

KFUPM - COMPUTER ENGINEERING DEPARTMENT

COE-543 – Mobile and Wireless Computing

Assignment 3 – Due May 7th, 2005

1) Pahlavan's textbook – Problem 5.1.

2) Pahlavan's textbook – Problem 5.6.

3) Consider a cellular system in which there a total of 1001 radio channels available for handling traffic. Suppose the area of a cell is 6 km^2 and the area of the entire system is 2100 km^2 . Assume the cell cluster size is equal to 7. Given the traffic load per user is 0.03 Erlangs and the average number of calls per hour per user is 1.5, for an Erlang-C system with a probability of delaying a cell being 5%, determine the following:

a) The traffic load per cell,

b) The number of users per km^2 that can be supported by the system,

c) The mean duration of a call,

d) The probability that a delayed call will have to wait for more than 10 seconds.

e) The probability that a call will be delayed for more than 10 seconds.