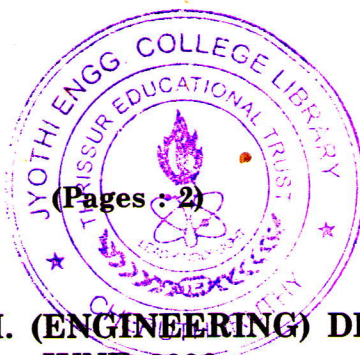


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Name.....

Reg. No.....

**EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
JUNE 2009**

EC 2K 805 (A)—WIRELESS MOBILE COMMUNICATION

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

- I. (a) Derive the expression for received power in a free space propagation model.
(b) Explain Coherence Bandwidth and coherence time.
(c) Explain maximal ratio combines diversity reception.
(d) Explain fast fading.
(e) Write short notes on Adjacent Channel Interference.
(f) How capacity is improved by sectoring ?
(g) What are the properties of m -sequences ?
(h) Explain Fast Frequency Hopping Spread spectrum system.

(8 × 5 = 40 marks)

- II. (a) Derive the expression for impulse response of a multipath channel.

Or

- (b) Derive the expression for power received in 2-ray ground reflection model.

(15 marks)

- III. (a) Explain polarization diversity and derive the average value of signal loss.

Or

- (b) Derive the expression for selection diversity-improvement.

(15 marks)

- IV. (a) Derive Erlang-B formula and explain.

Or

- (b) (i) Prove that for a hexagonal geometry, the co-channel ratio is given by
 $\theta = \sqrt{3N}$, where $N = i^2 + ij + j^2$.

(7 marks)

Turn over

- (ii) Show that the frequency reuse factor for a cellular system is given by K/S , where K is the average number of channels per cell and S is total number of channels available to the cellular service provider.

(8 marks)

- V. (a) Explain the acquisition and tracking of Direct Sequence spread spectrum systems.

Or

- (b) Explain frequency hopped spread spectrum system with block diagram.

(15 marks)

[4 × 15 = 60 marks]