

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-1 EXAMINATION- 2016.

B.Tech 8th Semester (ECE)/M.Tech (ECE) 2nd Semester

Subject Code: 10M11EC212

MAX. MARKS: 15

Subject Name: Advance Wireless and Mobile Communication

Course Credits: 03

MAX. TIME: 1Hr.

All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

- Q1. Prove that for a hexagonal geometry, the co-channel reuse ratio is given by $Q = \sqrt{3N}$, where $N = i^2 + j^2 + ij$. Use the cosine law and the hexagonal cell geometry. [4]
- Q2. Explain different techniques to improve coverage and capacity in cellular systems. [4]
- Q3. Using trunking theory:
- (a) What is the total traffic intensity and traffic intensity per channel in Erlangs for 2% blocking probability with 4 channels and 20 channels?
 - (b) How many users can be supported with 4 channels and 20 channels at 2% blocking? Assume $H = 105$ second, $\lambda = 1$ call/hour.
 - (c) Using the traffic intensity calculated in part (a) find the GOS in a lost call delayed system for the case of delays being greater than 20 seconds. Assume that $H = 105$ second, and determine the GOS for 4 channels and for 20 channels. [1+1+2]
- Q4. Explain outage probability under path loss and shadowing, and coverage area in cellular system. [3]