

Assignment 3

A. A 4x4 grayscale image is given by

5	6	7	8
0	6	7	8
5	6	15	8
5	6	7	8

Show the resultant image after applying

- i. 3x3 standard low pass filter, zero padding.
 - ii. 3x3 median filter, reflect padding.
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B. Answer the following questions:

1. What is the purpose of image averaging?
2. What is the resultant image after applying smoothing filter?
3. What is the undesirable side effect of smoothing filter?
4. What is the relation between blurring effect and filter size?
5. Two filters of similar size are used for smoothing image having impulse noise(salt and pepper noise). One is median filter while the other is a traditional spatial filter. Which one is better and why?
6. While performing the median filtering, suppose a 3*3 neighborhood has value 10, 20, 20, 20, 15, 20, 20, 25, 100), what is the value to be given to the pixel after applying filter?
7. How can Sharp transitions of gray levels in an image be removed?
8. What is the primary objective of sharpening of an image?
9. Which filter is used for edge detection in images?