1- (20)   Download a standard image of image processing.

   a) Add a periodic noise to it by calling a Matlab function. The periodic noise should be similar to the one shown in Fig.5.16(a). Show the noisy image next to its spectrum, where we can see the noise patterns.
   b) Design a band reject filter similar to Fig.5.16.c, apply it on noisy image and show the filtered image.
   c) Extract the noise pattern and show it in a separate window like Fig.5.17.

2-(25) Download a standard image.

   a- Add several periodic noise to it same as Fig, 4.64. Design a multiple notch filter for it.
   b- Use one single multiple Notch filter, and in one path of applying it on the spectrum, remove all noises. Show all 4 images like that of Fig.4.64.

3-(25) Using Photoshop or Paint, draw a figure similar to Fig.5.3.

   a- Add all 6 type of noise to it as Figs 5.4. Using the noise removal methods, perform noise removal. Produce all images like Fig 5.4 and also the noise removed image and their corresponding histograms.

4- (30) Download a standard image.

   a) Apply linear motion blur to it. This function should receive parameters like a and b that identifies the motion directions in x , y. You should also define motion length. Show the resulted motion blurred image. Display parameters on top of each image.
   b) Perform Winner filter on motion blur image to restore it. Show the restored image.
   c) Apply Gaussian noise on the motion blurred image. Then try to restore it. Show how well you can restore the noisy image.

Additional Notes:

You can use Matlab function in this homework.

Delay penalties are same as before