**Practice Problems Set #3**

[1] The joint PMF of two discrete random variables X and Y is

Find the

(i) value of c,

(ii) P[X2+Y2<10],

(iii) expected value of (X2+Y2),

(iv) correlation coefficient of X and Y, and the

(v) PMF of W= (X2+Y2)

[2] X and Y are two continuous random variables with joint pdf

Find the

(i) value of c,

(ii) expected value of X when Y=1, and

(iii) correlation coefficient of X and Y.

(iv) Are X and Y independent?

[3] X and Y are two continuous random variables with joint pdf

Find the

(i) value of c,

(ii) expected value of X when Y=1, and

(iii) correlation coefficient of X and Y.

[4] X and Y are two continuous random variables with joint pdf

Find the

(i) value of c,

(ii) pdf of

(iii) pdf of Z=.

[5] X is uniform from 0 to 1. For any given X=x, Y is uniform from 0 to x. Find the pdf of X when Y=0.5

[6] X and Y are jointly Gaussian. The mean and variance of X is 2 and 9, while the mean and variance of Y are -1 and 4. If the correlation coefficient of X and Y is -0.5, find the probability that X>3 when Y=1.

[7] Consider a set of independent and identically distributed random variables,  (i=1,2,…,200). It is known that each random variable in the set is uniformly distributed between -1 and 3. Clearly stating any assumptions, find the approximate probability

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