1. Let  and be jointly distributed discrete RVs with joint distribution given in the following table:

|  |  |  |
| --- | --- | --- |
| Y\X | 0.3 | 0.6 |
| 0 | 0.1715 | 0.032 |
| 1 | 0.2205 | 0.144 |
| 2 | 0.0945 | 0.216 |
| 3 | 0.0135 | 0.108 |

a. (2 points) Report and fully specify (as a distribution we know) the marginal distribution of.

b. (2 points) Evaluate

c. (3 points) Report the conditional distribution of given that .

d. (3 points) Find 

e. (4 points) Provide appropriate pseudocode for a reproducible simulation to verify your computation in part d., with the following additional information. You have at your disposal two functions:

* generatejoint will draw a pair of values (X,Y) from the joint distribution
* generatecond will draw a value of Y from the conditional distribution you found in part c.