

Total No. of Questions :12]

SEAT No. :

**P3435**

**[4959]-210**

**[Total No. of Pages :3**

**B.E. (Computer Engineering)**  
**MOBILE COMPUTING**  
**(2008 Course) (Elective - II) (410445)**

*Time : 3 Hours]*

*[Max. Marks :100*

*Instructions to the candidates:*

- 1) *Answer Question No. 1 or 2, 3 or 4, and 5 or 6 from section I and Q.No. 7 or 8, 9 or 10 and 11 or 12 from section II.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*
- 5) *Assume suitable data, if necessary.*

**SECTION-I**

- Q1) a)** Explain the operational and technical requirements of GSM. **[10]**
- b) List the equipments and explain its functions in radio subsystem of GSM system. **[6]**

OR

- Q2) a)** Explain the functions of operational and maintenance center (OMC) subsystem of GSM. Provide GSM System model architecture. **[8]**
- b) With the help of a diagram explain the use of echo canceller on PSTN MSC interface. **[8]**
- Q3) a)** Explain the structure of a TDMA slot with a frame for following bursts**[8]**
- i) Normal Burst
  - ii) Dummy burst
- b) Explain the functions of MSC, HLR and VLR. **[8]**

OR

**P.T.O.**

- Q4) a)** Elucidate the time organization of Traffic channel (full and half rate). **[8]**
- b) Explain the logical control channels in GSM. **[8]**

- Q5) a)** What do you mean by Frequency hopping? Why to use it in GSM? Describe in brief an algorithm for the same. **[8]**

- b) Explain time organization of following control channels

Signaling Channel (Downlink Only): Frequency and Time Synchronizing Channels. **[10]**

OR

- Q6) a)** Explain the functions performed within the IMSI detach procedure. **[8]**
- b) What are the steps in the establishment of PSTN-MS call. Explain the call set-up with suitable signal and response diagram. **[10]**

### **SECTION-II**

- Q7) a)** What are the two basic security issues in GSM, different from the fixed telephone network, justifying the higher protection requirements in GSM. How are these issues addressed in GSM? **[8]**
- b) Explain the equipment identification process in the context of security management in GSM system. **[8]**

OR

- Q8) a)** Narrate conditions under which the system will be forced to ask mobile for its IMSI. Why is it absolutely essential for the operator to have authentication of the visiting subscriber? **[8]**
- b) Explain, with the help of a diagram, the encryption procedure adopted in the GSM system. **[8]**

- Q9) a)** What are the multiplexing issues in frequency and time domains? **[8]**
- b) What are the advantages and disadvantages of TDMA, FDMA, CDMA? **[8]**

OR

- Q10)a)** Explain the functioning of CDMA system. **[8]**
- b) Compare TDMA and FDMA. **[8]**
- Q11)a)** Explain the procedures provided by RR layer during “Connection establishment Phase”. **[8]**
- b) Explain in detail the Mobility Management Common procedure and Mobility Management Specific procedure. **[10]**

OR

- Q12)a)** List the basic functionalities provided by three sublayers of the Application layer. **[8]**
- b) Explain MAP protocols for basic service support. **[10]**

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