ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES
(AUTONOMOUS)

M.Tech II-Semester Regular Examinations, May 2016

Wireless Communications

(Communication Systems)

Date: **Time: 3 hours** **Max Marks: 60**

Answer ONE Question from each unit
All questions carry equal marks
All parts of the question must be answered at one place only

UNIT-I

1) a) Explain in detail about the Fading effects due to multipath time delay spread. [6]

b) Explain in detail about the Fading effects due to Doppler spread. [6]

(OR)

2) A mobile is located 5 km away from a base station and uses a vertical λ/4 monopole antenna with a gain of 2.55dB to receive cellular radio signals. The E-field at 1 km from the transmitter is measured to be 10^{-3} V/m. The carrier frequency used for this system is 900MHz.

a) Find the length and the effective aperture of the receiving antenna. [4]

b) Find the received power at the mobile using the two-ray ground reflection model assuming the height of the transmitting antenna is 50 m and the receiving antenna is 1.5 m above ground. [8]

UNIT-II

3) a) Explain in detail about the Time-Invariant frequency selective fading channel. [6]

b) Find the Error Probability for MSK. [6]

(OR)

4) a) Find the Error Probability for QPSK. [6]

b) Explain in detail about Capacity of Flat Fading Channel. [6]

UNIT-III

5) a) Explain in detail about the RAKE Receiver and its operation. [6]

b) Explain in detail about the Transmitter Diversity. [6]

(OR)

6) a) Derive the Improvement of Maximal Ratio Combining. [8]

b) Explain in detail about the Transmitter Diversity. [4]

UNIT-IV

7) a) What is the principle of Equalizer and Explain Least mean square Algorithm for Adaptive equalization. [8]

b) Explain in detail about linear Equalizers. [4]

(OR)

8) a) Explain Maximum likelihood sequence estimation equalizer. [8]

b) Explain in detail about Zero Forcing Algorithm. [4]

UNIT-V

9) a) Explain in detail about the MIMO system. [6]

b) Explain the concept of Beamforming. [6]

(OR)

10) a) Explain in detail about the OFDM with block diagram. [6]

b) Explain in detail about the Spread Spectrum Multiples access. [6]

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