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10EC843

Eighth Semester B.E. Degree Examination, Dec.2019/Jan.2020
GSM

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART - A

1 a. Write a note on : i) NSS (Network & Switching Subsystem) ii) OMSS (Operation & Maintenance Subsystem). **(08 Marks)**

b. Explain GSM interfaces. **(08 Marks)**

c. List objectives of GSM PLMN. **(04 Marks)**

2 a. With three different frequencies, explain SFH in GSM. **(08 Marks)**

b. List and explain channel borrowing techniques to reduce interference in GSM. **(08 Marks)**

c. Calculate required minimum received power for a GSM system having receiver noise bandwidth of 200 kHz, noise figure of 7dB , S/I ratio of 12dB and kT = -174 dBm/Hz. **(04 Marks)**

3 a. Write a note on GSM logical channels. **(08 Marks)**

b. Briefly explain : i) Normal burst ii) Access burst. **(08 Marks)**

c. Explain Mobile Identification process in GSM. **(04 Marks)**

4 a. With A – Law and μ – Law compounded PCM, explain Time Domain Waveform Coding. **(08 Marks)**

b. Write a note on : i) GSM Bearer Services ii) GSM Teleservices. **(08 Marks)**

c. With the help of block diagram , explain Full Rate Vocoder. **(04 Marks)**

PART - B

5 a. Explain Mobile terminated call scenarios. **(08 Marks)**

b. With the help of Architecture and Protocol Stack, explain SMS. **(08 Marks)**

c. Briefly explain user to user signaling data services. **(04 Marks)**

6 a. With the help of high level diagram of a PCS system, explain privacy of communications. **(08 Marks)**

b. Write a note on Storage Capability of SIM Card. **(08 Marks)**

c. Write about Token based challenge. **(04 Marks)**

7 a. Explain Spectral Efficiency of a Wireless System. **(08 Marks)**

b. Design a TDMA frame for a cellular system to support variable bit rates from 8 kbps to 128 kbps. A user can be assigned not more than 2 carriers. Assume GMSK modulation, a coding rate of R_c = one – half, frame efficiency of 75% and the symbol rate of the SACCH – a_1 = 0.1Rs. The cell radius is limited to 5km and maximum processing delay to 90ms. The velocity of light is $C = 3 \times 10^8$ mps. **(08 Marks)**

c. Briefly explain Mobility models. **(04 Marks)**

8 a. Explain Management requirements for Wireless Networks. **(08 Marks)**

b. With Architecture, explain NM interfaces and functionality. **(08 Marks)**

c. Write a note on TMN Nodes. **(04 Marks)**

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