

1. Please draw the block diagram of linear adaptive predictor. (hint: Chapter3-128)
2.
 - (a) Please draw the block diagram of DPCM system (both transmitter and receiver part), and briefly describe how does it work? (hint: Chapter 3-132)
 - (b) By (a), please derive SNR_o 、 SNR_Q and the Processing Gain G_P , and their relationship. (hint: Chapter 3-135)
3. A DPCM system uses a linear predictor with a single tap. The normalized autocorrelation function of the input signal for a lag of one sampling interval is 0.75. The predictor is designed to minimize the prediction error variance. Determine the processing gain attained by the use of this predictor. (hint: Problem 3.34)