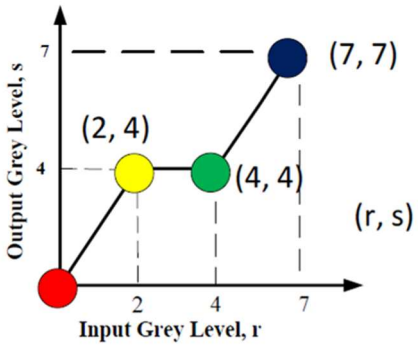
DEPARTMENT	: Electronics and Communications	Sheet 5
COURSE NAME	: Image Processing and Tracking	
COURSE CODE	: ELC-415A	
YEAR / LEVEL	: 4	
COORDINATOR	: DR. MONA SHOUMAN	

1) Compute the negative of the following 4-bit/pixel image.

7	10	6
15	14	13
2	3	4

2) Write a matlab code to compute and plot the negative of a given image and the original image and plot also the histogram diagram of each image.

3) Apply the following transformation on the following 3-bit/pixel sub-image.



$$I = \begin{bmatrix} 0 & 2 & 5 \\ 6 & 3 & 7 \\ 2 & 4 & 4 \end{bmatrix}$$

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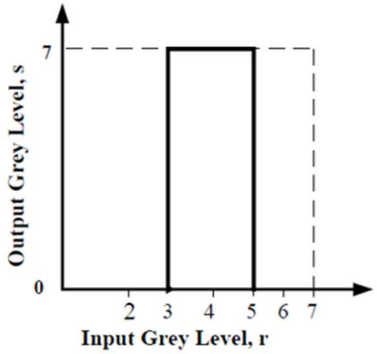
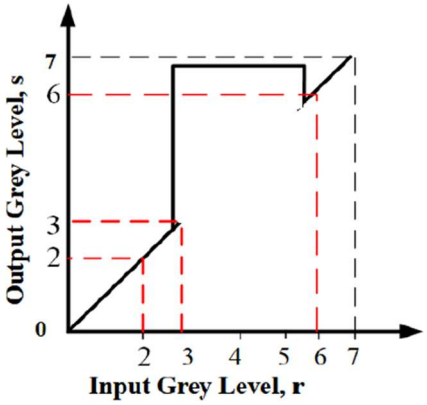
4) Apply the following gray-level slicing function on the following sub-image.



$$I = \begin{bmatrix} 0 & 2 & 5 \\ 6 & 3 & 7 \\ 2 & 4 & 4 \end{bmatrix}$$

5) Apply the following gray-level slicing function on the following sub-image.



$$I = \begin{bmatrix} 0 & 2 & 5 \\ 6 & 3 & 7 \\ 2 & 4 & 4 \end{bmatrix}$$

6) Apply the NOT operation on the following image

$$\begin{bmatrix} 7 & 2 & 1 \\ 3 & 0 & 6 \\ 5 & 4 & 0 \end{bmatrix}$$

7) Apply the standard average smooth spatial filter on the following image

104	100	108
99	106	98
95	90	85

8) Apply the weighted average smooth spatial filter on the following image

104	100	108
99	106	98
95	90	85

9) Write a matlab code to read an image and apply the following filter using convolution method.

$$w = \begin{bmatrix} 0 & 1 & 0 \\ 1 & 1 & 0 \\ 0 & 1 & 0 \end{bmatrix}$$

10) Apply the median smooth spatial filter on the following image

104	100	108
99	106	98
95	90	85

11) Write a matlab code to read an image then apply to it a salt and pepper noise then enhance the image using average and median filter.

12) Apply a convolution method for the following image

2	2	2	3
2	1	3	3
2	2	1	2
1	3	2	2

Using the following filter

1	-1	-1
1	2	-1
1	1	1

13) Choose the correct answer:

1. The filter used to remove the salt and pepper noise in spatial domain smoothing filter is
   a. The median filter
   b. The standard average filter
   c. The weighted average filter

2. The filter used to remove blurring in spatial domain smoothing filter is

   d. The median filter

   e. The standard average filter

   f. The weighted average filter