Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/M.Tech (ECE)/SEM-2/MCE-203/2013

2013
MOBILE COMMUNICATION

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Answer any *five* of the following.

1. Describe with block diagram the key elements of GSM system of mobile telephony. 14
2. What is an IP based mobile system ? Describe the working of GSM Packet Radio Service. 6 + 8
3. Indicate the major difference between the GSM and CDMA systems. What do you mean by hard hand-off and soft hand-off ? 9 + 5
4. Describe a normal TDMA frame structure in GSM cellular system. What are the different types of burst used in GSM frames ? 7 + 7
5. Write short notes on any *two* of the following : 7 + 7
   a) Wireless Application Protocol
   b) Mobile call origination in GSM
   c) Bluetooth.

6. Describe the system architecture and protocol architecture of IEE 802.11 with suitable diagram. Explain congestion control, slow start and fast retransmit mechanism. 8 + 6

7. Explain the following : 7 + 7

   a) Free space propagation model

   b) Ground Reflection.

8. If a signal-to-interference ratio of 15 dB is required for satisfactory forward channel performance of a cellular system, what is the frequency reuse factor and cluster size that should be used for maximum capacity if the path loss exponent is (a) n = 4, (b) n = 3 ? Assume that there are six co-channel cells in the first tier, and all of them are at the same distance from the mobile. Use suitable approximation. Explain concept of cellular frequency reuse. 10 + 4