Yield stress of steel = 250 mPa. 17.5
6. Write short notes on :
- (a) Design consideration of light gauge section. 10
 - (b) Design steps of tension member. 7.5
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