ASSIGNMENT - 2, DIGITAL IMAGE PROCESSING

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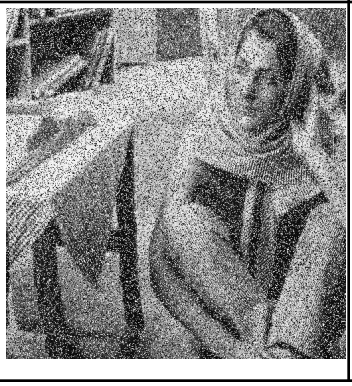
Q1.

Noisy Image	Noisy Image [embed]	Best Denoised Image [embed]	PSNR	Parameter(s) of median filter for best denoising
5% corrupted pixels			32.664440379367434	3X3
15% corrupted pixels			32.10477724623311	3X3
20% corrupted pixels			31.809725687182503	3X3
25% corrupted pixels			31.834081178228146	3X3

Q2.

Interpolation Kernel	PSNR	Embed super-resolved Image
NN	33.961635959068744	
Linear	31.664439585334975	
Bi-linear	31.544224316304984	
Bi-Cubic	32.24630493556185	

Spline	31.271101547906767	

Smaller Window Size (e.g., 3x3):

Smaller window sizes are more locally focused. They consider fewer neighboring pixels. They are suitable for removing fine noise or small isolated salt and pepper noise spikes. However, they may not effectively denoise larger noise clusters or preserve fine image details.

Larger Window Size (e.g., 5x5 or 7x7):

Larger window sizes have a broader view and consider more neighboring pixels. They are more effective at removing larger noise clusters, such as clusters of salt and pepper noise. However, they may blur fine image details and edges, causing a loss of image sharpness.

The choice of the median filter window size depends on the characteristics of the noise and the desired balance between noise removal and preservation of image details.