Code No. 6423 / N

FACULTY OF ENGINEERING

B.E. 4/4 (ECE) I – Semester (New) (Main) Examination, November 2013
Subject: Mobile Cellular Communication

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1. Why handoff's are to be prioritized over new calls.
2. How to locate co-channel cells in a cellular system.
3. Show that if medium 1 is free space and medium 2 is a dielectric, both $|\Gamma_{\parallel}|$ and $|\Gamma_{d}|$ approach 1 as θ_i approaches O^o regardless of G.
4. Classify small scale fading.
5. If a US AMPS cellular operator is allocated 12.5 MHz for each simplex band, and of B_t is 12.5 MHz, B_{guard} is 10 KHz, and B_c is 30 KHz. Find the number of channels available in an FDMA system.
6. Define FDD and TDD.
7. Write expression for frame efficiency in TDMA.
8. Draw the architecture of G system.
9. Write features of 3G.
10. Show various upgrade paths for 2G technologies.

PART – B (50 Marks)

11.(a) Explain how cell splitting is used for improving coverage and capacity of a cellular system.
(b) Derive an expression for SIR for a 7 cell system and assuming distance between co-channel cells is R.

12.(a) Derive an expression for received power Pr at a distance 'd' meters from the transmitter using 2-ray ground reflection model.
(b) Define time dispersion parameters.

13.(a) Differentiate between FHMA & CDMA.
(b) Explain in detail CSMA protocol.

14.(a) Explain GSM services and features in detail.
(b) Write a brief note about frequency and channel specifications of CDMA IS-95.

15.(a) Explain briefly about wireless local loop.
(b) Write briefly about PAN's.

16.(a) Explain pentilien losses.
(b) Differentiate between indoor and outdoor propagation models.

17. Write short notes on:
a) Trunked radio system
b) CDMA 2000.

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