

M.E DEGREE EXAMINATIONS APRIL/MAY 2014

Third Semester

APPLIED ELECTRONICS

ANE520: Cellular And Mobile Communication

Time: Three Hours

Maximum Marks:100

Answer ALL Questions:-

PART A (10 x 2 =20 Marks)

1. List out some major mobile radio standards.
2. What is the role of Duplexer in Wireless System?
3. State the objectives of Channel Assignment strategies.
4. Define Traffic Intensity.
5. What is Doppler Shift?
6. Define Ricean & Rayleigh Fading.
7. Give the advantages of MSK.
8. What are the characteristics of Speech Signal?
9. What is near far Problem?
10. Explain self jamming problem in CDMA.

PART B (5x16 = 80 Marks)

11. a) Explain different Wireless Communication Systems with neat sketch.

(OR)

- b) (i) Describe the steps involved in making a call from Landline to mobile. (8)

- (ii) Explain the operation of Satellite Systems. (8)

12. a) (i) What is handoff ? Discuss how this is accomplished in cellular Mobile System. (8)

- (ii) Explain the concept of Frequency Reuse and for $i=3;j=2$ draw cellular system that depicts cochannel cells. (8)

(OR)

- b) What is Cochannel & Adjacent Channel Interference? Derive expression for the same.

13. a) Draw the two ray ground reflection model and derive an expression to compute electric field at a distance of d meters.

(OR)

- b) (i) Write short notes on Base Station Antenna. (6)

- (ii) A mobile is located 5 KM away from the base station and uses a vertical $\lambda/4$ monopole antenna with a gain of 2.55 dB to receive cellular radio signals. The E-field at 1Km from the transmitter is measured to be 10^{-3} V/m. The carrier frequency used for this system is 900 MHZ. (a) Find the length and gain of the receiving antenna. (b) Find the received power at the mobile using two ray ground reflection model assuming the height of the transmitting. Antenna is 50m and receiving antenna 1.5m above the ground. (10)

14. a) (i) Explain the Concept of Minimum shift keying. (8)

- (ii) Write short notes on RAKE Receiver. (8)

(OR)

- b) (i) What is Non-Linear Equalization? Explain non - Linear Equalization methods in detail. (10)
- (ii) Derive the expression for selection diversity improvement. (6)

15. a) Explain TDMA and Discuss TDMA frame structure.

(OR)

- b) (i) Write short notes on Wireless Networking. (8)

(ii) Explain the design issues in personal communication system

(8)
