2.2

a) The grey levels look more continuous when using 256 bins instead of 10 bins. Also, the pixels look more evenly spread out over 256 bins than 10 bins.

b) The histograms are not fully equalized. The histograms for P3 with 10 bins look to be almost equalized but it is not totally equalized while the histograms for P3 with 256 bins looks to have a lot more variations and doesn’t look equalized at all. The similarities between the latter two histograms are that there seems to be a good spread over all the grey levels. The differences between the latter two histograms are that the histogram for P3 with 10 bin seems to be much more equalized than the histogram for P3 with 256 bins.

c) No, the histograms do not become more uniform and changes only slightly. The reason why this is the case is because reapplying the algorithm does not improve the equalization because after the first iteration of the algorithm, the pixels are spread out in a manner such that it becomes harder to reassign pixels belonging to a certain bin to another bin.

2.3

c) The filters were effective in removing Gaussian noise. However, the images become much more blur with the filter that has the higher sigma value producing a greater blur effect. The trade-offs are that if you use the two filters you will be able to remove the Gaussian noise at the expense of making the picture much more blur while using the original picture would mean that you will have a clearer picture with additive Gaussian noise. In this case, using the filters would not be favorable as the picture quality seem to be much worse when it appears to be blurry as it is much more obvious than the additive Gaussian noise.

e) The filters are better at handling Gaussian noise than speckle noise as it is less effective in removing speckle noise.

2.4

c) Gaussian filtering removes Gaussian noise better than median filtering and median filtering removes speckle noise better than Gaussian filtering. The tradeoffs of applying the filters are that the images will become more blur, but it can also possibly produce better images by removing the noise in the image.