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B.E. / B.TECH. DEGREE EXAMINATIONS, DEC 2019

Seventh Semester

EC16704 – WIRELESS COMMUNICATION*(Electronics and Communication Engineering)***(Regulation 2016)****Time: Three Hours****Maximum : 100 Marks**

Answer ALL questions

PART A - (10 X 2 = 20 Marks)

	CO	RBT
1. Calculate the far field distance for an antenna with maximum dimension of 2 m and operating frequency of 1 GHz.	1	AP
2. Compare coherence time and coherence bandwidth.	1	AN
3. Differentiate between CDMA and FDMA Techniques.	2	AN
4. How is frequency reuse distance measured in cellular systems?	2	AP
5. Justify why GMSK is preferred for multiuser cellular communication.	3	E
6. Define Cyclic prefix.	3	R
7. Distinguish between linear and non-linear equalization techniques.	4	AN
8. Define macro diversity.	4	U
9. Illustrate the frame structure of GSM.	5	AP
10. List the features of WCDMA.	5	R

PART B - (5 X16 = 80 Marks)

11. (a) Derive the expression for electric field, received power and path loss (16) 1 AP
for a Two Ray model. Draw appropriate diagrams and explain.

(OR)

- (b) Illustrate with necessary diagrams, the fading effects due to (16) 1 AP
multipath time delay spread and Doppler spread.

12. (a) (i) Compare various multiple access techniques and comment on the efficiency of each scheme. (8) 2 AN
- (ii) With the help of a neat diagram explain about frequency reuse and state the advantages of it. (8) 2 AN
- (OR)**
- (b) (i) Categorize the hand off strategies in a cellular radio system. (8) 2 AN
- (ii) How can capacity of a cellular system be improved? Illustrate any two capacity expansion techniques. (8) 2 AN
13. (a) Illustrate Minimum Shift Keying Modulation Technique give the expression for power spectral density and explain the transmitter and receiver section. (16) 3 AP
- (OR)**
- (b) With neat block diagram, explain OFDM transmitter and receiver. List out its advantages and disadvantages. (16) 3 AP
14. (a) (i) Draw and explain the MLSE equalizer. (8) 4 AP
- (ii) Compute the minimum mean squared error using LMS algorithm. (8) 4 AP
- (OR)**
- (b) (i) Draw and explain maximal ratio combiner and equal gain combiner. (8) 4 AP
- (ii) Illustrate and explain the RAKE receiver. (8) 4 AP
15. (a) Explain the system architecture of GSM with necessary diagrams. (16) 5 U
- (OR)**
- (b) Explain the UMTS core network architecture with neat diagrams. (16) 5 U