Exam. Code: 0931
Sub. Code: 33693

2076

B.E. (Electronics and Communication Engineering)
Seventh Semester
EC-710: 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. (a) What technological advancement does 2.5G provide over 2G? **(2)**

(b) Why are different convolution coding rates used in the Forward & Reverse channel of CDMA? **(2)**

(c) What is Doppler spread? **(2)**

(d) What enhancements does LTE-A provide over standard LTE? **(2)**

(e) How does power control in CDMA networks help reduce the near-far problem? **(2)**

Part- A

2.(a) What is GPRS technology ? How is it different from GSM ? **(5)**

(b) Assess whether cell splitting or sectoring is more effective for increasing capacity in dense urban GSM networks. **(5)**

3.(a) The required SIR for acceptable GSM quality is 15 dB. If the path loss exponent is n = 4, calculate the minimum reuse distance for cluster size N = 4. **(5)**

(b) What is a handoff/hand over? Describe the role of Received Signal Strength Indicator (RSSI) and Signal-to-Interference Ratio (SIR) in making handover decisions. **(5)**

4. (a) Compare TD-SCDMA with W-CDMA and CDMA2000 in terms of spectrum, performance, and deployment. **(5)**

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(b) Given a power delay profile (PDP) with multipath components at delays 0 μs, 1 μs, 3 μs, and 6 μs with corresponding powers of 0 dB, –3 dB, –8 dB, and –12 dB, calculate the RMS delay spread. **(5)**

Part-B

5.(a) Draw and explain the end-to-end architecture of IP telephony, showing signaling, media path, and network elements. **(5)**

(b) What is ISDN ? How do we implement it? List its applications. **(5)**

6.(a) What is small scale fading? Explain various factors influencing small scale fading and types of small scale fading. **(5)**

(b) Explain decision-feedback equalizers (DFE) with a diagram and describe their advantages over linear equalizers. **(5)**

7.(a) Explain GSM Architecture in detail and list its air interface specifications for GSM 900 MHz. **(5)**

(b) Explain the concept of Multiple-Input Multiple-Output (MIMO) systems. Describe how MIMO uses multiple antennas at both the transmitter and receiver to improve capacity, reliability, and spectral efficiency. **(5)**

x-x-x