

The objective of this homework is to test your understanding of the content of Lab-4_Lecture Video. Due date of the homework is: **Friday, November 13th, 2020**. You have to upload a scanned version of your solutions on Blackboard. If you don't have a scanner around you, you can use Cam Scanner—a mobile app that scans images in a neat way, as if they're scanned through a copier.

For questions related to the homework, please email the two teaching assistants: (a) Wasim (email: wasim.dipon@my.utsa.edu) and (b) Yuvaraj (email: yuvaraj.munian@my.utsa.edu).

You can send your question to both of them on the same email. Feel free to CC me as well, but that is not necessary.

1. Define Image. What is meant by Image Processing? (5 Marks)
2. What is the difference between a binary, grayscale and color image? (10 Marks)
3. Write the use of functions below. (20 Marks)
 - a. imread
 - b. imfinfo
 - c. imwrite
 - d. imshow
4. Write the MATLAB code to do the following operations on the peppers.png image. [Hint: peppers.png image is provided in Lab-4 Image folder] (30 Marks)
 - a. Read image.
 - b. Enhance contrast of the image.
 - c. Convert images to grayscale and binary.
 - d. Resize the image into half of its original.
 - e. Then display the images.
5. What is meant by edge detection? Perform SOBEL and CANNY edge detection operator on the cameraman.tif image. [Hint: cameraman.tif image is provided in Lab-4 Image folder] (25 Marks)
6. What is meant by filtering in image processing? Mention five types of filtering? (10 Marks)