**ME I0800**

**Homework #2: Exact Solutions**

1. Determine the velocity profile for Couette flow between two horizontal flat plates separated by a distance H, when the top plate is moving at a velocity V and the bottom plate is at rest. Consider two conditions: (i) zero pressure gradient, and (ii) non-zero pressure gradient. Draw the velocity profile for the following three cases:

= 0, 0, 0

1. Two concentric cylinders of radii and re rotating with angular velocities and , respectively. Solve the Navier-Stokes equations for the velocity profile .