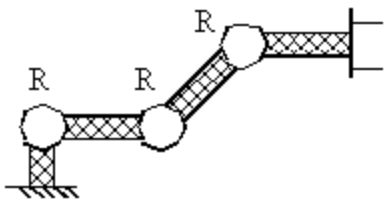
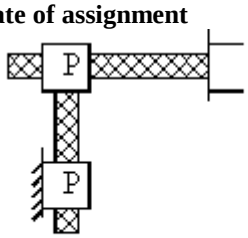
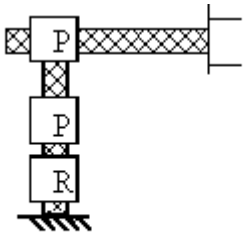
Mechanical and Aerospace Engineering Department
University of Texas at Arlington
Introduction to Robotics – ME 5337
Homework # 6
Due Date: Third class meeting from date of assignment



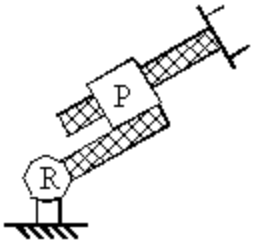
Problem 1: 3-Link Planar Manipulator



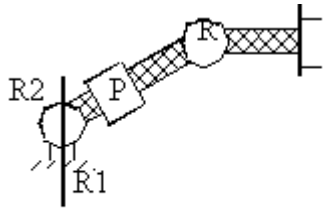
Problem 2: 2-Link Cartesian Manipulator



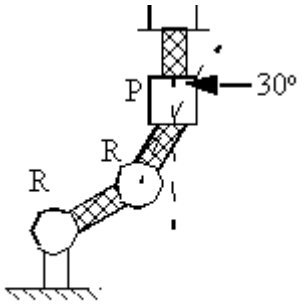
Problem 3: Cylindrical 3D Manipulator



Problem 4: 2-Link Planar Manipulator



Problem 5: 3-D Manipulator



Problem 6: Planar w/Bent Link

For the Mechanisms labeled 3, 4, 5.
Assume proper dynamic parameters (justify your assumptions) derive the dynamic equations of motion and put them in the correct form. Identify the inertia matrix, the Coriolis, centripetal and gravity vectors.

You must derive the equations by hand but you could use a symbolic manipulator such as MATLAB to verify your results.