ملحوظة : عدد أوراق الاسئلة (5) ورقات والاجابة في نفس ورقة الاسئلة أسفل كل سؤال.

Answer ALL the following questions

Q1) Complete the following sentences: **(16 degrees)**

(1) Among image processing operations are : .....
....., ... (list only 3 points).

(2) The intensity values of different pixels refers to ..... .

(3) The area of any object in a binary image, measured in ..... .

(4) The function .....is used to view the last 10 frames in the memory of digital video.

(5) The closing morphological operations is represented by ..... .

(6) Hue and saturation both together produce .....for a Given color.

(7) Using im2bw function to perform thresholding suggests that the threshold value is set in the range .....

(8) Smoothing filters are used for ..... and ..... .

(9) In RGB images each pixel can be stored in .....byte.

(10) Two pixels are connected if .....
..... and ..... .

(11) The frequencies of an image are a measure of the amount by which grey values change with ..... .

Q2) List the steps of digital image analysis. **(5 degrees)**

1- .....

2- .....

3- .....

4- .....

5- .....

Q3) List the name of 4 different types of derivative filters? **(4 degrees)**

1- ..... 2- .....

3- ..... 4- .....

Q4) (a) How to compute the Euclidean distance between two pixels? **(5 degrees)**

Answer: .....

.....

(b) Consider the following image , calculate the Euclidean distance between the pixels p and q.

3	1	2	1(q)
2	2	0	2
1	2	1	1
(p)1	0	1	2

Answer: .....

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Q5) (a) Apply Median filter on the following image at pixel p(3,3). **(10 degrees)**

1	2	3
6	5	4
7	3	1

Answer:.....

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(b) Write MATLAB code to verify your result.

Answer: .....

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Q6) Given the left image below, which has some salt and pepper noise in it. This image is processed to give the clean image without noise in the right. Indicate two different MATLAB scripts to remove correctly all the noise in The left image. **(10 degrees)**

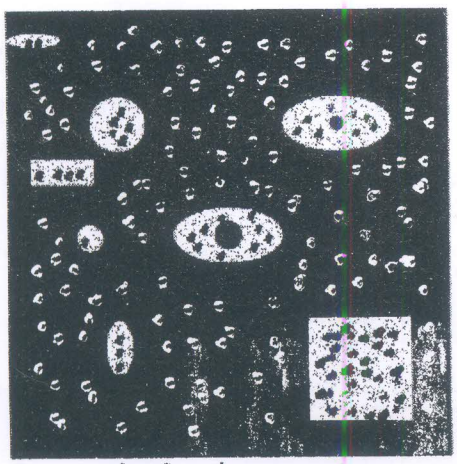
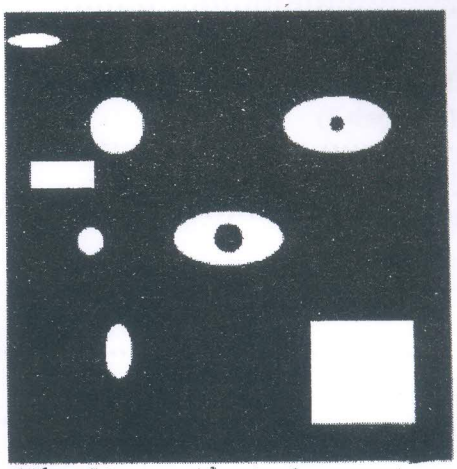


Image with salt and pepper noise.



"Clean" image without noise.

Answer: The first method:

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The second method:

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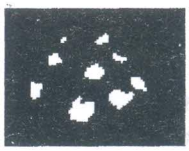
Q7) Write MATLAB script code to count the chocolate chips of grayscale original image and display the results as below, and give message alarm if the number of chocolate chips greater than 9 the product is rejected.

(10 degrees)

grayscale image



final output image

Answer: .....

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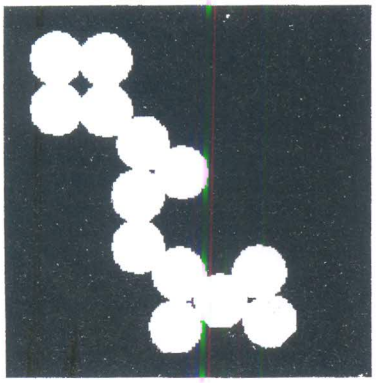
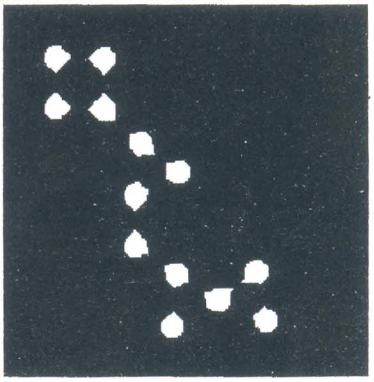
Q8) Write a MATLAB script code to display the output image in the (right) from the original one (left image) as shown in the following figure.

(5 degrees)

original image



output image



Answer:

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Q9) Write MATLAB code script to (1) create video object, (2) preview the video stream and (3) display any single frame. **(5 degrees)**

Answer: .....

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BEST WISHES

Dr. Ghada El Banby