Total No. of Questions :8] *[Total No. of Printed Pages :2*

MEDC - 205

M.E./M.Tech., II Semester

Examination, July 2015

Mobile And Satellite Communication

Time : Three Hours

Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks.

1. a) Explain the different types of noise to be considered in the design of satellite communication system.
   b) Discuss GEO, MEO and LEO satellite categories. What happens if the satellite is placed above the GEO?

2. a) In context of cellular communication which is better, a low reuse factor or a high reuse factor. Draw a cell pattern with a frequency reuse factor of 3.
   b) What is the difference between a soft handoff and a hard handoff? Discuss "Ping-Pong" Effect occurs during handoff.

3. a) Discuss following terms in context of cellular communication.
      i) Cell Splitting
      ii) Roaming
      iii) Frequency borrowing
      iv) Paging
   b) Discuss the working of CSMA/CA Protocol. How binary exponential backoff is calculated?

4. a) Explain and compare FHSS, DSSS and OFDM spread spectrum techniques. How is OFDM different from FDM?
   b) Discuss the principles of CDMA. Explain the applications of CDMA in satellite communication.

5. a) What is the relationship between a base station and a mobile switching center?
   b) Discuss the PHY frame format of an IEEE 802.11 using the spread spectrum technique which separates by code.

6. a) Explain the functional architecture of a GSM system. How GSM system differ from CDMA system?
   b) Discuss different techniques used for improving coverage and capacity in cellular system.

7. a) Consider the handoff procedure in GSM system that is based on relative signal strength with threshold; that is, a mobile switches from one cell to another if
      i) The signal at the current BS is sufficiently weak (less than a predefined threshold) and
      ii) The other signal is stronger than the two. What are the drawbacks of this scheme, when the threshold is too low or too high?
   b) List out any three small scale fading effect of multi path in radio channel.

8. Write short note on:
   a) Multi path Propagation
   b) Co channel Interference
   c) Coherence Bandwidths
   d) Ground Reflection

******