Each problem is worth 10 points. Show all work for full credit, and use correct notation.

1. Males have a constant force of mortality of 0.05 and females have a constant force of mortality of 0.04. For a population of 40-year olds, 40% are male. Determine $q_{50}$ for this population of 40-year olds.

2. Each individual has a constant force of mortality, $\mu$, where $\mu$ is drawn from the uniform distribution on the interval [0.01, 0.05]. Determine the value of $10p_x$
For Numbers 3 and 4, use the L-TAM Illustrative Life Table to determine

3. $10q_{30}$

4. $5_{10}q_{30}$

5. Suppose the force of mortality is constant over the 2-year period centered at age 40. Determine the value of the force of mortality that is consistent with the mortality from the L-TAM Illustrative Life Table.