Department of Electrical \& Computer Engineering
University of California, Santa Barbara
ECE 235
Fall 2008
Shynk
H.O. \#18

## HOMEWORK \#7

Due Friday, November 21, 2008 (5:00 p.m.)

## Problems:

1. Problem 7.16 (a)-(c)
2. Problem 7.18
3. Problem 7.21
4. Problem 8.6
5. Problem 8.12
6. Let $V[n]$ be a Bernoulli random sequence such that $P[V(n)=+1]=p$ and $P[V(n)=-1]=$ $1-p$ with $0<p<1$. Define the random sequence

$$
X[n]= \begin{cases}\sum_{k=1}^{n} \alpha^{n-k} V[k], & n>0  \tag{1}\\ 0, & n \leq 0\end{cases}
$$

where $|\alpha|<1$. Use the Doob-Meyer decomposition to find the predictable part $Y[n]$ and the Martingale sequence $U[n]$ of $X[n]$.

