

[5254] - 169
B.E. (Computer Engineering)
MOBILE COMPUTING
(2008 Pattern) (Elective - II)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates :

- 1) Answer any 3 questions from each section.*
- 2) Answers to the two sections should be written in separate books.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Black figures to the right indicate full marks.*
- 5) Assume Suitable data, if necessary.*

SECTION - I

- Q1) a)** State reasons behind the design of GSM systems. Justify why phased implementation has been adopted for GSM. **[8]**
- b)** Name and explain the following standardised interfaces : **[10]**
- i) air interface
 - ii) between BSS and MSC
 - iii) between MSCS
 - iv) between MSC and PSTN/ISDN

OR

- Q2) a)** Explain the specifications for a GSM system. **[8]**
- b)** Explain the services provided by GSM, classified into three groups. **[10]**
- Q3) a)** With the help of a diagram explain the use of echo canceller on PSTN MSC interface. **[8]**
- b)** Explain the functions of MS, BTS and BSC. **[8]**

OR

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- Q4) a)** Explain the functions of MSC, HLR and VLR. [8]
b) List different logical channels and their associated functions. [8]
- Q5) a)** Name different types of burst signals used in GSM. Justify the utility of including the training sequence in the middle of the normal burst. State reasons for using dummy burst over air. [8]
b) What is frequency hopping? Explain cyclic and Pseudorandom algorithms for frequency hopping in detail. [8]

OR

- Q6) a)** In a speech frame there are 24 frames in one multiframe lasting 120ms carrying data. The number of data bits/frame is 114. What is the data rate for full and half rate channels. [8]
b) Explain the functions performed within the IMSI detach procedure. [8]

SECTION - II

- Q7) a)** Explain with the help of signaling diagram MS location updating procedure. [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

- Q8) a)** What are the two different SIM implementation? Explain characteristics of SIM. List important items stored on SIM. [10]
b) What are the four basic security services provided by GSM? Explain each of it. [8]

- Q9) a)** Derive multiple access efficiency of TDMA. [8]
b) Compare TDMA, CDMA and FDMA. [8]

OR

- Q10) a)** Explain functioning of CDMA. [8]
b) Explain the encryption procedure adopted in GSM system. [8]

- Q11)**a) With the help of schematic representation, explain different formats of LAPDm protocol. [8]
- b) Explain the procedures provided by RR layer during 'Connection Establishment phase'. [8]

OR

- Q12)**a) Explain MAP protocol for basic support. [8]
- b) Briefly explain mobility management specific procedure and connection management procedure. [8]

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