# Tutorial – Kalman Filter

Quizzes/Questions

ESP 3201

# 1. Can Kalman filter make a weak signal strong? Why/Why not?

# 2. Which of the following is the noise covariance term (symbol) in Kalman filter equations (refer the lecture notes)?

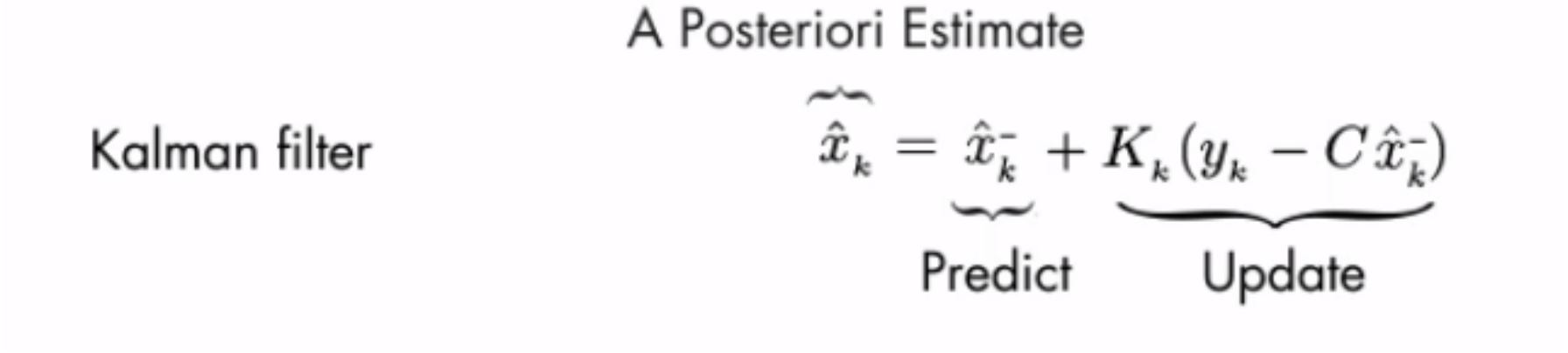
A) P

B) Q

C) R

D) A

3. In the below equation, the Kalman gain (K) is multiple by an error term. What does this error term known as?




A) Innovation term
B) Measurement error residue
C) Noise covariance
D) Estimated covariance

# 4. Name the two main stages in Kalman filter equations.

5. In the Kalman filter two stages, which is the parameter that play a critical role?

# 6. How does Q matrix affect P matrix?

# 7. What is the right sampling period for Kalman filter? Is there an optimal sampling period for Kalman filter?

8. To use Kalman filter for target tracking (i.e. tracking of a moving object), it is necessary to design the dynamic motion model of the target. Say if we use a constant velocity model, what would be matrix A, B and C, if the sensor can measurement the position and velocity in one dimensional space?

9. Following question 8, write down a possible process noise and measurement noise matrix.

# 10. Can we add more motion models into Kalman filters?