Part F

(a)

P =

Q =

(b)

Solve P using eigenvalue decomposition

We get eigenvalues 20 and 0.

It corresponding eigenvector are and

Solve Q using eigenvalue decomposition

We get eigenvalues 20 and 0. (of course)

It corresponding eigenvector are and

So

(c)

Sum square of all element in M = 23

C1 =

Probability of selecting this is 1/23 so scale by

Final c1 =

C2 =

Probability of selecting this is 20/23 so scale by

Final c2 =

R1 =

Probability of selecting this is 5/23 so scale by

Final r1 =

R3 =

Probability of selecting this is 17/23 so scale by

Final r3 =

(d)

Perform SVD on it result from (b).

(e)