

(Following Paper ID and Roll No. to be filled in your Answer Books)**PAPER ID :****Roll No.**

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B.TECH**Theory Examination (Semester-VI) 2015-16****WIRELESS COMMUNICATION****Time : 3 Hours****Max. Marks : 100****SECTION-A**

1. Attempt all parts. All parts carry **equal** marks. Write answer of each part in short. **(2 x 10 = 20)**

- Enlist the limitation of Spectrum.
- Define WSSUS model.
- What is meant by linear equalizer?
- Write the importance of Pseudo noise sequence.
- Find the frequency reuse factor if $i=3$ and $j=4$.
- What is delay Dispersion?
- What are AWGN models?
- The minimum bandwidth required for PAM/TDM system is 350 kHz and the number of channels to be transmitted is 24. Find the bandwidth of each channel.
- Calculate the number of bits required in PCM to have a signal to quantization ratio of about 50dB.
- What are flat fading channels?

SECTION-B

Attempt any **five** questions from this section.

(10 x 5 = 50)

- State and explain any two indoor and outdoor statistical models for multipath fading channels.
- How the small scale fading is different from path loss? Plot different types of small scale fading as a function of baseband signal bandwidth.
- List out the various equalization techniques and explain them in detail.
- Classify the various types of linear predictive coders and explain them.
- Compare the TDMA with FDMA frame structure and explain them with a neat sketch.
- What is the need of hand off? Name the various types and phases of hand off.
- Explain the concept of channel assignment strategies.

9. Name the various types of quantization techniques and explain them.

SECTION-C

Attempt any **two** questions from this section.

(15 x 2 = 30)

10.

- a) Compare narrow band and wide band channel models.
- b) Explain the working of frequency hopped spread spectrum (FH-SS) with the help of block diagram.

11. Given a Cellular system in which there are a total of 1071 radio channels available for handling traffic. It is also given that the area of a cell is 7Km and the entire system is 2180Km².

- i. Calculate the system capacity if the cluster size is 8.
- ii. How many times would the cluster of size 4 have to be replicated in order to approximately cover the entire cellular area?
- iii. Calculate the system capacity if the cluster size is 6
- iv. Does decreasing the cluster size increase the system capacity?

12. Draw a cellular system with 16-cell reuse. For this cellular system, calculate the following

- i. Distance between co channel cells for unit cell radius.
- ii. Co-channel reuse ratio
- iii. Capacity of the system.