

Question 2:

#### A) LINEAR CONTRAST STRETCHING

Pseudo Code:

```
input_image = imread(im_image);
[rows,cols] = size(input_image);

xmax = max(input_image(:));    // Maximum value in the image
xmin = min(input_image(:));    // Minimum intensity image
m = double(double(255)/double(xmax - xmin)); // Slope of the transform function
c = double(xmin*m);           // intercept of the transform function
for i=1:rows
    for j=1:cols
        output_image(i,j) = m*(input_image(i,j)) + c;//apply linear transformation
    end
end
```

#### B) HISTOGRAM EQUALIZATION

#### C) ADAPTIVE HISTOGRAM EQUALIZATION

The runtime of the function for each grayscale image is taking around 10mins.

Tuned N = 131

#### D) CLAHE

The runtime of the function for each grayscale image is taking around 5mins.

Tuned N = 100 and  $e = 0.30$  and at half the threshold  $e = 0.15$