1. The following figure shows an image that has been corrupted by noise.

   a. Determine the type of noise.

   b. Give a choice of (1) arithmetic mean filter, (2) harmonic mean filter and (3) contra harmonic mean filter, which one is most appropriate for this task. Explain.
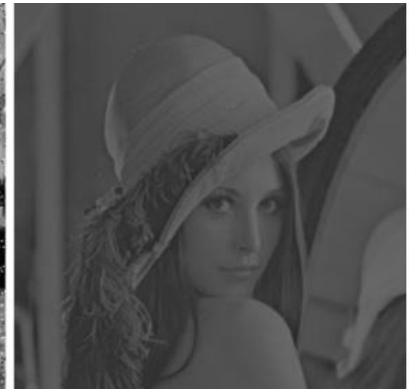

2. Given below are three imperfect images (Boat1.tif, Boat2.tif, Lena1.tif). Some is dark and with low contrast, some are contaminated with noise. Design algorithms to enhance and restore the images. Give reasons for your choice of algorithms.

Boat1.tif   Boat1.tif   Lena1.tif

3. Apply the following filters to the shaded section of the part of the image given below. Assume the kernel size to be 3x3.

      a. Harmonic-mean filter

      b. Contra-harmonic mean filter with order values 0, 1 and 2

      c. Median filter

120	126	134	163	156
157	170	35	110	76
46	78	80	87	90
68	45	34	56	57
87	77	88	54	32