JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

T1 EXAMINATION- FEB. 2020

B.Tech.VIII SEM. (ECE)

COURSE CODE: 18B1WEC834   MAX. MARKS: 15
COURSE NAME: Fundamentals of Next Generation Communication System
COURSE CREDIT: 03   MAX. TIME: 1 HR.

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1. (a) Give the mathematical formulation for SINR in multiuser CDMA scenario.   [4]

(b) Consider noise power of 13dB and spreading length of 512. It is targeted to achieve a BER of 5×10^{-5} at the output in a flat-fading CDMA scenario with a single user. Find the required approximate transmit power for this system.   [1]

Q2. Design a LFSR having five delay registers to generate PN-sequence. Give the state table of this LFSR and prove that the sequence generated with this LFSR is following all the properties of PN-sequences.   [5]

Q3. (a) What is channel impulse response and fading coefficient? Show the effect of channel variations on the fading coefficient and received signal strength.   [2]

(b) Differentiate among DSSS and FSSS. Explain the various advantages of spread spectrum system.   [3]