JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-3 EXAMINATION- MAY -2019
B.Tech. VIII Semester

COURSE CODE: 18B1WEC834

MAX. MARKS: 35

COURSE NAME: Fundamentals of Next Generation Communication System

COURSE CREDITS: 03

MAX. TIME: 2 HRS

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

Q.1 (a) How we can generate random sequence with the help of LFSR? Explain it with suitable example.

(b) Why CDMA codes are called Spreading Codes.

[CO1] [3+2]

Q.2 (a) Explain the GSM system architecture with suitable diagram.

(b) Draw the Frame structure for GSM system.

[CO1] [3+2]

Q.3 What are the advantage of multiple antenna system in Communication System? Explain transmitter and receiver antenna diversity in MIMO system using mathematical modeling.

[CO4] [4]

Q.4 What is ideal SDR architecture? How it is different with Cognitive radio? Explain.

[CO5] [4]

Q.5 How sensing process occurs in Cognitive Radio using Energy Detector? What are the various sensing performance parameters in Energy Detector Spectrum Sensing? Explain each parameter in detail with mathematical formulation.

[CO5] [4]

Q.6 Explain the each sub-block of transmitter and receiver of OFDM system.

[CO4] [4]

Q.7 Consider a wireless channel of three multiple paths with delay of 2, 2, 4 μsecs and power profile of -5, 0, -20 dB. Calculate the RMS and maximum delay spread of the channel.

[CO3] [3]

Q.8 Write short notes on following

(a) SVD

(b) ISI and Equalizer

(c) BER in Wireless System

[CO2, CO3] [2 + 2 + 2]