Practice Test

1. I would probably take the gamma correction and the log correction into consideration, probably a gamma of 3 or 4 could work, and well for the log I would probably leave the image with a k between 1 and 2 to see what happened.
2. For this image I would apply a gaussian transform to reduce the sharpening, probably not a very strong one so the image did not become over-blurred but good enough to correct the highlighting of edges.
3. For this problem you should take an image of the place without the figure, then take an image with the figure and give create an image that is the result of a weighted average of the two previously taken images. Of course, most of the weight (e.g. 90%) should be on the image without the figure, and the rest of the weight is applied to the image with the figure.
4. In this problem we should make an analysis of the first image by imposing a threshold on the weight of the blue channel with respect to the other channels for all the pixels. So, let’s say if the blue channel in a pixel is above the 45% mark then the pixel is not part of the figure we would like to display, hence we simply replace it with a pixel of the target image. For those pixels that do have a low “share” of blue then we simply replace the target image pixels by those we would like to keep.
5. For this problem we would detect the area that is brightest around an randomly selected group of frames, then that region would be calculated in all frames and adjusted as needed so they match position. There would be small areas that seem to move to fast but at least the video would look stable.
6. For this problem I would have fractions of the image be analyzed with ORB. For every section of the image that I created I would compute the descriptors of the image, apply a Hamming distance analysis on the descriptors and then finally keep those that do made sense according to the matcher. Then after getting these points I would obtain the homography and with the homography the corners of the area where the object is supposed to be in the target image. Then with the known area of the target image and the homography I would apply the inverse of the homography to the target area and that way produce two images of similar size. Finally, I would simply make an analysis of distance between one image and another and if the distance is too big (i.e. 1/e^d ~0) then the probability becomes 0, otherwise if 1/e^d ~ 1 then the probability becomes 1.