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**MEDC - 205****M.E./M.Tech., II Semester**

Examination, December 2014

**Mobile & Satellite Communication***Time : Three Hours**Maximum Marks : 70***Note:** i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Discuss the concept of hand off and also explain different types of hand offs.
- b) Consider a cellular system in which the total available voice channels to handle the traffic are 1,200. The area of each cell is  $9\text{km}^2$  and the total coverage area of the system is  $3,600\text{km}^2$ .
  - i) Calculate the system capacity if the cluster size  $N$  is 4.
  - ii) Calculate the system capacity if the cluster size is 7. Does decreasing the reuse factor  $N$ , increases the system capacity? Explain.
  - iii) How many times should a cluster of size 7 be replicated to cover the entire cellular area.
2. a) What are different channel assignment strategies.
- b) Derive the expression of trunking and grade of service.

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3. a) Give a brief over view of radio channel characterization.
- b) Discuss about the convolution codes used in wireless communication
4. a) Explain the different propagation effects in mobile communication.
- b) Explain  $\pi/4$ -QPSK modulation techniques.
5. a) Explain the principle working of GMSK modulator.
- b) Discuss the working of direct sequence spread spectrum technique.
6. a) Write a brief note on 802.11 protocol.
- b) Discuss about the protocol used for multiple access with collision avoidance.
7. a) Explain briefly about the GEO satellite system.
- b) How is antenna positioning done for GEO satellite system.
8. write short notes on any two of the following
  - a) ETSS-HILARAN
  - b) OFDM
  - c) Mary FSK

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