

MAP 4175 / 5177  
Quiz 3

Name: \_\_\_\_\_  
Date: September 27, 2017

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

1. Smokers have a constant force of mortality of 0.1, and non-smokers have a constant force of mortality of 0.05. For a population of 30-year olds, 10% are smokers and 90% are non-smokers. Determine  $q_{50}$  for this population of 30-year olds

2. Each individual has a constant force of mortality,  $\mu$ , where  $\mu$  is drawn from the uniform distribution on the interval  $[0.1, 0.2]$ . Determine the value of  ${}_{10}p_x$ .

For Numbers 3 and 4, use the Illustrative Life Table to determine

3.  ${}_{10}q_{25}$

4.  ${}_{10|5}q_{25}$

5. Suppose the force of mortality is constant over the 2-year period centered at age 50. Determine the value of the force of mortality that is consistent with the mortality from the Illustrative Life Table.