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SUMMER SEMESTER EXAMINATION – JUNE 2018

B.Tech [ECE], VII Semester

COURSE CODE: 10B1WEC731

MAX. MARKS: 50

COURSE NAME: MOBILE COMMUNICATION

COURSE CREDITS: 03

MAX. TIME: 2 Hours

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

- Q1. (a) Explain various broadcast control channels. [2]
(b) What is Dynamic channel assignment? [2]
(c) Derive the duration of multi-frame. [3]
(d) Write how microcell zone increases the capacity of cellular system? Compare microcell concept with sectoring. [3]
- Q2. (a) Why spread spectrum is used in mobile communication. [2]
(b) Compare GSM, GPRS and IS95CDMA for frequency spectrum use, data rate, channels bandwidth and modulation used. [4]
(c) Define handover margin. What are the consequences of longer and smaller hand over margin? [4]
- Q3. (a) Write the role of BCH channels in GSM. [2]
(b) Differentiate bearer services and supplementary services in GSM. [4]
(c) What are the reasons for the delays in a GSM system, for packet data traffic? Distinguish between circuit switching and packet oriented transmission. [4]
- Q4. (a) Explain how fast moving mobile stations are handled in cellular communication. [2]
(b) For GSM, explain following [4]
i. Use of TMSI identifier.
ii. Use of interleaver in GSM speech transmission.
(c) Find the relationship between any two nearest co-channel cell distance D and the cluster size N . [4]
- Q5. (a) Find the far field distance for a circular antenna with maximum dimension of 1m and operating frequency of 900 MHz. [2]
(b) How much does your average received power change when you double your path length? [2]
(c) Let the speed of a mobile be 45m/sec. For path loss exponent $n = 4$, a cell radius of 500m and a 2 sec handoff, what handoff margin is needed? [3]
(d) A total of 33 MHz bandwidth is allocated to a FDD cellular system with two 25 KHz simplex channels to provide full duplex voice and control channels. Compute the number of channels available per cell if the system uses 4 cell reuse technique. Assume 1 MHz of spectrum is allocated to control channels. Give a distribution of voice and control channels. [3]