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Question Paper Code: 36402

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Sixth Semester

Electronics and Communication Engineering

01UEC602 - WIRELESS COMMUNICATION SYSTEMS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. List the properties of cellular telephony.
2. Define range in cellular systems.
3. What is meant by Equivalent Isotropically Radiated Power (EIRP)?
4. Define coherence bandwidth.
5. Why QPSK is preferred for wireless communication?
6. List the advantages of Orthogonal Frequency Division Multiplexing (OFDM) technique.
7. State the principle of diversity.
8. Mention any four common methods of micro diversity.
9. Compare the performance of Frequency Division Multiple Access (FDMA) and Time Division Multiple Access (TDMA).
10. Mention the advantages of CDMA technique.

PART - B (5 x 16 = 80 Marks)

11. (a) Discuss the types of services, requirements, spectrum limitations and noise considerations of wireless communications. (16)

Or

- (b) Distinguish different types of noises in wireless systems. (16)

12. (a) Discuss in detail about wideband channel models. (16)

Or

- (b) (i) What is Brewster angle? Calculate the Brewster angle for a wave impinging on ground having a permittivity of $\epsilon r = 4$. (8)

- (ii) A communication system has the following parameters:

$$P_t = 5W, G_t = 13 \text{ dB}, G_r = 17 \text{ dB}, d = 80 \text{ km}, f = 3 \text{ GHz}.$$

- Determine the value of the received power. (8)

13. (a) Explain with neat diagram about Binary Phase Shift Keying (BPSK) based transmission and reception technique. (16)

Or

- (b) (i) Derive the expression for probability of error in Flat-Fading channel. (8)

- (ii) Explain the concept of cyclic prefix in OFDM. (8)

14. (a) (i) Explain the types of selection diversity techniques. (8)

- (ii) Explain in detail about decision feedback equalizer. (8)

Or

- (b) Explain in detail about: (i) Frequency diversity (ii) Polarization diversity. (16)

15. (a) Draw a block diagram and explain in detail about direct sequence spread spectrum. (16)

Or

- (b) Explain code division multiple access and compare its performance with TDMA. (16)

