```
5   1   3   4
1   2   2   3
1   3   4   4
```

Question 1.
Provide the histogram equalized version of the following 3-bit image shown below.

I	H_i	C_i	7C_i
0	0/12	0/12	0
1	3/12	3/12	2
2	2/12	5/12	3
3	3/12	8/12	5
4	3/12	11/12	6
5	1/12	12/12	7
6	0/12	12/12	7
7	0/12	12/12	7

$$|7\ 2\ 5\ 6|$$
$$|2\ 3\ 3\ 5|$$
$$|2\ 5\ 6\ 6|$$

Question 2.
I. Because image normalization adjusts the image to contain the full range of possible colors in the image using pixel min and pixel max. When most of the pixels are black (0-0) / (80-0) you always get black in return. Or a very slightly less black color $(0.05-0)/(80-0) = 6.25 \times 10^{-4}$.

ii. Image normalization will almost fix the over exposed look of the image, and make it very similar to the original starting image

Question 3.
i. If the pixels are all the same, then yes the histogram of the blurred image will be the same as the input image. Smoothing would produce the same pixel for each kernel.

ii. Boundary padding is the boundary condition for both

If not separable
300*300*(5*5) = 2,250,000
Separable
(300*300) * (5+5) = 900,000