

**IV B.Tech I Semester Supplementary Examinations, November 2005**  
**CELLULAR & MOBILE COMMUNICATIONS**  
**(Electronics & Telematics)**

**Time: 3 hours****Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) Explain analog cellular systems AMTS in detail?  
(b) What are the features of the mobile communications and explain each? [8+8]
2. (a) Explain about the maximum number frequency channels per cell?  
(b) If the maximum number of calls per hour  $Q_i$  in one cell be 5000 and an average calling time  $T$  be 1.76 min The blocking probability is 2% Find the offered load. If  $Q_i$  is 35000 find the offered load Compare this with no of channels by using the Erlang B model [10+6]
3. (a) How are the parasitic elements used in co-channel interference reduction?  
(b) What is meant by SINAD? Briefly explain the method used for measuring SINAD. [8+8]
4. (a) Write short notes on mobile to mobile propagation?  
(b) State the merit of point to point model and give general formula of Lee point to point model? [8+8]
5. (a) Discuss the characteristics of cell site antennas?  
(b) If the antenna heights are varying what are the effects you are getting at the time of operation of mobile system? [8+8]
6. Present the frequency management of cellular systems for efficient spectrum utilization and increases the number of channels? [16]
7. (a) Explain the queuing handoff mechanism?  
(b) If the number channels at the cell site  $N=70$  the call holding time is 101S The number of originated calls per hour expressed as  $\lambda$  is 2270. The number of handoff calls attempted per hour is expressed as  $\lambda_2$  is 80. Find the probability of the queuing handoff. calls but not the originated calls . Also find the probability of the queuing the originated calls but not the handoff calls?[8+8]
8. (a) Explain the importance of the cell splitting techniques in operational techniques.  
(b) Explain the limitations of size in cell splitting.  
(c) Explain the real time and permanent splitting in operational techniques.[7+6+3]

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