



Printed Pages : 2

EC – 806

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 3051

Roll No.

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B. Tech.

(SEM. VIII) EXAMINATION, 2006-07

COMMUNICATION SYSTEM PRACTICE

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions. All questions carry equal marks.

1 Attempt any two of the following : 10×2

- (a) Explain the characteristics of parameters of AM receiver.
- (b) Draw the basic circuit diagram of a suppressed carrier balanced modulator using transistors. List the advantages of this modulator.
- (c) Describe the operation of multiplicative mixer using dual-gate MOSFET.

Attempt any two of the following : 10×2

- (a) Explain cabling arrangement for MDF in a Telephone Exchange using suitable diagram.
- (b) What is Voice Frequency Telegraphy? Draw a block diagram of 24 channel FM VFT system.
- (c) Describe the transmission and reception of Picture Tone in a combined land and radio carrier system used in Photo-Telegraphy.

- 3 Attempt any **two** of the following : **10×2**
- (a) Explain the working of a radio terrestrial link.
 - (b) Describe with diagram how a two way communication is made between two earth stations via a satellite repeater.
 - (c) Explain the relation

$$(C/N_0) \text{ dB}_N = \left[10 \log P_T G_T - 20 \log \frac{4\pi R}{\lambda} + 10 \log \frac{GR}{T} \right]$$

$$= 10 \log L_A - 10 \log K$$

- 4 Attempt any **two** of the following : **10×2**
- (a) Draw the GSM system Architecture and explain how GPRS enhances data rate.
 - (b) What is 'frequency – reuse' in Mobile Cellular Communications? Establish relationship between re-use distance and frequency re-use parameter.
 - (c) How you digitally implement an LPC Analyser.

- 5 Attempt any **two** of the following : **10×2**
- (a) Differentiate between Homodyne and Hetrodyne techniques for detecting light signals.
 - (b) Design a Fiber Optical Communication System to connect two computers located in a building 1.5 km apart. The bit rate is 10 mbps, Use RZ code . BER < 10⁻¹⁰, Rise time of LED as (10-20) ns, for LD as (1-2) ns; Pin Diode rise time 1 ns and ADD has 2 ns rise time. Use graded index fiber of 3 ns/km quality. Assume other standard data and thumb-rules of design.
 - (c) Explain with the help of block diagram the working of an optical communication system.
 - (d) Explain the various noise sources in an optical communication system.