# MA 587/687

Name (Print last name first): .....

## Quiz 3

Question 1

Suppose the joint pmf $p(x, y, z)$ of $X, Y, Z$ is given by

$$p(1,1,1) = 1/3, p(1,1,2) = 1/18, p(1,2,1) = 1/18, p(1,2,2) = 1/16$$

$$p(2,1,1) = 1/18, p(2,1,2) = 1/16, p(2,2,1) = 1/4, p(2,2,2) = 1/8.$$

What is $E(Y|Z = 1)$? What is $E(X|Y = 1, Z = 2)$?

Question 2

A prisoner is trapped in a cell with 3 doors. The first door returns to his cell after 3 days. The second returns to his call after 4 days. The third leads to freedom after 5 days of travel. Assuming he chooses the doors (independently each time, because he doesn't learn) with $p_1 = 1/6, p_2 = 1/3, p_3 = 1/2$, what is the expected number of days until freedom?