BE(ETRX) Sem VII 04/06/09
Wireless Communication 11-2 p.m.

Con. 3318-09. VR-4734

(3 Hours) [Total Marks : 100

N.B.: (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.
(3) Assume suitable **data** whenever **necessary** and **justify**.

1. (a) Explain channel assignment strategies. 5
(b) Distinguish between hard handoff and soft handoff. Compare merits and demerits. 5
(c) Prove that for a hexagonal geometry, the co-channel reuse ratio is given by $Q = \sqrt{3N}$, where, $N = i^2 + ij + j^2$. 5
(d) Explain in detail cell splitting. 5

2. (a) Compare the GSM and CDMA with respect to following paramters :— 10
(i) Fading
(ii) Frequency planning
(iii) Handoff
(iv) Security
(v) Congestion
(vi) Quality of service.

(b) Prove that $\frac{C}{I}$ ratio for a cellular system. Using seven cell cluster is given by— 10

$$\frac{C}{I} = \frac{R^{-4}}{2(D-R)^{-4} + 2(D+R)^{-4} + 2D^{-4}}$$

where R = Cell Radius
D = Distance between centre of two co-channel cell in first tier.

3. (a) Explain PACS and DECT in detail. 10
(b) Explain different methods used to configure and assign radio channels in CDPD. 10

4. (a) Draw the block diagram of reverse CDMA channel modulation process and explain it in detail. 10
(b) Discuss the four major combining techniques for diversity schemes, with neat sketches. 10

5. (a) Explain A3 and A5 algorithm in GSM. 10
(b) With the help of Block diagram, explain the GPRS architecture and explain uplink channels and downlink channels of GPRS system. 10

6. (a) Explain the functions of following signaling techniques in AMPS :— 10
(i) Signaling Tone (ST)
(ii) Supervisory Audio Tone (SAT)
(iii) Wideband Blank and Burst Signaling.
(b) Explain in detail : 10
(i) Forward IS-95 channel modulation process
(ii) HSCMD, High Speed Circuit Switched Data.

7. Write short notes on (any **four**) :—
   (a) CT2
   (b) Differentiate between Fast Fading and Slow Fading
   (c) Cell breathing
   (d) Long PN sequene used for data scrambling in CDMA
   (e) Orthogonal covering in CDMA.