Reg. No. : | | | | | | | | | | |

Question Paper Code: 36402

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

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 three most important effects of small-scale multipath propagation.
2. Mention the significant of frequency reuse in cellular networks.
3. Define Snell's law.
4. Compare slow fading and fast fading.
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. State effects of multipath propagation on CDMA.
10. Give three important functional blocks of GSM.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the principle of cellular networks and various types of Handoff techniques. (16)

Or

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

12. (a) Describe the time variant two ray model of a wireless propagation channel. (16)

Or

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

(ii) A communication system has the following parameters:
$P_t = 5W,\ G_t = 13\ dB,\ G_r = 17\ dB,\ d = 80\ km,\ f = 3\ GHz.$
Determine the value of the received power. (8)

13. (a) Explain with neat diagram about Quadrature Phase Shift Keying (QPSK) 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) Explain with diagram, the different techniques available for signal combining. (16)

Or

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

15. (a) Compare and contrast 2G, 3G and 4G wireless network standards with its merits and demerits. (16)

Or

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