

5) a)

$$\begin{pmatrix} 1 & 1 & 1 \\ 1 & -4 & 1 \\ 1 & 1 & 1 \end{pmatrix}$$

$$\begin{matrix} +200 \\ +100 \\ +100 \\ -400 \\ +100 \end{matrix}$$

$$\begin{pmatrix} 1 & 1 & 1 \\ 1 & -4 & 1 \\ 1 & 1 & 1 \end{pmatrix}$$

$$\begin{matrix} 100 + 200 + 200 \\ + 200 - 800 \\ = -100 \end{matrix}$$

$I_1 =$

$I_2 =$

b)

$$\begin{matrix} I \\ \uparrow \\ 256 \times 256 \end{matrix}$$

$$\begin{matrix} W_2 \\ \uparrow \\ 3 \times 3 \end{matrix}$$

#total-multiplications  
 $= 256 \times 256 \times 3 \times 3 = 589\ 824$  50%

#total-sums  
 $= 256 \times 256 \times (3 \times 3 - 1) = 524\ 288$  50%

$$\frac{100}{9} \times 3 + \frac{200}{9} \times 6 = \frac{300}{9} + \frac{1200}{9} = \frac{1500}{9} = 166,6 \rightarrow 167$$

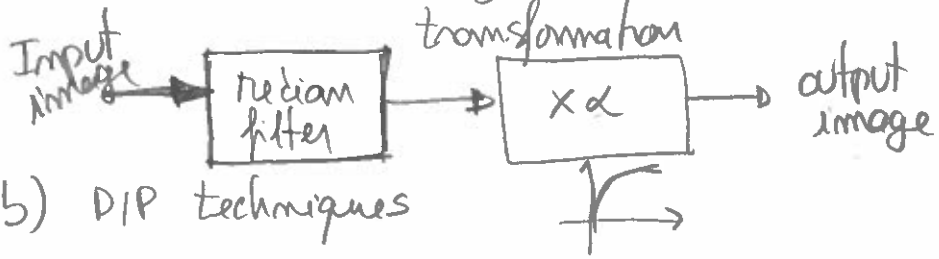
$$\frac{100 \times 6}{9} + \frac{200}{9} \times 3 = \frac{600}{9} + \frac{600}{9} = \frac{1200}{9} = 133,3 \rightarrow 133$$

6) a) DIP techniques

Step 1  $\rightarrow$  Apply median filter to remove the salt & pepper noise 20%

Step 2  $\rightarrow$  Amplify the resulting image, by multiplication with a constant value 80%

or  
 brightness increase with an intensity transformation



b) DIP techniques

Step 1  $\rightarrow$  Apply median filter to remove the salt & pepper noise 20%

Step 2  $\rightarrow$  Use the HS technique, Using a high contrast and high brightness image as the reference image.

