22/12/2011 BE (ETRX) VII (Rev)
Elective-II Wireless Communication

271 : 2ndHf11C.mk

Con. 6847-11. **(REVISED COURSE)** **MP-5582**

(3 Hours) **[Total Marks : 100**

N.B. (1) Question No. **1** is **compulsory**.
(2) Solve any **four** questions out of remaining **six** questions.
(3) **Figures** to the **right** indicate **full** marks.

1. (a) Explain Umbrell Cell approach in Cellular System. **20**
(b) Explain soft hand off in CDMA.
(c) Explain CDMA 2000 MAC and LAC sub layer.
(d) Explain spectral efficiency and pulse shaping in OFDM.

2. (a) Explain cell sectoring and cell splitting in detail to improve coverage area and capacity. **10**
(b) A hexagonal cell within a four cell system has a radius of 1·387 km. A total of 60 channels are used within the entire system. If the load per user is 0·029 Erlangs and λ = 1 call/hour. Compute the following for an Erlang C system that has a 5% probability of a delayed call. **10**
(i) How many users per square kilometer will this system support.
(ii) What is the probability sheet a delayed call will have to wait for more than 10 seconds ?
(iii) What is the probability that a call will delayed for more than 10 seconds ?

3. (a) Explain GSM system architecture in detail with interfaces. **10**
(b) Explain OFDM block diagram and derive the mathematical expression for OFDM signal. **10**

4. (a) Explain variable data transmission and power control in detail with reverse CDMA. **10**
(b) Explain the need of spreading the sequence in CDMA. Explain Direct sequence spread spectrum with transmitter and receiver block diagram. **10**

5. (a) Explain in detail the working of RAKE receiver. **10**
(b) Explain in detail CDMA 2000 layered structure. **10**

6. (a) Explain in detail different traffic channels and control channels in GSM. **10**
(b) Draw and explain uplink and downlink CDMA (IS-95) models. **10**

7. Write short notes on :— **20**
(a) Pilot channel in CDMA
(b) Frame structure of GSM
(c) Bluetooth
(d) Zigbee network.