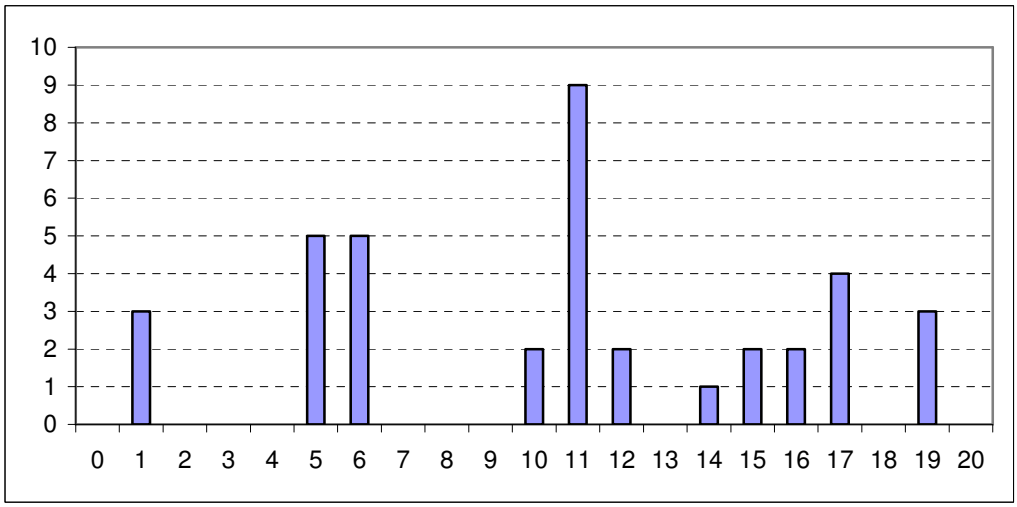
QUIZ # 1
Digital Image Processing

Course: BESE 14 Time Allowed: 10 Mints
Name: _____ Max Marks: 10

(4)

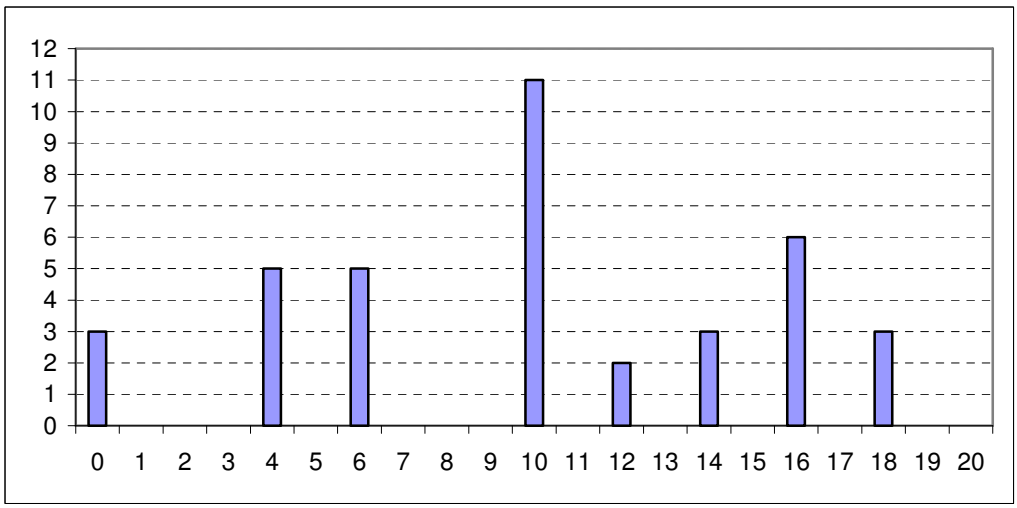
1. Consider an 8-bit image having the following histogram**:**



Assume that the least significant bit for each pixel in the image is set to 0. Show the histogram of this new image.

Solution:

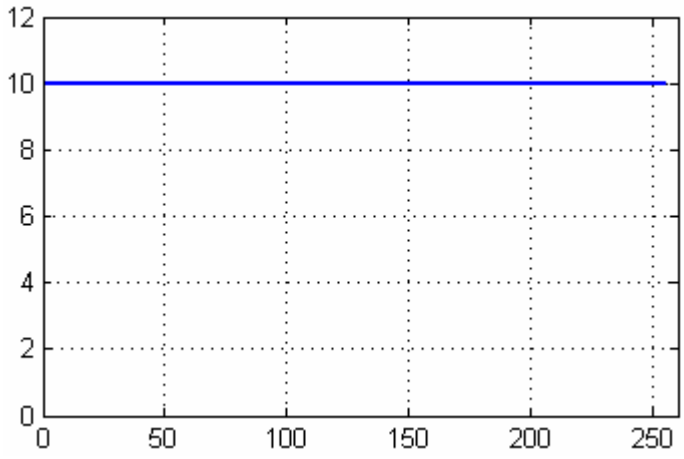
Setting the LSB to 0 would mean that we will only have the following intensity levels: 0,2,4,6,…..254 in the new image. So an intensity of 1 is approximated by 0, an intensity of 3 by 2 and so on. This will result in the following histogram:



(2)

2. Consider the following 8-bit image of size 10x256 showing each of the possible gray levels from black to white. The value in each column is the same shade of gray. Show the histogram of this image. (Note: The black border around the image is just to highlight its boundary. Its not a part of the image)

Solution:



(2)

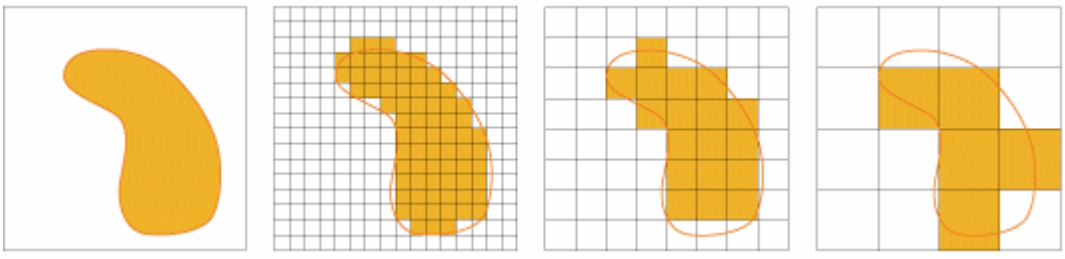
3. How many bytes are required to store an image of 20x20 having 64 intensity levels?

Solution

For 64 intensity levels we need 6 bits.
Total number of bits to store the image= 20 x 20 x 6 = 2400
Total number of bytes = 2400/8 = 300 Bytes.

(2)

4. What is the difference between images ‘a’, ‘b’ and ‘c’.



Solution

The three images differ in their spatial resolution starting with 16x16 for image ‘a’ and 4x4 for image ‘c’