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CEL 332N Mazor Exam 8 May, 2007.

Note: Total Marks 56 to be converted to 35 marks.

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CLOSED BOOK

1. Draw the M-θ diagram for different type of connections. Which of these would represent the bebavior of a Moment resistant Connection? Why? 3
2. It can be seen that welded connection use smaller amount of connection material and the connection occupy less space. However some precaution should be taken in the design of welded connection (Which part should yield first)? 1
3. When we curtail the cover plates, we need some extra length with rivets (connection) on them. Why? What force is it designed to take? 2
4. In a built up plate girder we require longitudinal stiffeners. What is the condition in which we need the vertical stiffener and the longitudinal stiffener only at d/5 and not at d/2. 2
5. Why do we require longitudinal stiffener only in the top and not in the bottom? 1
6. What is the allowable stress in tension in a beam 1
7. How is the allowable stress in compression in a beam, with equal cover plates in top and bottom without curtailment. calculated? Mention the conditions we should check and values we should calculate to get the value from the table? 3
8. Allowable Bearing Stress for Fy = 250 is 1

a) 0.6 Fy b) 108 MPa c) 150 MPa d) 0.75 Fy e) None of them

9. Draw a Moment resistant Connection. 2

OPEN

~~Closed~~ Book Exam

1. Design a Rivets Connecting the angles of a bracket with a flange of a column ISHB200 with liver arm 350 mm and P = 225 kN. The Rivets are power driven field rivets 22mm dia @ 75 mm pitch. The angles are ISA 80 x 80 x 10. Assume no initial tension. 10
2. A beam, ISWB 550 @ 112.5 kg/m transmits an end reaction of 300 kN to the web of a column ISHB 250 @ 54.7 kg/m. Design a stiffened seat connection. Use 24 mm dia power driven shop rivet. 10
3. Design a framed connection at the end of a beam ISLM 350. Span of 8 m, carrying a total uniformly distributed load of 280 kN with flange of column ISHB 200 @ 400kg/m. use 18 mm rivets. 10
4. A 28 m long bridge is designed as riveted plate girder. Assumed depth of girder is 2400mm. The section is to be designed for a Bending moment of 10000 kN, and Vmax=1300kN. Find out the optimum length of two 16mm plate in top and bottom to be used if used with a 6 mm Web Plate and two 150 x 150 x 12 angles in top and bottom each. Check the permissible plate width using Fig. 5.29. The calculation can be started using loss of stress due to Net Area and Gross area to be about 15 to 20%. Check the Shear stress and Bending stress and the deflection. 10