1) Write a SCILAB program that computes cepstrum , delta and delta-delta cepstral values of a given speech signal. The program should process speech in blocks of 20 msec with shift of 10 msec. For each block, 13 cepstral values, 13 delta and 13 delta-delta values should be padded as feature vector.

2) Develop a SCILAB program to plot f_{mel} vs f_{Hz} plot for the entire audio frequency range from 0 to 20 kHz by considering f_{Hz} in steps of 200 Hz.

3) Develop a SCILAB program to compute the mel cepstrum of a given speech signal sampled at 16 kHz and considering 24 bands in the mel filter bank. The program should plot the uniform filter bank on the mel scale, non-uniform filter bank on physical frequency scale, magnitude spectrum of speech, spectral band energies and mel cepstral values. (***)

4) Write a SCILAB program that estimnates the pitch from the cepstrum of speech. The program should conisder speech in blocks of 40 msec with shift of 10 msec and estimate pitch. The plot should contain the speech signal and the estimated pitch contour. (*)

5) Write a SCILAB program that estimates the peaks in the simulated log magnitude spectrum obatianed by low time liftering. Consider only largest 3 peaks and plot the cepstrum pf these peaks below the speech by processing it in blocks of 30 mesc with shift of 10 mesc. (**)