Assignment 4

ELEC ENG 3TQ3 – Section CO2

Due Date Monday Dec 7th 8:30 a.m.

Q1: Given Gaussian random variables X and Y with zero means and covariance matrix find random variables U=aX+bY and V=cX+dY so that U and V are uncorrelated. Hint: there are multiple solutions for this problem you just need to pick one.

Q2: Assume that the number of trucks entering weigh station per day is distributed as a Poisson random variable with and that the weights of each truck are iid Gaussian distributed with mean 7500 kg and standard deviation = 500 kg and independent of the number of trucks entering the stop. Let M be total weight measured per day in the weigh station. Find the expected value and variance of M. Hint: you can either use moment generating functions or central limit theorem.