ECE 493/593 Tele-healthcare Engineering

Quiz # 4

* Open book & notes;
* Only covers PCA & HMM.

(Please attached your own paper sheets with your answers to all questions).

Q1. Read the posted chapter on PCA, and explain the basic ideas of using 2 ways to calculate the PCA.

Q2. In what cases could use PCA? Use an example to justify your answer.

Q3. Explain each formula in PCA calculation (from maximizing co-variance viewpoint).

Q4. Explain the differences between general Markov chain and HMM.

Q5. Change the following diagram to standard HMM.

3

1

2

Q6. For the above HMM, seek the values of HMM parameters: - A (transition matrix) & B (emission matrix). (suppose π = [1 0 0 ]

Q7. Suppose for a given state transition for 8 different time instants: Q = { 1 1 2 2 3 2 1 3}, what is the probability (P(X)) of getting the corresponding output (observations) as X = {R R G B G R B G} ?