Universityof Texasat Austin

Quiz #3

pmf and pdf. Exponential.

Provide your **complete solution** to the following problems. Final answers only, without appropriate justification, will receive zero points even if correct.

Problem 3.1. (4 points) The probability density function is always less than or equal to 1. *True or false?*

Problem 3.2. (2 points) The probability mass function is always less than or equal to 1. *True or false?*

Problem 3.3. (9 points) *Source: Sample P exam #199.*
A car is new at the beginning of a calendar year. The time, in years, before the car experiences its first failure is exponentially distributed with parameter 2. Calculate the probability that the car experiences its first failure in the last quarter of some calendar year.

- (a) 0.081
- (b) 0.088
- (c) 0.102
- (d) 0.205
- (e) None of the above.