Some Questions Example:

Q) Suppose that you have been given the 3-bit of 4x5 image shown below:

5	**3**	**6**	**2**	**4**
4	**7**	**6**	**3**	**5**
3	**0**	**7**	**4**	**7**
2	**1**	**4**	**0**	**6**

A- Plot the Histogram
B- Show the output image as a result of Histogram Equalization.

Q) Choose the right answers for the following:

1. Pixel is ……
   a) the elements of a digital image b) the elements of an analog image
   c) the cluster of a digital image d) the cluster of an analog image

2. What is the first and foremost step in Image Processing?
   a) Image restoration b) Image enhancement
   c) Image acquisition d) Segmentation

3. In digital image of M rows and N columns and L discrete gray levels, calculate the bits required to store a digitized image for M=N=32 and L=16.
   a) 16384 b) 4096 c) 8192 d) 512

Q) Define the following:

1. Interpolation 2. Quantization 3. Image Histogram
   4.Image Enhancement 5.Path

Q) Answer the following:

1- The range of values stretched by the gray scale is called ……. .

2- In image processing stages, the next step to the image segmentation is morphological processing. (True , False)

3- Reduced spatial resolution, within the same area, may result in what is known ……. .

4- Which is a colour attribute that describes a pure colour?

a) Saturation b) Hue c) Brightness d) Intensity

5- Low–contrast images can result from 1- ……., 2- ……., and 3- ……. .

6- Gray-level Slicing aims to increase the dynamic range of an image. (True , False)

7- Which of the following method is/are used for padding the image?

a) Adding rows and column of 0 or other constant gray level b) Simply replicating the rows or columns

c) All of the mentioned d) None of the mentioned

8- The smallest discernible change in intensity level is called intensity resolution. (True , False)

9- What is the tool used in tasks such as zooming, shrinking and rotating?

a) Sampling b) Interpolation c) Filters d) None of the Mentioned

10- In a dark image, the components of histogram are concentrated on which side of the grey scale?

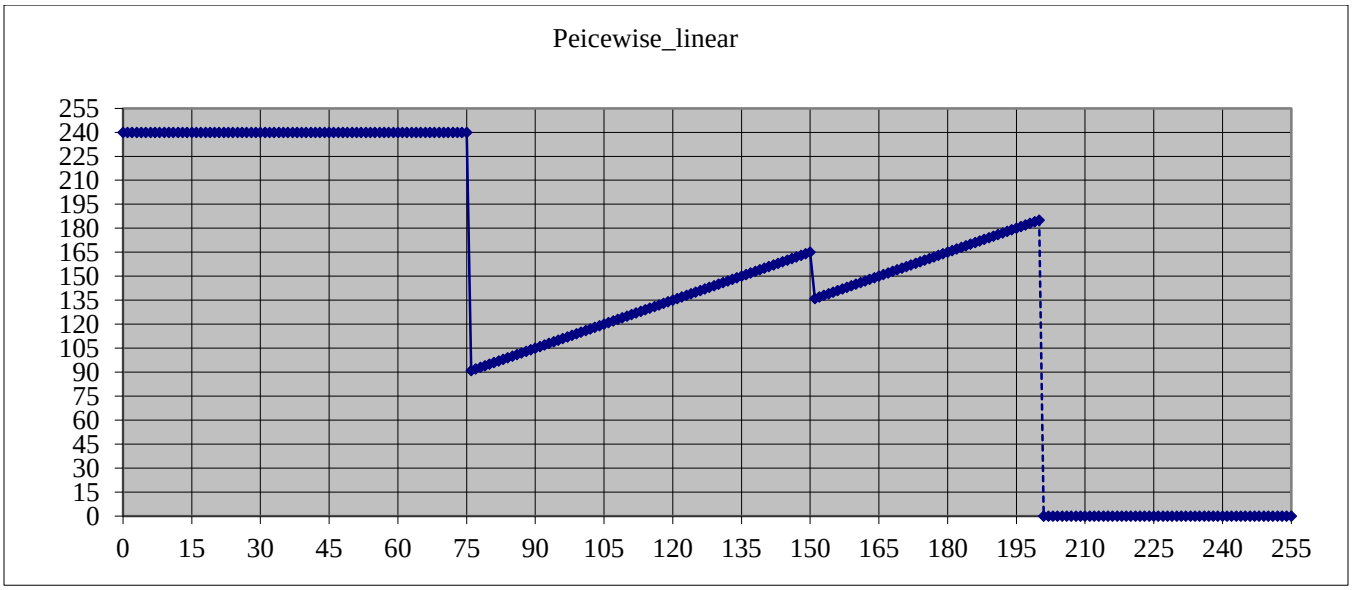
a) High b) Medium c) Low d) Equally distributed

11- The original pixel value is included while computing the median using gray-levels in the neighborhood of the original pixel in median filter case. (True , False)

12- An image that affected by …… noise will look like a repeating pattern has been added on top of the original image.

13- The …… operation erodes an image and then dilates the eroded image using the same structuring element for both operations.

Q) For the following piecewise linear charts determine the equation of the corresponding grey-level transforms:



Q) For the below 4-bit image part, do the following:

3	**12**	**3**	**11**	**1**	**0**
5	**3**	**6**	**12**	**4**	**0**
4	**7**	**6**	**3**	**5**	**12**
3	**0**	**7**	**4**	**7**	**2**
2	**1**	**4**	**0**	**6**	**13**
9	**10**	**12**	**13**	**11**	**6**
11	**7**	**9**	**11**	**8**	**10**

1- Plot the Histogram.
2- Show the output image as a result of Histogram Equalization with its histogram.
3- Give your conclusions about the final histogram obtained.
4- Find negative values of the image.

Q) Define the following:

a) Salt-and-pepper noise b) digital image c) Spatial resolution

Q) Let X be an image and B is a structuring elements given as follows:

X =

0	**0**	**0**	**0**	**0**
0	**0**	**0**	**0**	**0**
0	**1**	**1**	**1**	**0**
1	**1**	**1**	**1**	**1**
1	**1**	**1**	**1**	**1**
0	**1**	**1**	**1**	**0**
0	**0**	**0**	**0**	**0**

B =

1
1
1

Find 1- $(A \bullet B)$ 2- $(A \Theta B)$