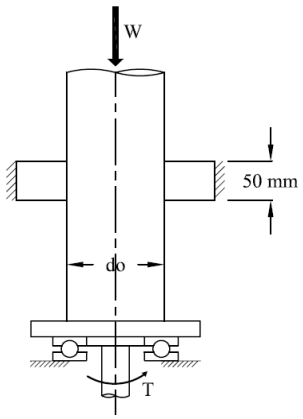
College of Engineering & Technology

Department: Mechanical Engineering Marks: 20
Lecturer: Dr. Rola Afify Time: 11.00 - 12.00
Course Code: ME356 Date: 10/12/2013

Answer the following questions:

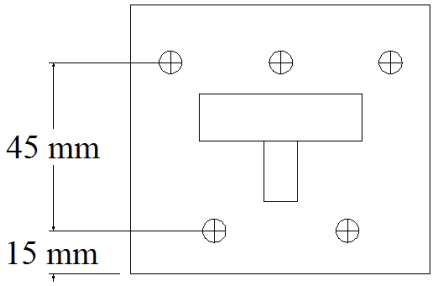
Question one (8 marks)

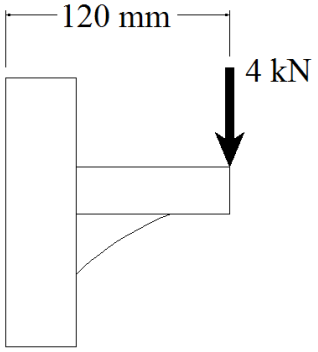


1) If it is required to lift a load (W) using single square threads with outer diameter 48 mm, pitch 8 mm and the friction coefficient between screw and the nut is 0.15 and the lifting torque is 40 N.m. determine:
   a) The load (W).
   b) The power screw efficiency.
   c) Find the bearing stress between the screw and the nut teeth.

Question two (6 marks)

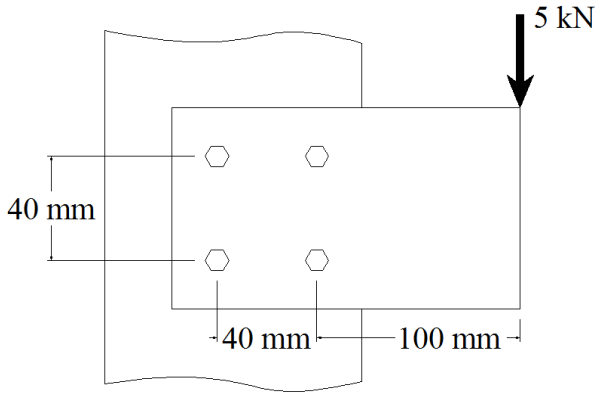
For the bolted Joint shown in following figure; find the maximum normal and shear stresses if the outer diameter of the bolts is 10 mm.





Question three (6 marks)

For the bolted Joint shown in following figure; find the outer diameter of the bolts if the Yield strength 320 MPa and factor of safety 3.



Good Luck

Dr. Rola Afify