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10TE82

Eighth Semester B.E. Degree Examination, July/August 2021
GSM

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions.***

1 a. With relevant figures, explain GSMPLMN. What are its objectives and services? **(08 Marks)**
b. Explain Radio Interface and Abis Interface in GSM. **(07 Marks)**
c. Bring out the functions of : i) HLR ii) VLR. **(05 Marks)**

2 a. Explain various bursts used in GSM, with the help of diagrams. **(10 Marks)**
b. Explain the Data Encryption method used in GSM. **(05 Marks)**
c. Describe the Mobile Identification process. **(05 Marks)**

3 a. Highlight the features of SFH. List the steps of SFH algorithm with Flow chart. **(12 Marks)**
b. Write a note on Smart Antenna. **(08 Marks)**

4 a. List the Speech Coding methods and explain the attributes of Speech coder. **(12 Marks)**
b. With a neat block diagram, explain time domain waveform coding. **(08 Marks)**

5 a. Explain Message flow diagram for call setup by mobile station. **(10 Marks)**
b. List the bearer and tele services related to the GSMPLMN. **(10 Marks)**

6 a. What are the security algorithms used in GSM? Explain them briefly. **(06 Marks)**
b. Using Call flow, explain the token based challenge. **(08 Marks)**
c. Write a note on SIMCARDS. **(06 Marks)**

7 a. What are the factors considered for design of a wireless systems? **(04 Marks)**
b. Explain the parameters needed in selecting TDMA modulation scheme. **(08 Marks)**
c. Calculate the minimum signal power required for the acceptable quality of voice at the BS receiver of a GSM system. Assume receiver noise figure N_f to be 5db, receiver temperature equal to 290^0K and Boltzman's constant equal to 1.38×10^{-20} Joules/^{0}K. What is the maximum allowable path loss? The effective isotropic radiated power of the MS is 1W(30dbm), transmitter cable loss is 0 db, receiver cable loss amounts to 2.5db and transmitter and receiver antenna gain are 0 dbi and 12 dbi respectively. Assume a fade margin of 10db and required Eb/N_T of 13.5 db. **(08 Marks)**

8 a. What are the five TMN layers in M3010? Explain the pertinent three TMN layers. **(10 Marks)**
b. With a neat block diagram, explain NM architecture and Interfaces. **(10 Marks)**

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