



COLLEGE OF ENGINEERING & TECHNOLOGY

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Course : Communication Networks

Course Code : EC 553

Sheet (9)- Cellular Networks

Q1. If 20 MHz of total spectrum is allocated for a duplex wireless cellular system and each simplex channel has 25kHz RF bandwidth, find:

- The number of duplex channels
- The total number of channels per cell site, if $N=4$ cell reuse is used

Q2. If a total of 33 MHz of bandwidth is allocated to a particular FDD cellular telephone system which uses two 25 KHz simplex channels, compute the number of channels available per cell if a system uses

- four-cell reuse
- seven-cell reuse
- 12 cell-reuse

If 1 MHz of the allocated spectrum is dedicated to control channels, determine an equitable distribution of control channels and voice channels in each cell for each of the three systems

Q3. A cellular system with a 13-cell reuse is considered.

- What are the values of i , j , and D/R
- Sketch the system layout on the attached figure
- If the total coverage area is 262.4 km², and we have 1000 duplex channels, Cell radius = 1 km , what is the capacity of the system.
- What is the effect of each of the following on the capacity of the system
 - Increasing the total number of duplex channels to 1256
 - Decreasing the cell reuse to 7
 - Decreasing the cell radius to 0.5 km

