

Communications Engineering

Course No: 16:332:421 - (Fall 2006)

Homework 6

1. It is desired to transmit a signal with a source bit-rate of 20 *Kbps* over a channel of bandwidth 1 *MHz* using direct-sequence spread spectrum modulation with spreading codes from an alphabet $\{+1, -1\}$.
 - (a) What is the processing gain of the system ?
 - (b) What is the chip duration of the direct-sequence code ?
 - (c) How many synchronous users can be supported in the system if it is desired to obtain a bit-error performance similar to that in a single user system ? Justify your answer.

2. Problem 7.10