1a)

Correct and clearly

1b)

Correct, measurements and true states are within the 3 σ also is reason for that the estimates that the filter outputs are reasonable.

1c)

Correct and clearly

1d)

Motivation is correct, plot is partially incorrect. But I think you should plot all in the same figure ,it will be clearer for us to understand your motivation by the figure. And for y_k , I think you give the wrong plot. It does not ask you to plot the p(y_k) but just the value of y_k. So if you plot all in the same figure, the y_k should be a line in the figure.

1e)

Correct but not complete. The innovation $v_{k=}y_k$ - $H_k\hat{x}_{k|k-1}$ and you can modify the linearUpdate function to get it. This task is mainly ask about the Innovation consistency and correlation. These two can be find in lecture 4 slide.

2a)

Correct but you should explain more about how to determine the variance of r_k^v

2b)

Correct and clearly.

2c)

Correct but incomplete. You should give the parameters that you believe to be work best for each of the models and motivate your choices.

2d)

Correct but incomplete. I think you just explained which model you think fit better, but did not motivate the advantages/disadvantages with the different models.