**CS 5197/6097 Wireless and Mobile Networking**

**Homework No. 5 dated Wednesday September 20, 2017**

**P 8.8** In a cellular system, with 7-cell clusters, has the following average number pf calls at a given time:

|  |  |  |  |
| --- | --- | --- | --- |
| Cell number | Average number of calls/unit time | Static allocation | FCA allocation |
| 1 | 900 | 4 | 7 |
| 2 | 2000 | 9 | 7 |
| 3 | 2500 | 12 | 7 |
| 4 | 1100 | 5 | 7 |
| 5 | 1200 | 6 | 7 |
| 6 | 1800 | 8 | 7 |
| 7 | 1000 | 5 | 7 |
| Total | 10500 | 49 | 49 |

If the system is assigned 49 traffic channels, how would you distribute the channel if

1. Static allocation is used based on traffic load.

We have #traffic channels =

For cell number 1:

1. A FCA Simple borrowing scheme is used (no traffic load considered).

For FCA simple borrowing the channel distribution has to be equal across all cells. Therefor: #channel/cell

**Additional information for question:**

**Part (a) Based on traffic load**

**Part (b) FCA with simple borrowing (no traffic load considered)**

**P 8.18** In a cellular system with 4 channels, one channel is reserved for handoff calls.

1. What is the value of *BO* and *BH* , given *λ*O = *λ*H = 0.001 and *μ* = 0.0003?
2. What are the values of probabilities *P*(0), *P*(1), *P*(2), *P*(3) and *P*(4).
3. What is the average number of occupied channels in this Problem?