Question 1.

1_3. Original cameraman.tif

Gauss filter with Window length 12 and sigma 1

Guass filter with Window length 20 and sigma 3

Median filter with window 3

1_4.

Input image

Using median filter (filtered image)

Explanation :

The noises in the input image is extreme it is either black or white(salt and pepper noise) so by using median filter we can filter this image.
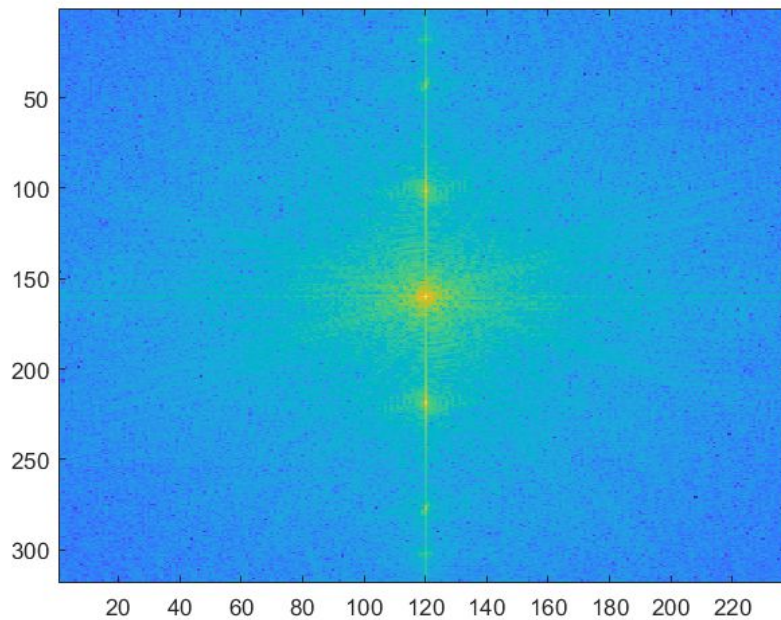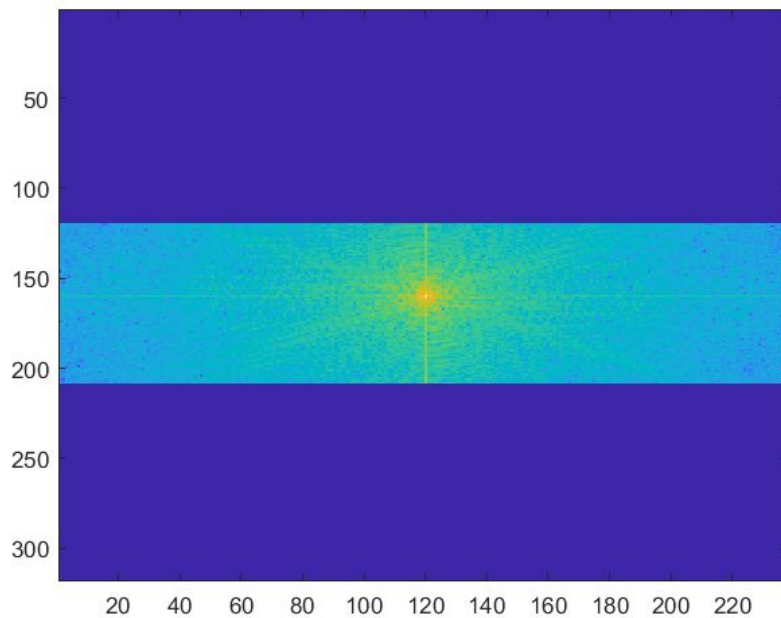
1_5.

Input image

Output image

Explanation :

If we take the fft of the noisy image we get

In the image we can see that the image is formed a brighter dot in middle and all small side dots are noise
So for removing noise we can fill all side dots with zero.

So now we take inverse fft and all the noises will we removed.