

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3, EXAMINATION, JUNE- 2016

B. TECH. (8th Semester)/M.Tech. (2nd Semester)

COURSE CODE: 10M11EC212

MAX. MARKS: 35

COURSE NAME: Advance Wireless and Mobile Communication

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.

Q1) Explain trunking and grade of service in terms of cellular system. What are different types of trunked systems? (5)

Q2) a) Describe different factors influencing small-scale fading. (2)

b) Determine the maximum and minimum spectral frequencies received from a stationary GSM transmitter that has a center frequency of 1900MHz, assuming that the receiver is traveling at speeds of : (i) 5km/hr (ii) 500km/hr (iii) 1000km/hr. (3)

Q3) Draw the control channel multiframe structure and explain functions of various control channels in GSM network. (5)

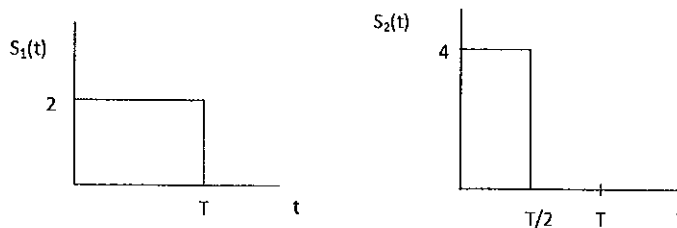
Q4) a) Explain how OFDM is spectral efficient and gives advantage in frequency selective fading channel. (2)

b) How a GSM subscriber is authenticated by the network? (3)

Q5) Derive expressions for MIMO, SIMO and MISO channel capacity. (5)

Q6) What are benefits of MIMO technology? (2)

b) Two functions $s_1(t)$ and $s_2(t)$ are given in below figure. Here the interval of interest extends from $t=0$ to $t=T$. Use the Gram-Schmidt procedure to express these functions in terms of orthonormal components. (3)



Q7) a) Explain the concept of OVSF codes in UMTS network. (2)

b) Draw and explain WiMAX network architecture in detail. (3)