Lab Assignment- 6

1. **For the given flower1 image**, extract red, green, blue components from the original image. Concatenate all extracted components as one image (form color image from individual components). Using subplot display all the images in the following order
2. Original image (b) r component (c) g component (d) b component (e) concatenate component. **[2].**

img = imread('filename');

figure, imshow(img)

red = img(:,:,1);

green = img(:,:,2);

blue = img(:,:,3);

a = zeros(size(img, 1), size(img, 2));

just\_red = cat(3, red, a, a);

figure, imshow(just\_red)

just\_green = cat(3, a, green, a);

figure, imshow(just\_green)

just\_blue = cat(3, a, a, blue);

**final\_rgb\_image=cat(3,just\_red,just\_green,just\_blue)**

1. **For the given flower image**,

dither is reduction of colors. In this dither reduces the colors to 8

1. Compute new color image with number of colors reduced to 8 without dithering.
2. Compute new color image with number of colors reduced to 8 with dithering.
3. Convert the image into grayscale
4. Compute new greyscale image with dithering.

Using Subplot display all 5 images. What do you observe from the images compared to 1 & 2 and 1 & 3 and 3 & 5. **[3]**

[X1, map1]=rgb2ind(f,8,’nodither’);

imshow(X1,map1)

[X2, map2]=rgb2ind(f,8,’dither’);

imshow(X2,map2)

g=rgb2gray(f);

g1=dither(g);

figure,imshow(g); figure,imshow(g1);

1. For the given lena image, Apply smoothing filter and show the output **[3]**

Steps:

1. Extract the three component images

fC = Original Image

fR=fC(:,:,1); fG=fC(:,:,2); fB=fC(:,:,3);

1. Filter each component individually. For example, letting w represents a smoothing filter generated using fspecial, we smooth the red component as follows

fR\_filtered = imfilter (fR, w);

and similarly for other two components

1. Reconstruct the filtered RGB image

Fc\_filtered = cat(3,fR\_filtered,fG\_filtered,fB\_filtered);

1. Compute ROI for the left stream image. **[3]**

Mask = roipoly(f)

Red=immultiply(mask,f(:,:,1);

Green=immultiply(mask,f(:,:,2);

Blue=immultiply(mask,f(:,:,3);

G=cat(3,red,green,blue);

Figure, imshow (g)

Apply smoothing filter towards ROI and display the output using subplot

1. Clean the noise from lena image . **[3]**