CE388 - FUNDAMENTALS OF STEEL DESIGN

2014-2015 Spring Term

Problem Set 5 - Answers

1)

	a	b	c
R_n (Bolt shear) (kN)	141.50	203.76	136.85
R_n (Bearing outer bolts) (kN)	161.00	150.67	156.86
R_n (Bearing inner bolts) (kN)	165.12	198.14	181.63
R_n (outer bolts) (kN)	141.50	156.86	136.85
R_n (inner bolts) (kN)	141.50	198.14	136.85
ϕR_n (kN)	955.13	1230.64	923.74
$\frac{R_n}{\Omega}$ (kN)	636.75	820.43	615.83

2) Number of bolts = 6

3) Number of bolts required = 9

   For two bolts per each row, 10 bolts are required.

4) P_u = 128.7 kN

5) P_u = 214.06 kN

6) Number of bolts = 12 (6 bolt layers in vertical direction with 2 bolts per each layer)