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10TE82

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

GSM

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. With a neat diagram, explain the mapping of GSM onto OSI layers. (08 Marks)
- b. Write short notes on the following GSM subsystems : i) Mobile Station subsystem ii) IMSI iii) BSS. (08 Marks)
- c. Briefly explain the GSM PLMN services. (04 Marks)
- 2 a. Briefly explain the number of interference reducing mechanisms in GSM. (10 Marks)
- b. Briefly explain the Future technique to reduce interference in GSM. (10 Marks)
- 3 a. With a neat diagram, explain the various GSM logical channels. (10 Marks)
- b. Explain various bursts used in GSM with the help of diagrams. (10 Marks)
- 4 a. Mention the various speech coding methods. Explain the attributes of speech codes. (08 Marks)
- b. Explain the different types of waveform codes with diagrams. (08 Marks)
- c. Briefly explain GSM Vocoders. (04 Marks)

PART – B

- 5 a. Briefly explain the messages that flows across between the BS and MS in a layered protocol. (08 Marks)
- b. Explain the GSM call setup by an MS flow-scenario. (12 Marks)
- 6 a. Explain the file structure of SIM card with a neat sketch diagram. (12 Marks)
- b. List the various security algorithms used in GSM. Explain them in brief. (08 Marks)
- 7 a. Briefly explain the spectral efficiency of wireless system with equations. (08 Marks)
- b. Using the following data for a GSM system calculate
 - i) Average busy hour traffic per subscriber
 - ii) Traffic capacity per cell

Subscriber usage per month	=	120min
Days per month	=	24
Busy hours	=	5
Allocated spectrum	=	5MHz
Frequency reuse plan	=	4/12
RF channel width	=	200KHz full rate
Capacity of a BTS	=	32 Erlangs

(06 Marks)
- c. Briefly explain the receiver sensitivity and Link Budget equations. (06 Marks)
- 8 a. What are the five TMN layers in M 3010? Explain the pertinent three TMN layers. (08 Marks)
- b. Briefly explain the NM architecture and interfaces. (08 Marks)
- c. Mention the TMN applications. (04 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

