1) In this question, we corrupt the images and try to restore them
    a) 5% corrupted
        i) 
        ii) 
        iii) PSNR = 32.84663762661696
        iv) The filter used is 3x3 Median
    b) 15% corrupted
        i) 

ii) 

iii) PSNR = 32.48222973886923

iv) The filter used is 3x3 Median

c) 20% corrupted

i) 

ii) 

iii) PSNR = 32.31021629807359

iv) The filter used is 3x3 Median

d) 25% corrupted

i) 

ii) 

iii) PSNR = 32.126698871420075

iv) 3x3 Median filter

Question 2

1) Bi-cubic

PNSR = 31.210447462381886

2) Bi-linear

PNSR = 33.36153259788275

3) Nearest Neighbour

PSNR = 33.96835572943057

4) Hermite

PSNR = 33.503042853868976

5) B-spline (Bell)

PSNR = 31.83930871851144

Now, in this part, I made a kernel for each filter using the definitions given in the lecture notes. Unfortunately, in the notes, the kernel given was 1-D. Now that kernel definition was used to make a kernel 1-D. With that 1-D kernel, I took an outer product with itself to make it a 2-D matrix. Now, this matrix shows the effect of a particular pixel on its neighbouring pixels.

Ex
[¼, ½, ¼]
[½, 1, ½]
[¼, ½, ¼]

This matrix shows that in the small image pixel at i,j has w = 1 effect on multiplication_size*i, multiplication_size*j, and ½ weight on multiplication_size*i +1, multiplication_size*j.