

This is an open book quiz. You are allowed to use your text and written notes. Other books, laptops, PDA's and text messaging devices are prohibited. Calculators are permitted. Give complete explanations to receive full credit. There are [30] total points.

_____ / 30
------------

**Discrete Random Variables.** Suppose that the probability density function (**pdf**) of the random variable  $X$  is given by

$$p(x) = \begin{cases} .4, & \text{if } x = 2; \\ .3, & \text{if } x = 3; \\ .2, & \text{if } x = 5; \\ .1, & \text{if } x = 8; \\ 0, & \text{otherwise.} \end{cases}$$

a. [8] Find the probability  $P(4 < X)$ .

b. [8] Find its cumulative distribution function  $F(x)$ .

c. [7] Find its expected value  $\mu_X = E(X)$ .

c. [7] Let  $g(x) = \frac{1}{x}$ . Find  $E(g(X))$ .