

Department of Mathematical Sciences
Carnegie Mellon University

Basic Examination
Probability
Spring 2016

Time allowed: 120 minutes.

1. Let (X_n) be IID random variables taking values in $[-1; 1]$ and having the common mean $\mu = E[X_n] = 0$ and the variance $\sigma^2 = E[X_n^2] > 0$. Let (a_n) be a sequence in $(-1; 1)$. Define

$$Y_n = \prod_{k=1}^n (1 + a_k X_k); \quad n \geq 1:$$

Will (Y_n)

