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Question Paper Code: 80355

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER / DECEMBER 2016

Eighth Semester

Electronics and Communication Engineering

EC 6801 – WIRELESS COMMUNICATION

(Regulations 2013)

Time: Three Hours

Maximum: 100 Marks

Answer All Questions

PART – A (10 X 2 = 20 Marks)

1. Give the equation for average large scale path loss between transmitter and receiver as a Function of distance?
2. What is the frequency selective fading?
3. State advantages of CDMA over FDMA?
4. Define Grade of Service?
5. Give the function of Gaussian filter in GMSK?
6. What is cyclic prefix?
7. What are linear equalizer and non-linear equalizer?
8. What is macro diversity?
9. How does spatial multiplexing work?
10. What ergodic capacity and outside capacity of a flat fading channel.

PART – B (5 X 16 = 80 Marks)

11. a) i. Explain the time variant two path model of a wireless propagation channel. (16)
(or)
b) i. Explain fading effects due to multipath time delay spread and fading effect due to Doppler Spread? (10)
ii. What are the factors influencing small scale fading? (6)
12. a) Explain the Co-Channel interference and adjacent channel interference. (16)
Describe the techniques to avoid interference.

(or)

- b) i. Explain in detail how frequency is efficiently allocated in cellular radio systems? (6)
ii. Explain in details a Handoff scenario at cell boundary? (10)

13. a) What is MSK? Also derive the expression of MSK signal as a special type of FSK signal and explain its power spectral density. (16)

(or)

b) Draw the basic arrangement of OFDM transceivers and discuss overall operation. (16)

14. a) Explain in details the various factors to determine the algorithm for adaptive Equalizer. Also derive for LMS algorithm for adaptive equalizer. (16)

(or)

b) With relevant diagram explain RAKE receiver. Also discuss how time Diversity is Achieved in CDMA technique in RAKE receiver. (16)

15. a) i. With a neat diagram explain the system model for MIMO. (8)

ii. Discuss in detail the classification of algorithm for MIMO based system. (8)

(8)

b) Calculate a capacity of a MIMO system in flat fading and non-fading channels. (16)