



Reg. No. : .....

Name : .....

**Eighth Semester B.Tech. Degree Examination, May 2013  
(2008 Scheme)**

**08.804 : SATELLITE AND MOBILE COMMUNICATION (T)**

Time : 3 Hours

Max. Marks : 100

**PART – A**



Answer **all** questions. **Each** question carries **4** marks

1. Explain the terms (a) Apogee (b) Perigee.
2. Define the Kepler's laws for Planetary motion.
3. Calculate the gain of a 3 m parabolic reflector antenna at a frequency of 6 GHz.
4. Distinguish between pre-assignment and demand assignment.
5. Explain the concept of frequency reuse.
6. Explain the principle of cell splitting.
7. Explain the factors influencing small scale fading.
8. Write notes on SDMA.
9. List the advantages and disadvantages of CDMA.
10. What do you mean by near-far-effect ? **(4×10=40 Marks)**

**PART – B**

Answer **any 2** questions from **each** Module. **Each** question carries **10** marks.

**Module – I**

11. Explain the various satellite subsystem parameters.
12. Derive the combined link equation of a satellite communication system.
13. An earth station at latitude 15°S, longitude 12°E is receiving from a geostationary satellite at longitude 25°W. Determine the range and the look angles.

**Module – II**

14. Explain in detail the hand off mechanism. Also comment on practical hand off considerations.
15. Explain impulse response model of a mobile multipath channel. Discuss different parameters of multipath channel.
16. A cellular service provider decides to use a digital TDMA scheme which can tolerate a signal to interference ratio of 15 dB in the worst case. Find the optimal value of cluster size, N for (a) Omnidirectional antennas, (b) 120° sectoring and (c) 60° sectoring. Assume path loss exponent, n of 4.

**Module – III**

17. With suitable block diagram and equations explain the principle of Direct Sequence Spread Spectrum Modulation.
  18. Describe the principle of Multi User Detection with examples.
  19. Describe parallel decomposition of MIMO channel. **(6×10=60 Marks)**
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