

Total No. of Questions : 12]

SEAT No. :

[Total No. of Pages :3

**P1456**

**[4759] - 213**

**B.E. (Computer Engineering)**

**MOBILE COMPUTING**

**( 2008 Course) (Semester - I) (Elective -II) (410445)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) *Answers to the two sections should be written in separate books.*
- 2) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 from Section - I & Q7 or Q8, Q9 or Q10, Q11 or Q12 from Section - II.*
- 3) *Neat diagrams must be drawn whenever necessary.*
- 4) *Assume suitable data, if necessary.*

**SECTION - I**

- Q1)** a) State reasons behind the design of GSM system. [8]
- b) Define the following terms: [10]
- i) Teleservices,
  - ii) Bearer services
  - iii) Supplementary services

OR

- Q2)** a) State main objectives of future PLMTS. [8]
- b) Explain in detail GSM network structure. [10]
- Q3)** a) State reasons for choosing two different multiframe timings for speech and signaling channels. [8]
- b) List the messages (information) transmitted over BCCH, FCCH, and SCH. Justify why hopping cannot be used for these channels. [8]

OR

**P.T.O.**

- Q4)** a) State reasons for using a dummy burst over the air. [8]  
b) Explain frequency hopping in detail. What is slow frequency hopping (SFH) and fast frequency hopping (FFH)? [8]

- Q5)** a) What are various factors for which the location update reject message may be sent from MSC to mobile? Elaborate on each of those reasons. [8]  
b) Explain the concept of “Off-Air Call Setup.” What are the advantages of this scheme? [8]

OR

- Q6)** a) Define functions performed within the following procedures: [8]  
i) Identification  
ii) Encryption and ciphering  
iii) Call clearing  
iv) IMSI attach and detach  
v) Location update  
b) Why is initialization necessary for mobile after the power is turned on? [8]

## **SECTION - II**

- Q7)** a) Explain four different types of security services provided by GSM. [8]  
b) Describe the following terms: [8]  
i) Challenge  
ii) Response  
iii) Anonymity  
iv) Authentication  
v) Encryption  
vi) TMSI  
vii) IMSI  
viii) LAI

OR

**Q8) a)** Why do you think that PLMN needs increased protection against eavesdropping compared to a regular telephone system? State the main objectives of the operator and the subscribers in this area. [8]

b) Why is it absolutely essential for the operator to have authentication of the visiting subscriber? [8]

**Q9) a)** Narrate all reasons of handoff. Define the term “Directed handoff”. [8]

b) Compare spectrum efficiency of CDMA with TDMA. [8]

OR

**Q10)a)** Name the three classes of handover. What are the two modes of handover? [8]

b) Explain both the spread spectrum technologies. [8]

**Q11)a)** What is the difference between acknowledged and unacknowledged modes of operation in LAPD<sub>m</sub> messages? [8]

b) Enumerate the basic functions of MM, CC and RR layers. Illustrate with some examples. [10]

OR

**Q12)a)** What is the main purpose of TMSI reallocation? [8]

b) Show the complete message coding for: call confirmed, call proceeding, location updating request, channel release, immediate assignment, and partial release. [10]

