

University of Pune
B.E. (Computers)
4364-769
Examination - 2013
Mobile Computing
(2008 Pattern)

Total No. of Questions : 12

[Total No. of Printed Pages :3]

[Time : 3 Hours]

[Max. Marks : 100]

Instructions :

- (1) Answer 03 question from each section.*
 - (2) Answers to the two sections should be written in separate answer-books.*
 - (3) Figures to the right indicate full marks.*
 - (4) Neat diagrams must be drawn whenever necessary.*
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SECTION I

- Q1. A) Enlist and explain the Teleservices and supplementary services provided by GSM. [10]
- B) What are the technical requirements of GSM? [6]

OR

- Q2. A) Explain channel layout and frequency bands of operation in GSM system. What are the different categories of mobile telephone units specified for the European GSM system? [8]
- B) Enlist the requirements in radio subsystem of GSM and explain function of those equipments in detail. [8]
- Q3. A) Explain the time and frequency domain layout of a GSM system with the help of a diagram. [8]
- B) Find the frame, multiframe and the superframe rates. [8]

OR

- Q4. A) Elucidate the time organization of traffic channel(full and half rate). [8]
B) Explain the structure of a TDMA slot with a frame for following bursts: [8]
1. Frequency Correction burst
2. Access burst

- Q5. A) Discuss the three handover cases with the help of a diagram. [8]
B) What are the steps in the establishment of MS-PSTN call. Explain the call set-up with suitable signal and response diagram. [10]

OR

- Q6. A) Name three distinct states of the mobile. What functions must mobile perform in these states? [8]
B) Explain the concept of “Off-Air call setup”. What are the advantages of this scheme compared to call establishment without OACSU? Discuss the process of call establishment with OACUS. [10]

Section II

- Q7. A) Describe following terms in the context of Security management in GSM system [8]
1. Challenge
2. Response
3. Anonymity
4. Authentication
B) Describe following terms in the context of Security management in GSM system. [8]
1. Encryption
2. TMSI
3. IMSI
4. LAI

OR

- Q8. A) What are four basic security services provided by GSM? Explain any two of them. [8]
B) For what reasons PIN number is used? What is its main purpose? What is PUK number? List important items stored in SIM. [8]

- Q9. A) Explain the functioning of FDMA system. [8]
B) Derive the multiple access efficiency of FDMA system. [8]

OR

- Q10. A) Explain the functioning of TDMA system. [8]
B) Derive the multiple access efficiency of TDMA system. [8]

- Q11. A) Discuss Physical layer of GSM system and the interfaces with the physical layer. [8]
B) What is the basic difference between LAPD_m and LAPD? What is the difference between acknowledged and unacknowledged modes of operation in LAPD_m messages? What is the reason for using fill bits in LAPD_m messages? [10]

OR

- Q12. A) Explain in detail the Mobility Management Common procedure. [10]
B) Explain U_m, A and A-bis interface. [8]