Exam.Code:0970
Sub. Code: 34553

2055

M.E. (Electronics and Communication Engineering)

Second Semester

ECE-1203: Wireless and Mobile Communication

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Part.

x-x-x

1. i. Differentiate between Wireless Local Area Networks (WLANs) and Wireless Wide Area Networks (WWANs). 5x2
   ii. What fundamental problem does handover solve in mobile communication networks?
   iii. Define frequency reuse in cellular systems.
   iv. What is General Packet Radio Service (GPRS), and how does it improve data transmission?
   v. What is CDMA Wireless Local Loop (WLL)?

PART A

2. (a) Explain the evolution of modern mobile communication from 1G to 4G. 5,5
   (b) How does wireless broadband access enhance connectivity, and what are its main applications?
3. (a) Explain GSM Architecture for 900MHz frequency band in detail with diagram. 5,5
   (b) Discuss WCDMA in detail with diagram.
4. (a) Discuss the role of radio interface in LTE and explain the LTE radio interface in detail. 5,5
   (b) What is an advanced heterogeneous network, and how does it differ from traditional cellular networks?

PART B

5. (a) Differentiate CDMA and TDMA. 5,5
   (b) Discuss the security aspects of CDMA and how they enhance communication reliability.
6. (a) Find the median path loss using Okumura's model for d = 50 km, h_{te}= 100 m, h_{re} = 10m in a suburban environment. If the base station transmitter radiates an EIRP of I kW at a carrier frequency of 900 MHz, find the power at the receiver (assume a unity gain receiving antenna and the Amu (900 MHz(50 km) = 43 dB). 5,5
   (b) Explain the role of reflection, diffraction, and scattering in signal propagation.
7. (a) Describe the Bluetooth architecture and its key features for short-range communication. 5,5
   (b) Explain the working principle of Wi-Fi and its key advantages for wireless communication.

x-x-x